



Unveiling Patterns: A Data-Driven Exploration of Overseas Residents' Views on Qingdao's Tourism Development

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Abstract

This study embarks on a data-driven exploration to understand the perceptions of overseas residents regarding the development of tourism in Qingdao, a significant coastal city in China. Despite the pivotal role of tourism in regional economic growth, the views of foreign residents, who can act as cultural ambassadors, have been relatively underexplored in existing literature. This research fills this gap by conducting a comprehensive questionnaire survey among Qingdao's overseas community. The survey aims to gather insights into the economic, socio-cultural, and environmental impacts of tourism as perceived by this unique demographic. The study utilizes advanced computational methods to analyze the collected data, offering a nuanced understanding of how variables such as age, income, and personal connections to tourism influence these perceptions. The findings reveal diverse viewpoints, shaped by various demographic factors, highlighting the complexity of tourism impact assessment from the perspective of foreign residents. This research contributes to the broader discourse on sustainable tourism development, providing valuable inputs for policymakers and stakeholders in Qingdao to tailor tourism strategies that are more inclusive and representative of all residents' views. The results have broader implications for understanding the role of foreign residents in shaping the tourism landscape in global destinations.

Keywords: Tourism impacts, Economic impacts of tourism, Socio-cultural impacts of tourism, Environmental impacts of tourism, Qingdao.

1 | Introduction

Since 1950s onwards, Tourism has been an important drive for many regions' economic development. As a result of being exposed to the numerous, beneficial or harmful, consequences of tourism development, locals of a destination experience significant changes. As a result, it has been determined that including locals in the decision. Making of tourism, and destination development processes is critical.

The rapid global growth of tourism has had unavoidable consequences for host communities' perceptions and attitudes toward the industry's development, and there has been a significant increase in interest in residents and their perceptions of tourism and its development since the 1970s, giving rise to many experts and academics researching the residents' attitudes. In this context, an attitude



Computational Algorithms and Numerical Dimensions.

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can be defined as a tendency to respond in a positive or negative way towards a particular idea, object, person or situation, and it induces a person's reaction towards it.

The economic, sociocultural, and environmental consequences of tourism in general, as well as locals' perceptions of tourism impacts in particular, have long been studied by academics [1], [2]. Nevertheless, the significant volume and scope of research have mostly been directed towards the local residents of a tourist destination [3], and have almost entirely ignored the foreign residents who live in the same location.

Of course, this is understandable as the particular reason for this circumstance can be attributed to the high likelihood of the overseas residents only comprising a small fraction of the population, in any given destination, who may also (for any reason) be only residing there temporarily. However, despite their smaller numbers and temporary status, each foreign resident likely has a considerable number of friends and relatives or even, in the case of them having an active presence on social media platforms, followers and viewers inside and outside of their home country and beyond. Therefore, it is not too farfetched to consider each one of them not only as the representatives of their respective countries and cultures, but also as unofficial cultural ambassadors of the country and the city they're residing in. Any aspect of their daily life or the major and minor events which they experience can potentially be shared with their friends, relatives, or audience and, as a result, have a promoting or demoting effect on the image of their place of residence.

Furthermore, it is likely that these overseas residents, know more about the likes and interests of the other people in their respective countries and what they would find attractive in their current place of residence. Thus, the ideas and suggestions they have might prove to be very valuable for future tourism planning and development of that location in order for it to be able to attract more international tourists.

The researcher has chosen the coastal city of Qingdao, located in Shandong province of People's Republic of China, as the setting for this case study and the particular reasons for this decision are due to Qingdao being a major touristic city in China's eastern coastline with a relatively high number of foreign residents, the observed importance (by the researcher) given to the city's image as an international city and its further internationalization by city officials and authorities, and the fact that the researcher himself is also, at the time of conducting of the research, a resident in the city.

Qingdao is a beautiful seaside city in Shandong Province with about 730 kilometers of shoreline. The city lies 750 kilometers southeast of Beijing and is very well known as a tourism destination and resort, not only in China but also internationally. Qingdao's population is about 9.49 million and its tourism industry is developing rapidly. Preliminary statistics show that the total number of tourists received in the city throughout the year 2019 was 109 million, an increase of 9% since 2018; the total tourism revenue was 195.59 billion Yuan, an increase of 13% since 2018. At the end of the year, there were 110 A-level tourist attractions. Among them, there was one 5A-level tourist attractions, twenty. Six 4A-level tourist attractions, and sixty seven 3A-level tourist attractions. There are 98 star. Rated hotels in the city; out of which there are nine 5.star hotels, twenty four 4.star hotels, and sixty two 3.star hotels. There are 575 travel agencies, among which 60 are operating outbound tourism business, and 515 travel agencies operating inbound and domestic tourism business.

The idea of this research came to the researcher's mind due to his interest in tourism development and his observations, during his residency in Qingdao, on how eager the public and private sectors and institutions in Qingdao are about promoting the city's international image and also how much sincere importance is being given by the government bodies, such as the Tourism and Culture Bureau of Qingdao city and Tourism and Culture Bureau of Shandong, to its further internationalization via hosting numerous events and activities tailored and targeted specifically for foreigners within the city and the province.

The primary goal of this study is to learn more about the perception of the overseas residents in Qingdao regarding the tourism development impacts and obtain their insights and ideas on how to refine and enhance the tourism development in Qingdao in order to further boost its international image and attractiveness as a tourism destination.

The findings of this study are intended to be used by local and regional authorities as well as the private and public sectors to evaluate and assess the current impacts of the tourism development on the overseas residents' daily lives and their perceptions and insights regarding how to further refine and tailor the development of tourism and other businesses in the city in order to attract more tourists, especially international ones.

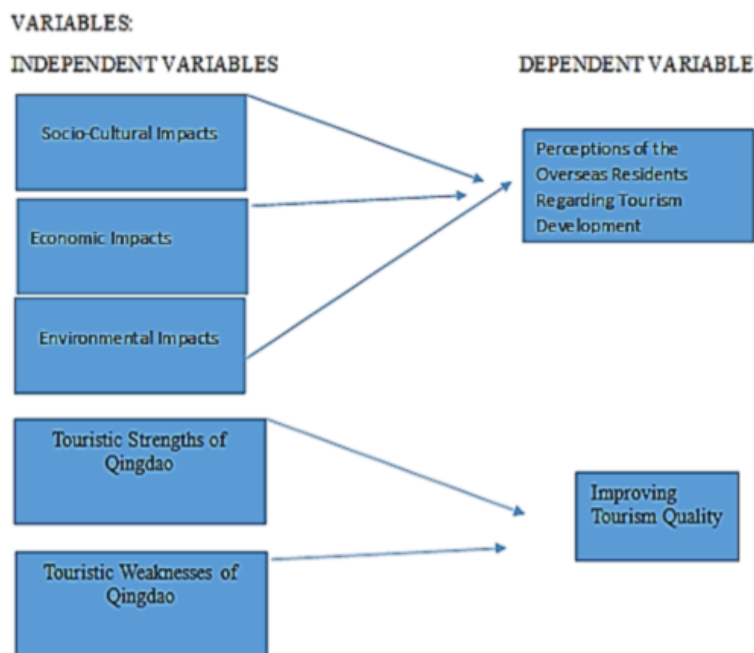


Fig. 1. Conceptual model.

2 | Research Method

Data will be collected through an exploratory method via a questionnaire survey. The questionnaire will be delivered in online or/and hand. Delivered form(s) to the foreigners residing in Qingdao. The questionnaire will contain three main parts, the first part containing questions inquiring about the demographic background of the respondents, including gender, age and nationality, type of residence, length of residency, level of income, and their involvement in tourism and so on. The second part of the questionnaire will contain between 30 to 40 statements referring to the positive and negative impacts of tourism development in Qingdao. A five-point Likert type scale will be used to measure the degree of the respondents' agreement or disagreements with the statements (in which a score of 1 represents "Strongly Disagree" and a score of 5, "Strongly Agree"). A score of "0" will represent "Don't know" for avoiding the "Filter Effect" [4]. The third part of the questionnaire will have between 1 to 2 questions for the respondents to communicate what they find attractive and unattractive about Qingdao as an international tourism destination. The Partial Least Squares (PLS) model, which is completed in two steps, will be the statistical method employed in this study. The validity of study outcomes in diverse sample quantities is the key advantage of this modeling method over other methods. It is very easy to replicate a survey and the questions can be answered by people from all ages in a very short time [5], [6].



Table 1. Research measurable items.

Research Variables	Measurable Item
Economic impact	EC1
	EC2
	EC3
	EC4
	EC5
	EC6
Socio.cultural impact	SC1
	SC2
	SC3
	SC4
	SC5
	SC6
	SC7
	SC8
	SC9
	SC10
	SC11
	SC12
Environmental impact	EN1
	EN2
	EN3
	EN4
	EN5
	EN6

3 | Data Analysis

In the present study, by presenting the relevant tables and graphs, we have made a descriptive study of the observations. In this section, we have shown the questions of the questionnaire, which has an almost general aspect and has been asked of individuals by drawing different tables and graphs, such as gender, age, nationality, level of education and residence permit and type of residence, length of stay, distance from residents' houses to the nearest tourist attraction, the level of engagement with tourists, personal economic reliance on tourism and income level are presented to examine the participants in the study in terms of their demographic status.

The results of Gender show that 54.16% of the participants in the study are male and 45.83% are female. The number 384 in the last line indicates that everyone answered the gender question. The results of Age show that 51.5% of the participants in the study are less than 25 years old and 38.28% are 25.45 years old and 10.15% are 46 and upper years old. The number 384 in the last line indicates that everyone answered the age question. The results of nationality show that 28.64% of the participants in the study are from other nationalities, 24.21% are Korean, 16.6% are Russian, 13.02% are American, 10.15% are Pakistani, 5.73% are from UK, and 1.56% are from Zimbabwe. The number 384 in the last line indicates that everyone answered the nationality question. The results of level of education show that 26.30% of the participants in the study are high school, 37.76% are Graduate, 25.52% are Post Graduate, 5.98% are Ph.D., and 4.42% are other. The number 384 in the last line indicates that everyone answered the Level of education question. Having a residence permit or not show that 100% of the participants in the study have a residence permit. The number 384 in the last line indicates that everyone answered the having a residence permit or not question. The results of type of residency show that 54.42% of the participants in the study are study's visa, 19.79% are work's visa, 14.06% are business's visa, 11.71% are etc. The number 384 in the last line indicates that everyone answered the type of residency question. The results of Length of residency show that 11.45% of the participants in the study are <2 years, 54.94% are 2.5years, 25.78% are 5.10 years, 7.81% are 10.20. The number 384 in the last line indicates that everyone answered length of residency question. The results of distance from resident's home to the nearest tourism attraction show that 58.07% of the participants in the study are <5km, 28.90% are 5km.10km, 9.89% are 10km.20km, 3.12% are >20km. The number 384 in the last line indicates that

everyone answered distance from resident's home to the nearest tourism attraction question. The results of the degree of encountering with tourists show that 39.06% of the participants in the study are frequently, 33.85% are sometimes, 27.08% are rarely. The number 384 in the last line indicates that everyone answered the degree of encountering with tourists question. The results of personal economic reliance on tourism show that 9.89% of the participants in the study are highly relied on tourism, 11.71% are somehow relied on tourism, 78.38% are not relied on tourism. The number 384 in the last line indicates that everyone answered the personal economic reliance on tourism question. The results of Income level show that 43.75% of the participants in the study are <5000.RMB, 52.60% are 5000.10000.RMB, 3.12% are 10000.30000 RMB and 0.5% are >100000 RMB. The number 384 in the last line indicates that everyone answered the Income level question.

Table 2. Descriptive statistics of research variables.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Improving tourism quality	384	2.00	5.00	3.9010	0.92151
Perceptions of the overseas residents	384	2.50	4.21	3.3767	0.47302
Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
EC	384	1.33	3.83	2.7630	0.46783
SC	384	2.83	4.58	3.7971	0.64443
EN	384	2.00	4.17	3.1497	0.42300
Valid N (list wise)	384				

4 | Test the Conceptual Model of Research

The research model is reviewed in three stages. In the first stage, the external model of the research is examined. In the second stage, it is the turn of the internal model to be examined, and in the third stage, the general model of the research is examined.

4.1 | Evaluation of Measurement Model (External Model)

In examining the external model of the research, first the factor load of the dependent variable questions (or indicators) of the research is examined. Then the reliability and then the validity of the internal model are checked.

The degree to which measuring devices produce consistent findings under similar settings is referred to as dependability. This signifies that the questionnaire has full reliability if the researcher performs it again or in parallel and gets the same findings. Factor load coefficients, Cronbach's alpha coefficients, and combined reliability are all used to determine reliability.

4.2 | Factors of Factor Loads

The correlation value of the questions of a variable with that structure is used to determine factor loads. If this number is equal to or more than 0.4, the variation between the variable and its questions is greater than the variance of the structure's measurement error. The measurement model's reliability is satisfactory. The crucial thing here is that if the researcher encounters values less than 0.4 after computing the factor loads between the structures and the questions, he must amend the question or eliminate it from the study model. The factor load indicates the strength of the link between the factor (hidden variable) and the visible variable.

Table 3. Factor load of research variables.

Component	Item	Factor Load
Economic impacts	1	0.689
	2	0.665
	3	0.227
	4	0.644
	5	0.203
	6	0.919
Socio.cultural impacts	1	0.770
	2	0.892
	3	0.762
	4	0.771
	5	0.843
	6	0.827
	7	0.680
	8	0.568
	9	0.528
	10	0.541
	11	0.109
	12	0.584
Environmental impacts	1	0.283
	2	0.847
	3	0.610
	4	0.596
	5	0.354
	6	0.794
Most attractive and unattractive aspects of Qingdao	1	0.513
	2	0.494

A factor load is a number between 0 and 1. The weak association is assessed and ignored if the factor load is less than 0.3. A factor load of 0.3 to 0.6 is acceptable, while a factor load of more than 0.6 is extremely desired [7].

4.3 | Measurement Reliability Evaluation (External Model)

Cronbach's alpha coefficient, Rho Dillon and Goldstein, and the combined reliability criterion are used to evaluate the model's dependability at this stage (CR).

Table 4. Results of validity and reliability analysis and confirmatory factor analysis of research model components in PLS software.

Variables	AVE	Credit Result	CR	Rho	ALFA
Economic impacts	0.456	Suitable	0.796	0.843	0.707
Socio.cultural impacts	0.468	Suitable	0.828	0.828	0.745
Environmental impacts	0.511	Suitable	0.707	0.930	0.898
Most attractive about Qingdao	1.000	Suitable	1.000	1.000	1.000
Most unattractive about Qingdao	1.000	Suitable	1.000	1.000	1.000

The composite reliability for all variables is better than 0.8, and the mean variance for all variables is greater than 0.5, indicating a high degree of convergence validity. All elements of the questionnaire are included in the analysis of the final research model according to the suitability of their validity.

4.4 | Structural Model Evaluation (Internal Model)

Unlike measurement models, the structural model section is not concerned with queries (explicit variables), and only hidden variables and their interactions are investigated [8].

Significance coefficients Z (t.value values)

Several criteria are employed to assess the fit of the study structural model, the first and most fundamental of which is the t.statistic. The significant numbers t is the most fundamental criteria for

assessing the link between variables in the model (structural portion). If the sum of these figures is more than 1.96, the connection between the variables is true, and the hypotheses are confirmed. The research has a 0.95 confidence level. At a confidence level of 0.95, 0.05 acknowledges the link between variables. Naturally, statistics only reveal the validity of the link; the intensity of the relationship between the variables cannot be measured with them. The standardized coefficient can be used to understand the intensity of the relationship and compare it with other relationships (relationships in the model). According to the interpretative model in structural equation modeling, if the t.statistic of a path is larger than 1.96, the corresponding path is significant at the 95% level, hence all of the research's hypotheses are verified in this study.

Examination of the indicators of the final research model also shows the high validity of the model. As a result, according to the model approval, we report the results of path analysis in the form of a research model.

Significance coefficients t (t.values)

To evaluate the fit of the confirmatory factor model of the research, several criteria are used, the first and most basic of which are the coefficients of significance t or t.values. The most basic criterion for measuring the relationship between factors in the model is the significant numbers t. If the value of these numbers exceeds 1.96, it indicates the correctness of the relationship between the factors and thus confirms the hypotheses of the research at a confidence level of 0.95. Of course, it should be noted that numbers only show the correctness of the relationship and the intensity of the relationship between the factors can not be measured by it.

Table 5. Path coefficient values and t.statistic Hypotheses related to research model paths.

Relation		Path Coefficient	t	p.Value	Result
Economic impacts	➔ Perception of foreigners	0.209	13.960	0.000	Confirmation
Socio.cultural impacts	➔ about tourism	0.652	46.719	0.000	Confirmation
Environmental impacts	➔ development	0.260	19.716	0.000	Confirmation
What things do you find most attractive about Qingdao	➔ Most attractive and unattractive aspects of Qingdao	0.513	81.129	0.000	Confirmation
What are the most unattractive aspects of Qingdao?	➔	0.494	122.013	0.000	Confirmation

4.5 | Indicators of Structural Research Model Fit

The quality and fit of the model are measured using numerous ways in the PLS methodology.

Determination coefficient R2 (R Squares)

The coefficients R2 connected to the endogenous (dependent) latent variables of the model are the first criterion for analyzing the structural model. R2 is a criteria that demonstrates the influence of an exogenous variable on an endogenous variable and is used to connect the measurement and structural parts of structural equation modeling. And the criteria values for weak, medium, and strong values are 0.19, 0.33, and 0.67, respectively. The more R2 is connected to a model's endogenous structures, the better the model fits. In a model, Henseler et al. [9] argue that if one or two foreign structures impact an endogenous structure. The strength of the association between that structure and endogenous structures is shown by R2 values of 0.33 and higher. R2 grows as there are more independent variables. As a result, the more independent variables used to describe a dependent variable, the higher the R2 value required to fit the model. It's worth noting that the value of R2 is determined only for the model's dependent (endogenous) structures; the value of this criteria is zero for exogenous structures. And it shows how an external variable affects an endogenous variable.

Table 6. Determination coefficient R2.

Variable	R Square	R Square Adjusted
Perception of foreign residents about tourism development	0.977	0.977
Most Attractive and Unattractive Aspects of Qingdao	1.000	1.000

Predictive quality (Q²)

Q² is the second criterion to consider while assessing the structural model. The predictive capability of the model is determined by this criterion. Models with a good structural fit should be able to anticipate the properties of the endogenous structures in the model [10]. Henseler et al. [9] defined three values of 0.02, 0.15, and 0.35 to reflect the structure's or associated exogenous structures' poor, medium, and strong predictive power. It is important to note that this value is only calculated for endogenous structures in the model with reflected indices [8].

Table 7. Predictive quality (Q²).

Variable	SSO	SSE	Q ² (=1.SSE/SSO)
Perception of foreign residents about tourism development	384.000	16.955	0.956
Most attractive and unattractive aspects of Qingdao	384.000	9.449	0.975

4.6 | Review of the General Research Model

To evaluate the overall model, after the GOF criterion is obsolete, the Standardized Root Mean square Residual (SRMR) is used, which is less than 0.1 or 0.08 [9], [11].

Table 8. Root index of standardized squared average squares.

SRMR	Saturated Model	Estimated Model
Perception of foreigners about tourism development	0.163	0.163
Most Attractive and Unattractive Aspects of Qingdao	0.000	0.000

The hypotheses are measured in this model.

Table 9. Hypotheses.

Hypotheses	Standardized Path Coefficient	t.Value	Result
H1	0.209	13.960	Confirmation
H2	0.652	46.719	Confirmation
H3	0.260	19.716	Confirmation
H4	0.517	135.757	Confirmation

The relationship between the studied variables in each of the research hypotheses is tested based on a causal structure with the PLS technique. In the general research model, which is drawn in the following figures, the measurement model (the relationship of each of the visible variables to the hidden variable) and the path model (the relationship of the hidden variables with each other) are calculated. To measure the significance of the relationships, the t-statistic was calculated using the bootstrapping technique.

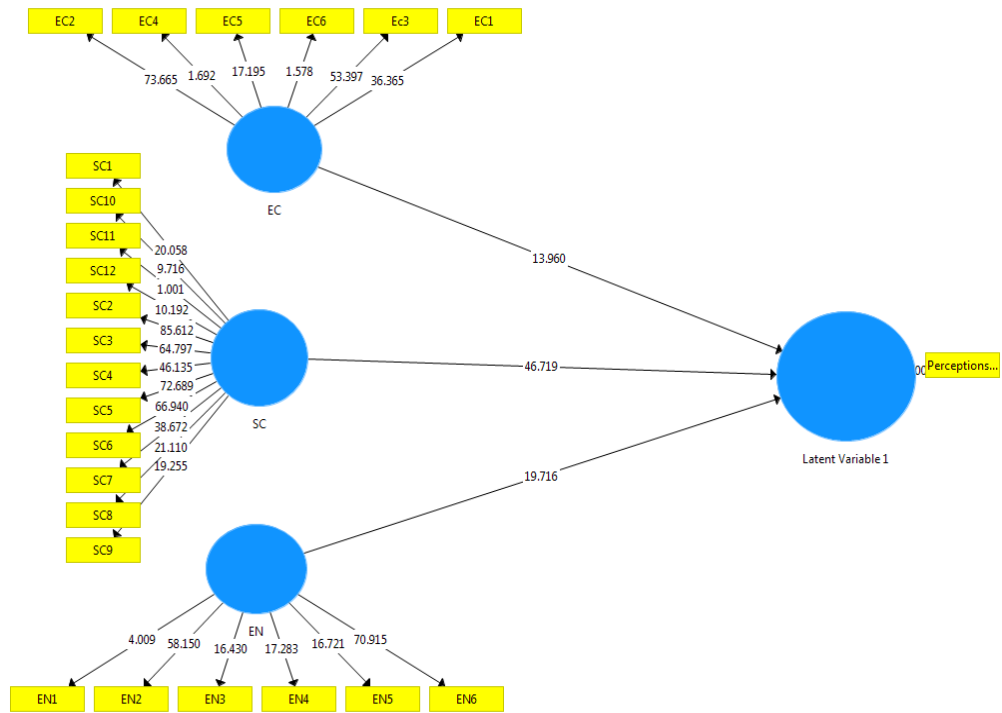


Fig. 2. T values of the paths of relationships between predictor variables.

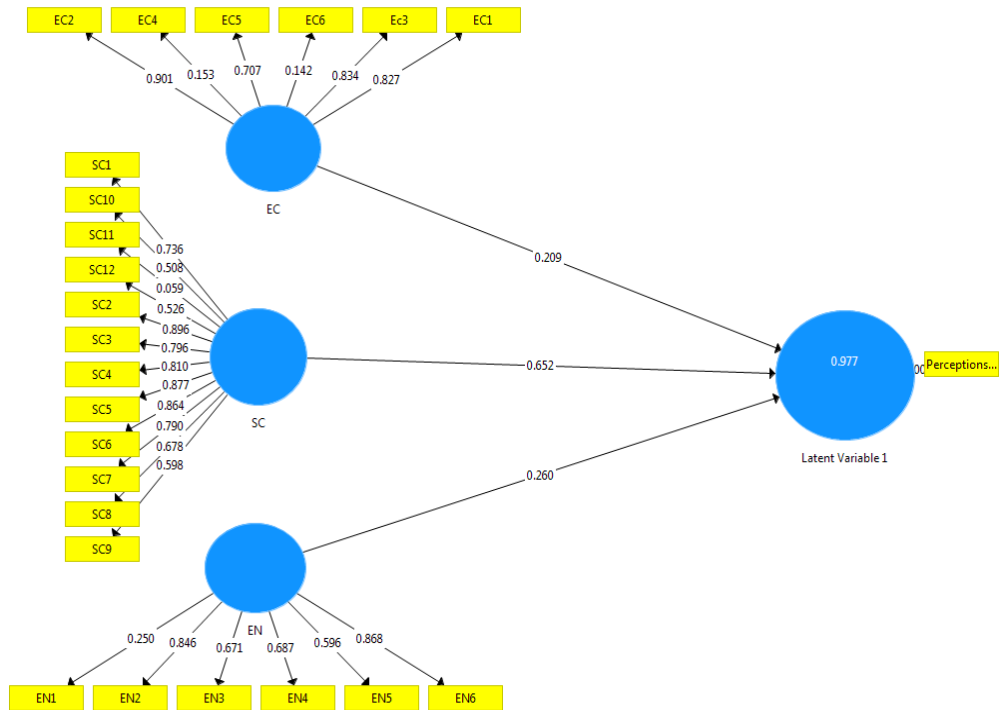


Fig. 3. Values of standard coefficients and prediction coefficients.

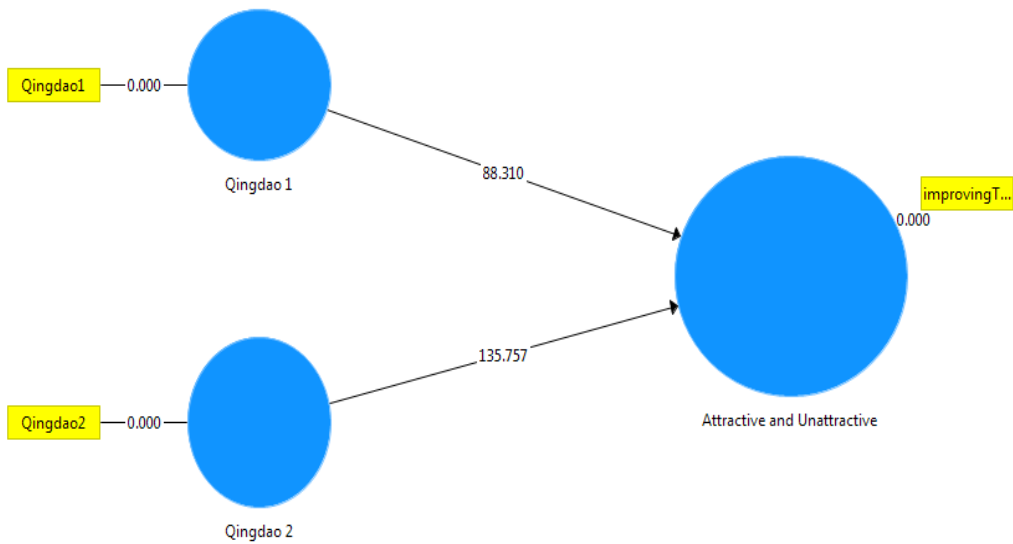


Fig. 4. T values of the paths of relationships between predictor variables.

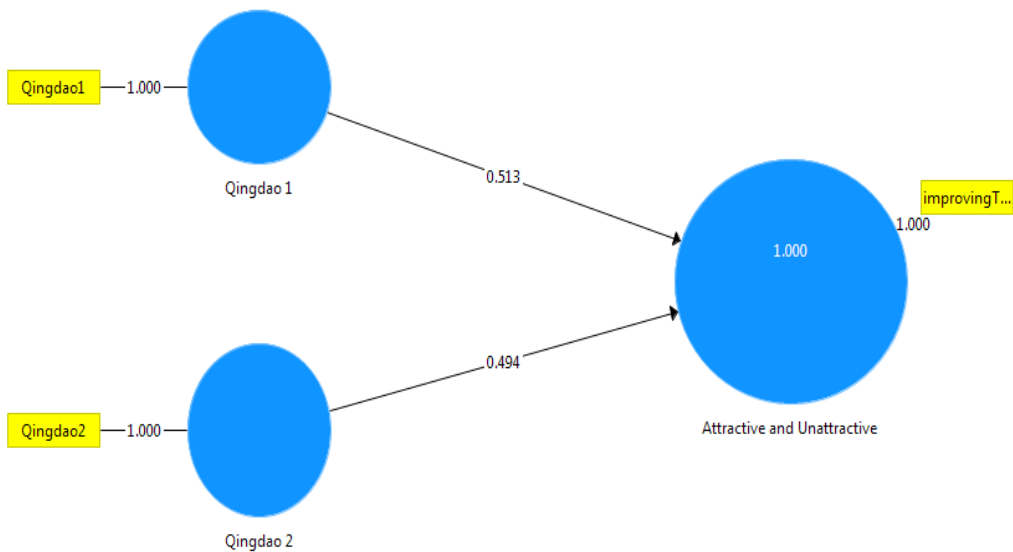


Fig. 5. Values of standard coefficients and prediction coefficients.

5 | Conclusion

Data collected from overseas residents of the historical city of Qingdao was compared in order to examine the mediating role residents' perceptions of tourism impacts plays in shaping the relationships between influencing factors and support for tourism development. In doing so, this study combined SET and WTSFR in order to provide the overarching framework from which to better understand foreign residents' perceptions of tourism development and their support for tourism development. As such, the findings correspond with results from similar previous studies, many of which have been conducted in different cultural settings. The validity and reliability of the projected model of the path relationships among factors influencing resident's perceptions, the mediating role of residents' perceptions of, and support for, tourism development was supported for the majority of hypotheses. These results reinforce the propositions of SET and confirm the positive, significant effect of residents' perceptions on their support for tourism development [12]–[16]. Prior studies argue that residents who perceive more positive tourism impacts will support tourism development, while residents who perceive less positive tourism impacts are less likely to support tourism development [17]–[19]. The results of the current study are therefore consistent with prior research, signifying the positive and significant effect



of RP on SUP in Qingdao. Thus, the results contribute toward a better understanding of the exchange process identified by SET, as recognized across tourism development discourse.

The results of analyzing data showed that a portion of community members have a disinclination to tourism effects. For example, their disturbance related to environmental impacts, as well as some social and cultural effects is significant. The negative effects of tourism on community causes a lower society inclination to participate in tourism development programs, though it's positive affects results in increasing their support and reaching projects' goals. With regard to Qingdao city, it seems that the benefits resulted from tourism has relatively been able to provide required encouragements to participate in tourism development programs. The results related to correlation coefficients indicate that there is a significance relationship between tourism's effects of community and participation degree. In this paper, the effects of economic factor and the effects of social and cultural factor are reckoned as the most important factors effective on community participation in tourism development programs. Knowing how tourism effects on society and supporting community's cooperation have an important impact on reinforcing the strengths and improving the weakness of tourism planning. To obtain this goal, it is necessary to provide an effective communication between planners and community in order to gain support from society. As it was mentioned in the Introduction, the effects of tourism development are different on various societies. Therefore, the obtained results from this study can't be generalized to other societies with certainty. One of the biggest problems for this study was the unavailability of researches which have been performed about the effects of tourism development in China on foreign residents. This results in the lack of a criterion for comparing tourism development effects for a case model. This factor is effective on the participation of the international society in tourism development programs. As a result, although the results of this study indicate the strong correlation between tourism development effects on community and the degree of community participation in tourism development programs, to be certain of this issue and the factors which affect it requires more studies in the future.

The purpose of this study is to investigate the degree of each variable positively or negatively affecting the perceptions foreign residents.

- I. H1: The overall perception of the overseas residents in Qingdao regarding the tourism development in the city is positive.
- II. H2: There is a strong link between the socio.cultural effects of tourist development and how foreign residents perceive tourism development.
- III. H3: There is a strong link between the economic consequences of tourist development and how foreign residents see tourism development.
- IV. H4: There is a significant association between environmental impacts of tourism development and the perception of the overseas residents regarding tourism development.

Using various theories, previous research looked at the impact of influencing variables on citizens' perceptions and support for tourist growth. To our knowledge, however, the mediating impact of residents' views remains under.explored, with few research comparing the direct effects of influencing variables on tourist development support and their indirect implications through people' perceptions of tourism development. As a result, this is the study's main theoretical contribution. The findings demonstrated that when citizens' perceptions are used as a mediator, the direct impacts of influencing variables on support for tourism development are larger than their indirect effects. This theoretical discovery contradicts previously held beliefs by emphasizing the relevance of the direct effects of influencing variables on tourism development support. The investigation was undertaken online in order to cross.validate the data using the recently invented MGA approach, which is another noteworthy addition.

The image of Qingdao as seen by current visitors and residents was gathered through a questionnaire survey that required the rating of predetermined cognitive and affective attributes, as well as content analysis of responses to questions about the various impacts of tourism on the lives of foreign residents of the city. These findings also back up Echtner and Ritchie's [20] claim that the measuring methods used have an impact on the capacity to capture distinct aspects of an image construct. To measure the

destination image, multiple methodologies (both structured and unstructured) should be used. Rating scales may be used to assess cognitive and emotive images to offer a standardized knowledge of Qingdao's image in terms of the city's strengths and flaws, while free answers can be used to highlight the aspects that respondents find particularly important.

5.1 | Methodological Considerations Regarding Image Assessment

Tourism growth is usually regarded as being warmly received by foreign residents of Qingdao. This favourable perception may alter over time as tourism develops, since a larger number of visitors may cause greater challenges. Because most respondents could not directly relate their difficulties in Qingdao to tourism, some common concerns in metropolitan areas, such as traffic congestion and rising prices, emerged, however they were not seen as solely the result of tourism. Foreign residents have not felt any incursion into local culture as a result of tourism development. This may be due to the fact that Qingdao is such an international city with a diverse range of cultures and nationalities. As a result, more research may be needed to determine if reactions to the characteristics addressed in this study remain constant or alter over time in response to increased tourism activities.

While the measuring methods used were adequate for the research, certain difficulties arose during the research procedure. As a result, a discussion of the problems and lessons learned follows. The dependability of coding in the qualitative content analysis of promotional materials and replies to questions is one of the research's challenges. Because of the nature of content analysis, researcher bias might possibly impact the selection of themes. According to Krendel [21], this prejudice is caused by the researchers' own views and attitudes and cannot be prevented. To minimize researcher bias, every effort was taken to achieve the maximum level of dependability feasible (i.e., review of the image literature and discussions with peer researchers). A comparison of projected and perceived images connected with Qingdao is another problem. The information acquired from the analysis is in distinct formats since these two sorts of pictures are analyzed utilizing separate types of information sources (promotional materials and surveys). This makes comparing projected and perceived images much more challenging. In this light, the current study contributes to new thinking on this methodological issue by examining the projected and perceived image relationship utilizing both qualitative assessment and correlation analysis. Despite this contribution, the concurrent design utilized in this study altered the questionnaire attribute selection. That is, some of the properties chosen did not correspond to those used to represent projected images. As a result, there was a gap in the perception comparison when it came to some items. Future study might use a sequential research strategy to guarantee that the properties acquired from projected pictures are evaluated as perceived image attributes. Because this study focuses on Qingdao, China, the findings can only be applied to the sample population. The findings, on the other hand, may be beneficial to people who conduct studies in different settings and as sources for image comparison with other places. Other researchers may be able to utilize the methodology and survey instruments as a starting point.

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