SYNERGY
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ISSN 2810-9295
03
9 772810 929246

Journal of Sustainable Business and Economics Research

Volume 7·Issue 3·July 2024 ISSN 2810-9295(Online)

Volume 7 · Issue 3 · July 2024
ISSN 2810-9295(Online)

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# Journal of Sustainable Business and Economics

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Volume 7 Issue 3 • July 2024 • ISSN 2810-9295 (Online)

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Volume 7 | Issue 3 | July 2024 | Page1-38

**Journal of Sustainable Business and Economics**

# Contents

1 **Evaluate the Value of Houses around the Garbage Transfer Station Based on CVM**
Zihan Yang

15 **Research on Traditional Handicrafts and Strategy of Building Brand Tourism——Taking Chinese Miao Silver Jewellery Crafts as an Example**
Jiangwei Lu Husaini Bin Yaacob

20 **Relationship between Leadership Styles and Job Performance Moderated by Educational Training among Employees in Public and Private Educational Sectors in Shanghai, China**
Xiaoli Wen Suhaidah Tahir

33 **Social Sustainability in Cultural Heritage Tourism: The Case of Lijiang Old Town and Venice**
Yunzhan Cui

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ARTICLE

# Evaluate the Value of Houses around the Garbage Transfer Station Based on CVM

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## ABSTRACT

In recent years, with the rapid development of China's economy, a large number of people have flocked to the cities, which also brings more residential waste. The increased waste overloads transfer stations located near residential areas, and the continuous noise and odour affect the daily lives of nearby residents. In addition, the neighbourhood avoidance facilities represented by the waste transfer stations also reduce the value of the surrounding residents' houses. Therefore, using the conditional value method and the Tobit and Double Hurder econometric models, this article investigates the implicit value of the Fuli Resort neighbourhood under the influence of the waste transfer station through a questionnaire survey on the willingness of the residents to accept the compensation, which can be regarded as the "aversion value" of the neighbourhood due to the aversion to the waste transfer station and analyses the impact of the aversion value of the neighbourhood. aversion value" and analyses the impact on residents' willingness to accept compensation. The study found that the residents' willingness to accept compensation near the waste transfer station is 511.94 RMB/person/month, and the implicit value of the Fuli Resort neighbourhood under the influence of the waste transfer station in Qinhuai District, Nanjing, Jiangsu Province, China, is 147,950 RMB. The study found that residents are most interested in having the government rectify the waste transfer station and set sanitary standards and work norms.

***Keywords:*** Refuse transfer station; House price; Invisible price; Conditional value method; Willingness to be compensated

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ARTICLE INFO
Received: 25 June 2024 | Revised: 1 July 2024 | Accepted: 23 July 2024 | Published Online: 30 July 2024
DOI: http://doi.org/10.26549/jsbe.v7i3.20129

CITATION
Y, Z.H., 2024. Evaluate the Value of Houses around the Garbage Transfer Station Based on CVM. Journal of Sustainable Business and Economics. 7(3): 1–14. DOI: http://doi.org/10.26549/jsbe.v7i3.20129

# 1. Introduction

"The refuse transfer station works from 5am and the noise prevents us from sleeping..." "The rubbish trucks come in and out, making the narrow road very congested..." "When summer comes, the unpleasant odour starts to spread, and everyone living in the neighbourhood can't open their windows for ventilation..." Such complaints can always be heard in the mouths of the residents near the refuse transfer station.

Refuse transfer stations are always unwelcome in cities because of the environmental impacts it brings, such as bad odour, bacteria, mosquitoes and environmental pollution. However, for cities of a certain size (e.g., the study case Nanjing, China), where the gathering of a large number of people generates a huge amount of domestic waste, a waste transfer station in the city can divert the pressure of transporting the waste to suburban landfills. Therefore, despite all the negative externalities of waste transfer stations, their establishment is still necessary. Under the combined effect of urbanisation and industrialisation, the regional economy is growing rapidly. However, along with the rapid growth of economic production, the imbalance between ecological protection and regional economic development has led to a series of problems. Among them, the treatment of municipal solid waste has become a major problem. In China, the amount of MSW has been increasing year by year from 133.92 million tonnes in 2008 [1] to 226.84 million tonnes in 2018 [2].

In the case study location of Nanjing, China, where an average of 66,533 people share one waste transfer station, and the local government has stipulated that one waste transfer station should be constructed for every 30,000-50,000 people, the reality is that the number of people using waste transfer stations far exceeds the stipulated maximum. This means that many waste transfer stations are working beyond their capacity. The overloaded work has caused the waste transfer stations to bring more life problems to the nearby residents, such as the noise lasts for a long time, and the rubbish can't be cleaned up in time and leaves a smell. According to statistics, the amount of rubbish in Nanjing is around 6,000 tonnes per day, however, the residents' living rubbish is still rising, which means that the pressure on the waste transfer station will not be reduced in the future, but will become heavier and heavier.

In order to avoid affecting people's normal working life and cause pollution of the urban environment, landfills and incineration plants are generally built far from the city, and the face of the growing and the base of such a large number of residents living in the rubbish if they are transported by different rubbish trucks to the landfill and incineration plant for the traffic will bring enormous pressure, many round trips to the transport will also result in a waste of fuel. Refuse transfer stations (RTSs) play an important role between waste collection and waste disposal in the community [3]. Establishing a certain number of waste transfer stations in a certain area makes it easier to manage the waste separately, which reduces the amount of waste to be disposed of at one time and makes it easier to manage. The presence of waste transfer stations reduces mosquito and fly infestation during long transport times, and small rubbish trucks transporting waste to the stations can reduce energy consumption, which protects the environment and reduces secondary pollution.

The establishment of waste transfer stations is one of the effective ways to solve the problem of large amounts of waste accumulation, but the selection of sites for waste transfer stations is still a difficult problem. The location of a refuse transfer station involves issues such as geographic location, the amount of waste produced, and traffic. In order to complete the transport of residential waste in a certain area within a short period of time, waste transfer stations are often built in residential areas [4]. Although there are relevant regulations that stipulate that nuisance behaviours should be avoided as much as possible during the process of waste collection and transportation, the presence of waste transfer stations still brings negative impacts to the surrounding residents. The most obvious perceptible impacts

are noise, odour and environmental pollution. It also means that waste transfer stations can have a negative impact on the value of adjacent land and above-ground buildings [5] Therefore, when planning and constructing a waste transfer station, residents tend to oppose the construction of a waste transfer station in order to protect the living environment and property values [6]. This resistance is often referred to as "neighbourhood avoidance syndrome" which is also interpreted as "not in my backyard". Neighbourhood avoidance syndrome increases the cost of urban planning and deepens the conflict between residents and local governments [7].

Apart from refuse transfer stations, public facilities such as wind power stations, landfills and even high-speed railway stations and highways are all known as neighbourhood facilities. According to studies by scholars, public facilities such as wind power stations, landfills, high-speed railways and highways, which involve air, water, soil, noise and visual scenery, affect the daily lives and property values of the neighbouring residents to a greater or lesser extent due to the threat of

pollution they may bring. This is also evidence that the presence of waste transfer stations does damage the property values of neighbouring residents.

Therefore, in order to minimise conflicts, the siting of neighbourhood facilities such as waste transfer stations needs to be more careful and social standards need to be set to regulate the working hours and workload of the facilities [8], in addition to financial compensation for residents affected by neighbourhood facilities is necessary, in addition to which some financial compensation for the surrounding residents affected by the neighbouring facilities is necessary.

This paper examines the impact of other public facilities with a neighbourhood effect, such as refuse transfer stations, on the surrounding property prices, as summarised by different scholars from 1990 to 2002. It is found that most scholars choose to use the characteristic price method to assess the real estate prices affected by the neighbourhood facilities, but the results of the characteristic price method only show the negative externality of the neighbourhood facilities and the inverse relationship between the distance and the range of the neighbourhood facilities and the value of the houses, which do not reflect the specific impact on the lives of the residents and the expression of the residents' willingness to be compensated. Therefore, this paper uses the conditional value method to measure the residents' willingness to be compensated, and calculates the "aversion value" of the residents to the waste transfer station by investigating the residents' willingness to be compensated for the impact of the waste transfer station. This "aversion value" will also be used as the discount value of the houses in the neighbourhood.

### 1.1 Objectives and Research Questions

Objective: What are the monetary compensation values that resident's are willing to accept as compensation for an urban refuse transfer station within their neighbourhood?

## 2. Literature Review

Firstly, I will study the public's attitude towards neighbourhood facilities from the definition of neighbourhood facilities, which will lead to the conclusion that waste transfer stations are a kind of neighbourhood facilities that have shown strong externalities in recent years with the construction of towns and cities. Then the negative externalities of waste transfer stations are reviewed, and the topic is directed to the fact that the negative externalities of waste transfer stations affect the daily life of the surrounding residents as well as the value of their properties. Finally, the conditional value approach is used to investigate residents' attitudes toward the waste transfer station and how much monetary compensation they would accept to accommodate the continued existence of the waste transfer station.

## 2.1 NIMBY facilities

The Oxford English Dictionary defines a NIMBY as an attitude of opposition in which people object to having something in their community that would harm their interests, even though it would benefit the community as a whole, while implying that they would not raise an objection if the situation occurred elsewhere [9]. Diekmann called people's opposition to NIMBY facilities the "volunteer dilemma" [10], that is, the majority of people can benefit from the collective good, but the interests of a small number of people will be harmed. Some scholars believe that NIMBY facilities refer to the facilities that are beneficial to most people but harmful to some people within a certain range (such as a community). Burningham argues that the concept of NIMBY is derogatory and devalues the actions of affected residents. Smith & Desvousges surveyed the residents of Boston and found that only a small proportion of people were willing to live near NIMBY facilities [11]. The data showed that 23%, 33% and 48% were willing to live near nuclear power plants, hazardous landfill sites or coal-fired power plants, respectively. Research has found that the amount of information the public knows will affect their cognition of NIMBY facilities. Better-informed residents are less likely to protest the construction of waste disposal facilities and more likely to participate in sustainable waste management [12]. The research on NIMBY is far more than that. Different scholars have conducted empirical case studies on hydropower stations [13], wind farms [14]and waste transfer stations.

## 2.2 Refuse transfer stations

Refuse transfer stations are a part of urban waste collection. Waste transfer stations are often located within cities, in areas where residents congregate. The purpose of a transfer station is to be a transport hub [15] that is responsible for collecting waste collected by scattered rubbish trucks in the city and sorting, compressing, and packing it before loading it into large rubbish trucks to be sent to waste treatment plants such as landfills and waste incineration plants that are far away from the city for final recycling, composting, incineration, or landfilling. The establishment of waste transfer stations can reduce the number of times waste trucks send waste to recycling stations, thus reducing fuel consumption, and at the same time reduce traffic congestion, air pollution and virus breeding during the waste transport process to make the whole process more environmentally friendly [16]. Therefore, waste transfer stations in cities are an important part of the MSW management system. However, in consideration of environmental and economic issues, waste transfer stations are usually located near residential areas, and the odour generated by long-time waste stacking and the noise generated by the work of rubbish trucks have become a nuisance to nearby residents.

**Table 1.** Value Composition of Houses in the Vicinity of the Refuse Transfer Station.

| project | value composition | embody | value embodiment |
|---|---|---|---|
| The total value of the houses near the garbage transfer station | Aversion value' | The aversion value caused by the aversion of nearby residents to the garbage transfer station due to the disturbance of smell, noise, bacteria and mosquitoes. | Negative externality implicit value |
| | commodity value | The value of a house as a commodity that can be sold with useful value. | Commercial economic value |

## 2.3 Externalities associated with waste transfer stations

Externalities often refer to the social and economic activities of one group of people that affect another group of people, where the market fails to take into account the extra costs or benefits generated by their impacts.Preez argued that all activities related to waste disposal have externality impacts, with the problems of traffic and odour emerging as the top issues raised by residents .

Although the advent of waste transfer stations has alleviated the pressure of sending waste to landfills, the constant influx of sporadic rubbish trucks into waste transfer stations located in residential and commercial areas can add to traffic congestion for surrounding residents.

There is a large body of literature documenting the externality impacts of waste transfer stations. These impacts include air quality, soil, water, litter spreading, and mosquito breeding. As a result, all other things being equal, houses close to waste transfer stations are less expensive than houses in other areas, and numerous scholars have calculated that for every square metre of house price closer to a waste transfer station there is a corresponding reduction in house price [17].

## 2.4 House prices under the influence of refuse transfer stations/landfills

Since waste transfer stations and landfills have similar negative externalities and there are fewer international studies on waste transfer stations, some scholars' literature on the assessment of house prices near landfills is referenced here.

Due to the special location of the waste transfer station (located near residential areas), it will have a strong externality impact on the surrounding residents, which has attracted more and more scholars' attention. The earliest studies started in Fort Wayne, Indiana, where Havlicek found that house prices were strongly correlated with the distance to the landfill, and that house prices increased by $0.61 for every foot away from the landfill. This finding has also been confirmed by arguments in subsequent years [18]

However, not all studies illustrate a significant correlation between distance to the landfill and house prices.When Gamble conducted hedonic value regressions of prices and distance to houses near landfills in Pennsylvania by year, the coefficients on distance showed no statistical significance at the 5% water rating and the coefficients on distance to the landfill were negative, which implies that the closer the landfill, the higher the house price. landfill the higher the house price. However, such a study was soon found to be problematic, as Reichert found that if the study area was narrowed and more evenly distributed, house prices closer to the landfill would be steadily lower than those further away from the landfill.

In addition to the study on the distance from landfills to houses and house prices, Lim and missios estimated the effect of landfill size and area of influence on house prices, and suggested that the size of landfills is also one of the factors affecting house prices.Ready confirmed the negative correlation between landfills and neighbourhood house prices by using empirical data on house prices at and around three North American landfills [19]. Ready confirms the negative correlation between landfills and nearby house prices through empirical data from three landfills in North America and the surrounding house prices, and calculates that large-capacity landfills bring an average 13.7% discount to the surrounding house prices, whereas small-scale landfills bring an average 2.7% discount to the surrounding house prices.

Research in the last decade has focused on changes in house prices within a certain radius of the landfill [20].Mei demonstrated the percentage impact of waste transfer stations on surrounding house prices. Almost all measurements of distance and house prices use the hedonic value approach to build regression models, the difference is only in the choice of regression model. Hedonic value assumes that houses are made up of a variety of features for human use, and distance to the landfill is included in the regression equation as a feature that affects price and thus the calculation.

In previous studies, numerous scholars have focused on the effect of the distance between the house and the landfill on house prices, but with the increase in rubbish, waste transfer stations have begun to be built in cities, and waste transfer stations exhibit similar externalities to landfills.Eshet used the characteristic price method to calculate the negative effect of waste transfer stations on house prices in Israel, and stated that that waste transfer stations

have a more tangible impact on the neighbourhood.

### 2.5 Conditional Value Method

Conditional value method is also called willingness survey method, this method needs to obtain information through interviews and assess the value of non-market resources by describing the preferences of respondents. By constructing a suitable hypothetical market, randomly selecting an associated group as a sample unit, and setting up associated hypothetical questions by means of a questionnaire, people are surveyed and asked about their preferences for the value of a certain public good or service, such as a resource and environment, by obtaining the respondent's willingness to pay for the improvement of the quality of the resource and environment or its protection (WTP) or the willingness to be compensated for the deterioration of the resource and environment (WTA) and covering the sample to the overall study, the average willingness to pay or willingness to be compensated was used to derive the overall economic benefit or loss as a measure of the economic value of the resource environment.

CVM is based on the principle of utility maximisation, through the construction of hypothetical markets to get people's willingness to pay and willingness to be compensated for non-market goods, and then to get the full value of non-market goods, especially the non-use value.CVM is based on the welfare economics of constant consumer utility, and is developed on the basis of the theory of compensatory change and equivalent change of welfare measures proposed by Hicks comes. The conditional value method takes full account of the impact of the environment on the surrounding residents in terms of property, psychology and living environment, and is a valuation method based on environmental costs.

Ciriary-Wantrup first proposed the conditional value method in his study of the externalities of soil erosion, but it did not receive much attention from academics, and then Davis drew on the conditional value method in his study of the recreational value of seaside forests. The U.S. Department of the Interior in 1986 identified the conditional value method as the basic method for calculating the "Comprehensive Environmental Reflections, Compensation and Liability Act" and established it as the basic method for evaluating the value of environmental resources and heritage. Conditional valuation is often used to assess facilities that have no market value, such as parks, wetlands, agricultural land, and historic buildings that have economic value but are difficult to measure in the marketplace. Currently, there are numerous methods used by academics to quantify and assess non-use values, the most common being the conditional value method.

In this paper, the conditional value method can be used to understand the real willingness and psychology of the residents living around the waste transfer station through questionnaires, and to assess the "aversion value" of the waste transfer station to the residents through the investigation of the amount of monetary compensation that the government is willing to accept to continue the work of the waste transfer station in this area. Through the "aversion value", we can calculate the hidden impact of the waste transfer station on the value of nearby houses, and thus assess the impact of the waste transfer station on the value of nearby houses.

## 3. Methodology

Economists believe that a commodity is made up of its explicit and implicit prices, the market price of a commodity is its explicit price, while the implicit price is made up of unseen brands, services and feelings. For houses, the surrounding environment, traffic and greenery are affecting the implicit price of houses. In this paper, we choose a combination of qualitative and quantitative methods to explore the implicit price impact of waste transfer stations on nearby houses. The qualitative study focuses on what kind of negative externality the waste transfer station brings to the nearby residents. The quantitative research is achieved by collecting residents' perceptions of the refuse transfer station and then through the conditional value method.

## 3.1 Data Collection Method

Conditional Value Method (CVM) is a valuation method based on environmental costs, and the damage caused by the waste transfer station to the value of the surrounding residents' homes is in line with the impact of the environment on property. On the other hand, although CVM reveals preferences by establishing a hypothetical market, its appraisal value is built on the subjective preferences of respondents, making the appraisal results obtained by using CVM may be affected due to the bias of its intrinsic factors, which leads to questioning the validity of its appraisal value. However, from the research experience at home and abroad, the possible bias factors are not brought about by CVM itself, and the existence of these biases does not lead to the invalidity of the method. In addition, the CVM is based on the residents' point of view for valuation, which can be used to collect the residents' ideas and feedback them to the government and related management personnel, so as to put forward more reasonable suggestions. Therefore, the conditional value method is suitable for evaluating the house price around the waste transfer station.

The conditional value method uses questionnaires to obtain data. A total of 300 questionnaires were distributed, and all 300 questionnaires are true and valid because the author conducted short interviews with 300 respondents in the form of one-on-one interviews in the in-depth research community and all the respondents cooperated positively.

The questionnaire consisted of three main parts: the first part collected socio-economic information about the respondents, including gender, age, occupation, education level and monthly income level; the second part investigated the respondents' future use of the house, including selling and continuing to live in the house; the third part asked the respondents about their willingness to be compensated for the impacts of the refuse transfer station on their houses, which is expressed as: how much they are willing to accept as monthly compensation continue to live next to the waste transfer station and how much price they are willing to pay to leave the waste transfer station.

## 3.2 Methodology

### *3.2.1 Conditional Value Method*

The open-ended questionnaire method used in the preliminary pre-survey to obtain the amount of residents' willingness to compensate for the impact of the waste transfer station on the price of the house can not only get a reasonable price range with a small number of samples, but also understand what the residents really think and the reasons for refusing to compensate.

The conditional value method requires the following steps: designing a questionnaire, constructing a hypothetical market, obtaining the compensated amount, and calculating the average willingness to pay. And the WTP formula is used to calculate the final price of the study neighbourhood after being affected by the waste transfer station.

(1) Questionnaire design

The data acquisition of CVM comes from the questionnaire survey, and the key to the accuracy and effectiveness of the acquired data lies in the design of the questionnaire. In the preliminary design of the CVM questionnaire, firstly, we should determine the way to guide the willingness to pay, as well as the content and form of related questions; secondly, we should consider the comprehension and acceptance level of the respondents, and the expression of the content of the questionnaire should be simple and concise, so as to facilitate the understanding of the respondents, and the length of the questionnaire should be reasonable and appropriate, in order to prevent the boredom of respondents due to the content of the overloaded psychology.

(2) Constructing a hypothetical market

It is assumed that the government will compensate the residents of the waste transfer station.

(3) Obtaining the maximum payment amount and calculating the average willingness to be compensated

Analyse the questionnaire to obtain the different compensation amounts chosen by different residents, and calculate the average willingness to be

compensated.

### *3.2.2 Reasons for model selection*

This paper uses stata software to select Tobit model and Double Hurder model to analyse the willingness to be compensated of the residents near the waste transfer station.The meaning of Tobit is to filter the critical value in the data, which can be used to filter the residents who are unwilling to accept compensation, i.e., the willingness to be compensated is zero in the data in the present study. Whereas the Probit model and Truncated combined with the Probit model is responsible for addressing why this sample was selected, the Truncated model addresses the fact that the occurrence of Y in the data is influenced by additional variables in addition to X.

### *3.2.3 Model Interpretation*

Tobit model is used to analyse the factors affecting the willingness to be compensated of the residents near the refuse transfer station as a whole, considering the psychological activities of the residents near the refuse transfer station in terms of whether they are willing to accept the compensation and how much amount they are willing to accept the compensation. Since the factors influencing the willingness to pay may not be the same for different residents, the two problems are further analysed separately by using the Double Hurder model, which consists of a probit sub-model and a truncated sub-model, and the two sub-models correspond to two phases, respectively. The first stage is whether the residents near the waste transfer station are willing to accept the compensation (or whether they are willing to pay more to stay away from the waste transfer station), and this stage screens whether the residents are involved in the decision. The second stage is how much residents near the refuse transfer station are willing to accept compensation (or how much they are willing to pay to stay away from the refuse transfer station), which measures the residents' payment decision.

The specific calculation model is shown below:

$$E_i = \alpha \times F_i + \mu_i \quad \mu_i \in N(0,1)$$

$$y_i^* = \beta \times \chi_i + \varepsilon_i \quad \varepsilon_i \in (0, \delta^2)$$

$$y_i = \begin{cases} y_i^*, & y_i^* > 0 \\ 0 & \text{else} \end{cases}$$

$$y_i = \begin{cases} y_i^*, & y_i^* > 0 \text{ and } E_i > 0 \\ 0 & \text{else} \end{cases}$$

$E_i$ is the observed value of the first-stage participation decision, indicating whether the ith interviewed resident near the refuse transfer station would like to be compensated for to continue living near the refuse transfer station; $F_i$ is the factor influencing the participation decision of residents near the refuse transfer station; $\alpha$ is the parameter to be estimated; $\mu_i$ is the random error term. $y_i^*$ is the observed value of the second-stage payment decision, which indicates the price of the compensation that the ith interviewed resident living near the refuse transfer station is willing to accept for continuing to live around the refuse transfer station; $x_i$ is the factor influencing the acceptance of the compensation by the resident living near the refuse transfer station; $\beta$ is the parameter to be estimated; $\varepsilon_i$ is the random error terms. $y_i$ is the value of compensation that residents living near the waste transfer station are actually willing to accept.

In the Tobit model, when it is $y_i^* > 0$, the variable in the model is also the price of compensation that residents are willing to accept ($y_i = y_i^*$) ; and when it is $y_i^* \leq 0$, $y_i^* = 0$, implying that the price of compensation makes sense when the price of compensation is greater than zero. In the Probit sub-model of the Double Hurder model, when residents are willing to accept the compensation $E_i = 1$; when residents are not willing to accept the compensation $E_i = 0$. After screening whether they are willing to accept the compensation or not, the Truncated sub-model can analyse the amount of willingness to accept the compensation. When $E_i > 0$, $y_i = y_i^*$; $E_i < 0$ the situation is not accepted, that is, there is only the question of how much the compensation is if the residents are willing to accept the compensation.

## 3.3 Analytical framework

I will analyse the selected case from the following

perspectives:

Firstly an introduction to the research case is carried out to analyse the case selection criteria.

Secondly, the questionnaire statistics are carried out.

Then the conditional value method is used to sort out the data from the questionnaire to calculate the WTP of the residents, and according to the WTP formula to measure the price of the study area.

Then we use stata software to carry out the regression analysis of Tobit model and Double Hurdle model to study the influence of gender, age, education level, family income, occupation and so on on the willingness to pay.

Finally, the conditional value method was used to calculate the compensation price as the invisible price of the houses affected by the waste transfer station, that is, the discounted price of the houses receiving the impact of the waste transfer station.

# 4. Introduction to the case studies

## 4.1 Case selection criteria

Since a study on house prices needs a specific object, I will select a representative house affected by the waste transfer station as my research object.

In this study, the Fuli Shanzhuang neighbourhood in Qinhuai District, Nanjing, China, which is close to the waste transfer station, is selected to assess the implicit price of the neighbourhood as affected by the waste transfer station.

## 4.2 Possible Bias and Handling Strategy

CVM is an assessment method based on hypothetical markets, and there will be more or less bias in the assessment process. Therefore, relevant measures should be taken in the design of the questionnaire and the implementation of the survey to avoid or reduce the impact of CVM bias on the results. The possible biases in this CVM study and the strategies for dealing with the biases are shown in **Table 2**.

# 5. Results

## 5.1 Contingent value method calculations

According to the results of statistical processing, interviewing 300 people around the waste transfer station, tobit model screening is not willing to accept the compensation of a total of 11 people, the willingness to be compensated is 147,950 yuan, the average value is 511.94 yuan, see it in **table 4**.

**Table 2.** possible deviations and solution strategy.

| Deviation Type | Treatment Strategy |
|---|---|
| Compensated value deviation | Explain to interviewees how much they would be compensated each month for continuing to live near the garbage transfer station or how much they would be willing to pay each month not to live near the garbage transfer station. |
| Sample deviation | The survey samples were randomly selected. The survey dates included working days, the end of weeks and holidays, and the time periods were selected as morning, morning, noon, afternoon and evening respectively. |
| Survey method deviation | Conduct research in the form of one-to-one interview. |

**Table 3.** Table of gender, education, occupation, income of respondents.

| **Table of gender, education, occupation, income of respondents** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **serial number** | **1** | **2** | **3** | **4** | **5** | **6** | **7** |
| sex | male | female | | | | | |
| education | Junior high school and below | Senior High School | three-year college | undergraduate | Postgraduate and above | | |
| occupation | student | Jobless (unemployed, laid off, retired) | profession | Business units (state-owned enterprises, private enterprises) | Institutions (education, science, culture, health) | a private firm (PRC) | Government servants, military personnel |
| year_income | Under 5w | 5-10w | 10-15w | 15-20w | 20w or more | | |

**Table 4.** Statistical table of the results of the survey on the wishes of the population.

| **Statistical table of the results of the survey on the wishes of the population** | | | | |
|---|---|---|---|---|
| | **sex** | **education** | **occupation** | **year_income** |
| | **WTP** | **WTP** | **WTP** | **WTP** |
| 0 | 69350 | | | |
| 1 | 78600 | 29700 | 900 | 49300 |
| 2 | | 40150 | 56250 | 23650 |
| 3 | | 32500 | 8700 | 43300 |
| 4 | | 39000 | 36800 | 27700 |
| 5 | | 6600 | 28400 | 4000 |
| 6 | | | 12100 | |
| 7 | | | 4800 | |

The results of the above willingness to accept compensation were converted into the implicit price of the Fuli Hills neighbourhood as follows:

The total willingness to accept compensation is 147,950 yuan, the number of people surveyed is 300, of which the number of people who do not accept compensation is 11, the plot was built in August 2000, according to the national regulations of the civil residential tenure of 70 years, according to the current year (2023) has been 23 years, the plot has a total of 1,675 families living in the plot, the plot's total land area is 100,000 square metres. The average household willingness to be compensated for the whole district is converted into square metres of 4836.29718 yuan/square metre.

The calculation formula is:

$$\text{Hidden price}=\frac{\text{Summarize the willingness to be compensated}}{\text{(Total number of people investigated} - \text{Number of people not willing to accept compensation)}}\times \text{Remaining life of house} \times 12 \text{ months a year} \times \text{Number of residential units}=\frac{147950}{(300-11)}\times(70-23)\times 12\times 1675=483629718 \text{ 元。}$$

$$\text{Implicit price per unit}=\frac{\text{Hidden price}}{\textit{Total floor area of the house}}=\frac{483629718}{100000}=4836.29718 \text{ 元}/m^2\text{。}$$

In this paper, the non-market value of the house around the waste transfer station (i.e., the hidden value of the house) is investigated using the conditional value method in the Fuli Resort neighbourhood of Qinhuai District, Nanjing as an example. By analysing 300 valid questionnaires, the aversion value of the house was measured using the willingness of the residents near the waste transfer station to accept compensation. The results of the measurement were the willingness of residents near the waste transfer station to accept compensation: 511.94 per person, the total aversion value of the waste transfer station for the nearby residents interviewed was 147,950, and the non-market value of the house per unit of area was 4,836.29718 per $m^2$.

This paper proposes for the first time that residents' willingness to accept government compensation for living in the vicinity of a waste transfer station is used as the hidden value of a house to calculate the discounted value of a house by taking the "aversion value" of a waste transfer station as the implicit value of a house.

## 5.2 Stata regression results

The Tobit model was set to take the limit of 0 on the left hand side, and 11 out of 300 respondents were screened who chose to accept the compensation price of 0 yuan. Eight of them did not accept the compensation because they were not willing to live around the waste transfer station for any amount of compensation. two of them did not accept the compensation because they demanded the government to introduce the operating standards and hygiene standards of the waste transfer station and act according to the standards, and they did not accept the compensation in the form of compensation. Finally only 1 person understands the important role of the waste transfer station in the city and believes that there is always someone who has to live around the waste transfer station and that he/she can sacrifice his/her standard of living to live around the waste transfer station.

**Table 5.** Tobit regression.

| compensation | Coef. | St.Err. | t-value | p-value | [95% Conf | Interval] | Sig |
|---|---|---|---|---|---|---|---|
| gender | 29.434 | 48.164 | 0.61 | .542 | -65.354 | 124.222 | |
| age | -4.252 | 1.916 | -2.22 | .027 | -8.022 | -.482 | ** |
| education | -29.629 | 31.655 | -0.94 | .35 | -91.928 | 32.67 | |
| occupation | -43.9 | 24.303 | -1.81 | .072 | -91.73 | 3.93 | * |
| yearly_income | 84.116 | 36.175 | 2.33 | .021 | 12.922 | 155.31 | ** |
| Constant | 728.877 | 206.093 | 3.54 | 0 | 323.279 | 1134.476 | *** |
| var(e.compensation) | 165289.7 | 13495.847 | .b | .b | 140753.49 | 194103.07 | |

| | | | |
|---|---|---|---|
| Mean dependent var | 493.167 | SD dependent var | 417.584 |
| Pseudo r-squared | 0.003 | Number of obs | 300.000 |
| Chi-square | 15.053 | Prob > chi2 | 0.010 |
| Akaike crit. (AIC) | 4470.000 | Bayesian crit. (BIC) | 4495.926 |

*** $p<.01$, ** $p<.05$, * $p<.1$

Limits: Lower=0 Left-censored = 11

Upper = +inf Right-censored = 0

As can be seen through Table 2, the results based on the Tobit model (which includes both participation and payment decisions) show age and annual income to be significant at the 5 per cent level, and occupation to be significant at the 10 per cent level. The coefficients of age, education and occupation are negative, indicating a significant negative correlation between the willingness to be compensated for age and occupation of the residents near the waste transfer station. The coefficient of annual income is positive, showing a positive relationship with willingness to be compensated. Gender and education show insignificant relationship with willingness to be compensated. In summary, the younger the age and the higher the annual income the higher the amount of money residents want to be compensated.

As can be seen through Table 3, the results based on the Probit model show that age and annual income are significant at the 5 per cent level, and occupation is significant at the 10 per cent level. The coefficients of age, education and occupation are negative, indicating that the willingness to be compensated for age and occupation of the people living near the waste transfer station shows a significant negative correlation. The coefficient of annual income is positive, showing a positive relationship with willingness to be compensated. Gender and education show insignificant relationship with willingness to be compensated. In summary, the younger the age and the higher the annual income, the higher the amount of compensation the residents want to receive.The estimation results of the Probit model and the results of the Tobit model show a high degree of consistency.

As can be seen through Table 7, according to the results of the Truncated model shows that gender, age, education, and occupational yearly income all exhibit a non-significant correlation with the willingness to be compensated conclusion.

In summary, the results of the Tobit model regression and the Probit model regression show a high degree of agreement, while the results of the Truncated model show a large deviation, so the results of the former two prevail. It is concluded that the younger the age and the higher the annual income, the higher the amount of compensation residents wish to receive.

**Table 6.** Probit regression.

| compensation | Coef. | St.Err. | t-value | p-value | [95% Conf | Interval] | Sig |
|---|---|---|---|---|---|---|---|
| gender | 29.434 | 48.652 | 0.60 | .546 | -66.317 | 125.185 | |
| age | -4.252 | 1.93 | -2.20 | .029 | -8.060 | -.444 | ** |
| education | -29.629 | 31.976 | -0.93 | .355 | -92.561 | 32.30 | |
| occupation | -43.9 | 24.550 | -1.79 | .075 | -92.216 | 4.41 | * |
| yearly_income | 84.116 | 36.642 | 2.30 | .022 | 12.198 | 156.03 | ** |
| Constant | 728.877 | 206.185 | 3.50 | 0.001 | 319.155 | 1138.599 | |
| Number of obs | 0.010 | | F(5,294) | 3.03 | | | |
| Prob > chi2 | 0.0111 | | R-squared | 0.0489 | | | |
| Adj R-squared | 0.0328 | | Root MSE | 410.69 | | | |
| *** p<.01, ** p<.05, * p<.1 | | | | | | | |

**Table 7.**Truncated regression.

| compensation | Coef. | St.Err. | z-value | p-value | [95% Conf | Interval] | Sig |
|---|---|---|---|---|---|---|---|
| gender | 0.6150 | 0.2963 | 0.21 | 0.836 | -0.5193 | 0.6422 | |
| age | 0.0127 | 0.010 | 1.19 | 0.235 | -0.0083 | 0.0338 | |
| education | 0.1329 | 0.1865 | 0.71 | 0.476 | -0.4944 | 0.4986 | |
| occupation | -0.2412 | 0.1291 | -1.87 | 0.062 | -0.2133 | 0.1195 | |
| yearly_income | 0.2076 | 0.2148 | 0.97 | 0.334 | -0.2133 | 0.6287 | |
| Constant | 1.1229 | 1.1267 | 1.00 | 0.319 | -1.0855 | 3.3313 | |
| Number of obs | 300.000 | | LR chi2(5) | 6.84 | | | |
| Prob > chi2 | 0.2325 | | Pseudo R2 | 0.2325 | | | |
| *** p<.01, ** p<.05, * p<.1 | | | | | | | |

The research in this paper not only helps to enhance the understanding and affirmation of the hidden price of housing, but also provides a reference for the Nanjing Municipal Government in Jiangsu Province, China, to provide a mechanism for compensating residents whose housing value has been damaged by neighbourhood avoidance facilities. Therefore, the Nanjing Municipal Government in Jiangsu Province, China, should regulate the daily operation of neighbourhood facilities based on the impact of neighbourhood facilities on residents' assets, such as setting up daily work norms for waste transfer stations, limiting working hours, setting up strict hygiene standards, and establishing a relevant monitoring mechanism to safeguard the quality of residents' daily lives and property values.

# 6. Discussion

## 6.1 Discussion of existing literature

I have shown that the Conditional Value Method can achieve the price discount value of a waste transfer station to the surrounding houses by calculating the willingness of the neighbourhood residents to accept the compensation. Using the conditional value method, I have shown that the depreciated value of the houses affected by the waste transfer station can be more clearly demonstrated by the "aversion" of the residents. Comparing the results of this paper with the transaction prices of the same house types in the neighbourhoods near the refuse transfer station and the neighbourhoods not near the refuse transfer station on the second-hand trading website, the price difference is around

5,000 yuan, which is similar to the 4,836.29718 yuan derived from this study, which is in line with the real situation, and the study is valid.

In the past studies, scholars focus on landfills, only Eshet and others focus on the negative externalities of the waste transfer station and its impact radius. This study enriches the relevant literature studies on waste transfer stations, while using the conditional value approach to assess the discounted value of houses affected by waste transfer stations by analysing the willingness of nearby residents to accept compensation. While many scholars use the hedonic value method to assess the house prices around the landfill, the more innovative conditional value method is chosen, which is introduced for the first time into the research of valuing commodities with commodity value, and the concept of hidden value is proposed, which connects well with the non-market value of commodities with commodity value. The study provides a reference for the conditional value method to assess the non-market value of commodities with market value.

# 7. Conclusion

## 7.1 Conclusion

The study found that the residents' willingness to accept compensation near the waste transfer station is 511.94 RMB/person/month, and the implicit value of the Fuli Resort neighbourhood under the influence of the waste transfer station in Qinhuai District, Nanjing, Jiangsu Province, China, is 147,950 RMB. The study found that residents are most interested in having the government rectify the waste transfer station and set sanitary standards and work norms.

## 7.2 Limitations of the Study

The limitation of this study is that the sample size of the quantitative study is small, only 300, and the interviews were only conducted with residents of one neighbourhood in Nanjing, China. In the future, the scope of the study should be expanded by interviewing residents of multiple neighbourhoods affected by the waste transfer station and expanding the sample data to interview at least 1/3 of the residents of the neighbourhood so that the residents' opinions are representative.

In addition to this, the conditional value method only assesses the non-market value, whereas real estate has a market value. It would be more convincing to include some assessment of the market value on the basis of the conditional value method.

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**Journal of Sustainable Business and Economics**
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**ARTICLE**

# Research on Traditional Handicrafts and Strategy of Building Brand Tourism——Taking Chinese Miao Silver Jewellery Crafts as an Example

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## ABSTRACT

With the continuous improvement of material life, the tourism market is hot, this paper on traditional handicrafts and brand tourism as an entry point for in-depth analysis, as we all know, Miao silver jewellery is famous at home and abroad, but the lack of branding has become a pain in the neck for its continued survival and development in the new era of innovation. The construction of the brand has become a necessary way for the Miao silver jewellery to continue to survive and develop in the new era. However, due to the limitations of the resources and conditions of the Miao silver jewellery producers and operators, they cannot form a brand image quickly and effectively in a short period of time by their own strength alone. In addition, the production and operation of Miao silver jewellery is not only the operation of products, but also the operation of culture and tourism, so it is a fast and effective strategy for the construction of the Miao silver jewellery brand by combining the study of the tourism culture and the operation of the production and by combining the different producers.

***Keywords:*** Slver jewellery; Tourism market; Brand building; Miao, China

## 1. Introduction

Traditional handicrafts have unique cultural and value charms, which are mainly manifested in the following ways: firstly, traditional handicrafts are a kind of cultural inheritance. Each region has a different culture, and the handicrafts formed under different cultural backgrounds are also different.

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ARTICLE INFO
Received: 18 June 2024 | Accepted: 23 July 2024 | Revised:28 June 2024 | Published Online: 30 July 2024
DOI: http://doi.org/10.26549/jsbe.v7i3.20471

CITATION
Lu, J.W., Husaini Bin Yaacob, 2024. Research on Traditional Handicrafts and Strategy of Building Brand Tourism——Taking Chinese Miao Silver Jewellery Crafts as an Example. Journal of Sustainable Business and Economics. 7(3): 15–19. DOI: http://doi.org/10.26549/jsbe.v7i3.20471

Miao silver jewellery, which enjoys a high reputation at home and abroad and attracts the world's attention, has a rich cultural heritage and cultural connotation. Secondly, traditional handicrafts have uniqueness, the biggest characteristic of handicrafts lies in the uniqueness, traditional handicrafts have creativity, traditional handicrafts, does not mean that it is completely old-fashioned or inheritance, it is also able to make adjustments or changes according to the characteristics of the times on the basis of inherited culture. Handicraft work is done by different subjects, each of whom has different feelings and understandings when making handicrafts, and such differences in thinking or innovations will be directly presented in their works.

## 2. Brief analysis of the development status of traditional handicrafts and tourism products

### 2.1 Feasibility of traditional handicrafts and tourism product development

Traditional handicrafts, although they have a unique value of existence, have been forgotten by the market in the continuous progress of the times, in the current market, traditional handicrafts to participate in the market competition is the most important way of combining with the development of tourism products, this way of development is wise, tourism as a tertiary industry in the rapid development of the industry and has a sustained vitality, can effectively help traditional handicrafts to develop the market and expand its market share and scope. Tourism, as a fast-developing and sustainable industry in the tertiary industry, can effectively help traditional handicrafts to develop the market and expand their market share. There are many kinds of traditional handicrafts, and different regions have unique handicrafts, but the background of traditional handicrafts determines that these handicrafts are closely related to social life and more simple. It is a perfect combination of aesthetics and practicality that makes people feel the intimate human touch and the concept of making things. Therefore, it is feasible to use traditional handicrafts as as tourism souvenirs, and has the advantages that other products can not be compared. Tourism products, is a subsidiary product of the development of the tourism industry, its main function is to combine the local natural scenery, customs and people to produce crafts with local characteristics, these crafts are mainly used as tourist souvenirs, collections or gifts for friends and relatives, etc., so the choice of handicrafts with local flavour as a tourist souvenir in line with the needs of tourists.

### 2.2 Main types of traditional handicrafts as tourism products

The cultivation of traditional handicrafts in tourism products also needs a slow process, not all handicrafts are suitable for selling as a tourism product. From the current market development trend, handicrafts suitable for developing into tourism products are mainly embodied in two major categories of products, one is the clothing category, and the other is the decorative category. First of all, clothing is an important type of handicrafts to open up the tourism product market, because these handicrafts often have distinctive regional characteristics, Miao silver crafts is the most representative one, in the tourism product market is very popular, either as a souvenir, or as a gift is a very good choice. Secondly, decorative crafts, this type of craft tourism products in the current tourism market occupies a large share.

## 3. Development strategy of traditional handicrafts and tourism products

Tourism souvenirs are the products with the most potential and prospect of art and market development in China. With the development of China's tourism market, consumers' desire for personalised tourism souvenirs is becoming stronger and stronger. Combining the market of traditional handicrafts with the market of tourism products can help traditional handicrafts restore their market vitality and better reflect their commercial value.

3.1 No matter what kind of market development methods and means are adopted, we must be based on the essence of handicrafts, handmade is the fundamental value of handicrafts, so to enhance their market competitiveness and attract more consumers, it is necessary to improve and perfect handicraft skills. The perfection of this production technology requires the producer to strive for excellence, each piece of crafts as a fine product to produce, rather than indiscriminate production at the same time to enhance the aesthetic design of the packaging to enhance the attractiveness of the high level of craftsmanship can better reflect the collection of handicrafts or commemorative value. Therefore, the technology and skills should be improved in the continuous production process, and, with the continuous development of the times, the handicrafts can be improved according to different real needs, to increase its value of use, so as to effectively broaden the market scope of handicrafts.

### 3.2 Create an advantageous brand of handicrafts with local characteristics of the Miao people

Miao silver jewellery is recognised, loved and favoured both at home and abroad, and the reason why customers and consumers want to buy Miao silver jewellery is not because of the material it is made of - silver - but also because of its rich cultural connotation and symbolic significance. At present, although the producers and operators of Miao silver jewellery are able to produce products, they do not have the ability to introduce, elaborate, analyse and interpret the rich cultural connotations of Miao silver jewellery. The innovation of Miao silver jewellery should be an innovation based on retaining its cultural genes, rather than adopting a completely new form of traditional handicrafts by giving up the traditional cultural elements The lack of appeal and competitiveness of traditional handicrafts in the current market is closely related to the lack of brand awareness. The development of traditional handicrafts has been influenced by their production habits and historical traditions, and most of them have been operating in a decentralised manner. This is very obvious in some tourist attractions and cities, and the creation of an advantageous brand of traditional handicraft products can better participate in market competition and establish the image of traditional handicraft products. For the creation of advantageous brands, strengthen the publicity of the products. Emphasis on modern management methods. The production and market development of traditional handicrafts need to adopt modern management concepts, such as the protection of intellectual property rights in the enterprise, applying for patents, the use of this intangible value of the legal form of preservation, to become the core competitiveness of building their own brand.

### 3.3 Pay attention to the development and connection of tourism market

Combining traditional handicrafts with tourism products requires us to pay attention to the development of the tourism market when we pay attention to the development and development of handicrafts. Although there are commonalities between the two, they do not overlap, so in view of the differences and commonalities, we should make reasonable arrangements for the development of tourism market strategies. Firstly, we should pay attention to the role of cultural market. Handicrafts are the embodiment of cultural inheritance, and arts and crafts are the creations of human culture, with the dual attributes of culture and commodities. It is necessary to jump out of the rules and regulations of pure industry, and link the concepts of culture and art with those of design and creation, production management, management and sales, and talent training, so as to open up a new and broader development space with more characteristics. Secondly, attention should be paid to the development of the tourism market, so as to provide a large number of market trading opportunities for handicrafts. Tourism market itself is not a completely isolated market environment, and some other markets have overlap, the development of tourism market, should actively integrate all kinds of resources,

comprehensive development, tourist attractions and arts and crafts joint packaging and tourism products exhibition and evaluation activities, and strive to make the traditional handicrafts, traditional crafts enterprises production process landscape factory become a hot spot for people's tourism and shopping, tourism and interactive attractions, to achieve the traditional crafts and crafts, and to make the traditional crafts and crafts enterprises production process landscape factory become a hot spot for people's tourism and shopping, tourism and interactive attractions. It is also striving to make traditional handicrafts and traditional arts and crafts enterprises' production process landscape factory become hot spots for shopping, interactive tourist attractions, and realise the interaction and win-win situation between arts and crafts and tourism.

## 4. Combination of 'research' and 'production': the way to build the Miao silver jewellery brand.

Miao silver jewellery has a certain degree of representativeness in the industry, only that its power is quite dispersed and cannot give full play to the role of the industry's overall synergy. The formation of the brand and build non-certain strength can not, therefore, how to make the production of Miao silver jewellery, business to form an overall synergy, will become the key to the construction of Miao silver jewellery brand construction and build.

Miao silver jewellery production and operation, both commodity production and operation activities, with the general characteristics of commodity production and operation, but also the operation of the unique traditional culture of the Miao people, more with the characteristics of cultural management, thus requiring the construction and building of Miao silver jewellery brand, not only the need to unite the production and operation, but also must combine the production and operation with academic research. Secondly, the formation of industry business chamber of commerce, give full play to the chamber of commerce on the Miao silver jewellery production and management activities to promote the role. Brand building is inseparable from the effective management of the industry. Disorderly operation, substandard, pestering and selling and other malpractices are not conducive to brand building and branding, these phenomena must be regulated and punished. Although these efforts mainly rely on the industrial and commercial sector, quality supervision departments and other government departments to carry out, but the Chamber of Commerce can also make a difference. The specific approach is: the Chamber of Commerce designed the Miao silver jewellery logo symbol, if the production operators want to use the Chamber of Commerce logo symbol, it must be in accordance with the requirements set by the Chamber of Commerce for the production, the Chamber of Commerce will bear the use of the Chamber of Commerce logo of the Miao silver jewellery reputation. Consumers who recognise the Chamber's logo symbol can buy the jewellery without worrying about the quality of the jewellery. This not only saves consumers' time in purchasing, but also makes them feel assured, at ease, and comfortable with their purchases. Although this strategy focuses on management, it is actually an effective strategy for brand culture construction, because consumer recognition, trust, and even loyalty is the basic landing point of brand culture construction.

## 5. Conclusion

In conclusion, the construction and building of Miao silver jewellery brand must rely on the joint efforts of academic research and production and management. The value of traditional handicrafts lies in keeping the tradition and retaining the nostalgia, but also in the inheritance of craftsmanship, creating the continuation of value, transferring the traditional handicrafts to the cultural and creative industries, and realising the road of creative modernization of traditional handicrafts.

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**ARTICLE**

# Relationship between Leadership Styles and Job Performance Moderated by Educational Training among Employees in Public and Private Educational Sectors in Shanghai, China

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## ABSTRACT

This study investigates the moderating role of educational training on the relationship between leadership styles and job performance in Shanghai's public and private educational sectors, employing a random sampling survey methodology. The findings highlight the significance of educational training as a critical factor that moderates leadership effectiveness, offering valuable insights for policymakers and practitioners aiming to optimize workforce performance and foster evidence-based strategies to enhance leadership practices and educational outcomes.

***Keywords:*** Leadership; Education; Policymakers; Survey; Training

## 1. Introduction

In today's dynamic organizational landscape, effective leadership plays a pivotal role in achieving success and enhancing employee performance (Akkaya & Tabak, 2020). Extensive research has demonstrated that leadership styles such as autocratic, laissez-faire, transformational, and transactional have varying impacts on job performance. However, the effectiveness of these leadership styles may be influenced by other factors, with educational training emerging as a potential moderator in this relationship. This study aims to investigate the moderating role of educational training on the relationship between leadership styles and job performance, addressing a key gap in

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ARTICLE INFO
Received: 5 July 2024 | Revised: 10 July 2024 | Accepted: 23 July 2024 | Published Online: 30 July 2024
DOI: http://doi.org/10.26549/jsbe.v7i3.21002

CITATION
W, X.W., 2024. Relationship between Leadership Styles and Job Performance Moderated by Educational Training among Employees in Public and Private Educational Sectors in Shanghai, China. Journal of Sustainable Business and Economics. 7(3): 20–32. DOI: http://doi.org/10.26549/jsbe.v7i3.21002

leadership research. By examining the interaction between leadership practices and educational interventions, this research seeks to provide new insights into optimizing leadership effectiveness and improving workforce performance. Through this exploration, the study outlines critical concepts, research objectives, and questions, offering a foundation for further analysis and application in organizational settings. The effectiveness of leadership styles in China's dynamic business environment remains debated, highlighting the complexity of leadership in this context. Autocratic leadership, aligning with traditional hierarchical structures, is praised for achieving short-term goals (Lee & Reade, 2018). In contrast, transformational leadership is valued for promoting long-term growth and innovation, reflecting a divergence in leadership effectiveness perspectives (Abu Nasra & Arar, 2020). Empirical evidence on the relationship between leadership styles and job performance in China is sparse, with inconsistent findings that question the applicability of Western leadership theories in this unique cultural context (Abu Nasra & Arar, 2020). This underscores the need for rigorous research to understand how different leadership styles impact job performance in China's diverse organizational settings. Educational training's role in moderating the impact of leadership styles on job performance warrants further exploration. While academic training is known to shape leaders' competencies and behaviors, its influence on the effectiveness of various leadership styles remains unclear (Abu Nasra & Arar, 2020). Investigating this relationship could provide insights into how educational programs can better align with the needs of the Chinese workforce and improve leadership development. The leadership preferences in China's public versus private educational sectors also vary significantly. Public sector employees often prefer autocratic leadership, which aligns with centralized decision-making and bureaucracy, while private sector employees favor transformational leadership, which promotes vision and engagement (Charoensukmongkol & Puyod, 2021). Understanding these sector-specific preferences is crucial for enhancing job performance and tailoring leadership strategies. Moreover, culturally appropriate leadership models are essential in China's diverse context. Western leadership theories may not fully resonate due to differences in values and cultural norms. A culturally sensitive approach that integrates Confucian values and collectivism can enhance leader-follower relationships and organizational effectiveness (Abu Nasra & Arar, 2020). Lastly, leadership styles must be tailored to industry-specific needs. For instance, the technology sector may benefit from transformational leadership to drive innovation, while the manufacturing sector might require autocratic leadership for operational efficiency (Abu Nasra & Arar, 2020).

## 2. Methodology

### 2.1 Research Design

This study utilized a quantitative research methodology to examine how educational training moderates the relationship between leadership styles and job performance in the public and private educational sectors in China (Haya et al., 2021). A cross-sectional design was employed to capture data at a single point in time, facilitating the analysis of correlations and potential moderating effects (Tobi & Kampen, 2018). The research focused on three main components: leadership styles, job performance, and educational training. Leadership styles were assessed using the Multifactor Leadership Questionnaire (MLQ), which measures transformational, transactional, and laissez-faire leadership (Thanh & Quang, 2022). Job performance was evaluated through both self-reports and objective indicators such as performance ratings and productivity metrics. Educational training was measured by participants' formal education levels and additional training or professional development initiatives. A stratified sampling approach was used to ensure the sample accurately represented both public and private educational sectors within China. This method involved dividing the

population into subgroups based on criteria such as type of educational institution and administrative level, followed by random sampling from each subgroup to enhance representativeness and reduce bias (Haya et al., 2021). To ensure the integrity of the findings, measures were taken to maintain participant anonymity and minimize bias. A pilot test was conducted to refine the questionnaire, addressing any issues related to clarity and response options (Crossman et al., 2023). Data collected via the questionnaire were analyzed using correlation and multiple regression techniques. Regression analysis specifically assessed how educational training moderates the impact of different leadership styles on job performance (Kwan, 2020). The study aimed to provide a comprehensive understanding of the moderating role of educational training in the relationship between leadership styles and job performance within China's educational sectors (Haya et al., 2021).

## 2.2 Questionnaires and Surveys

This study employed a quantitative research methodology to examine how educational training moderates the relationship between leadership styles and job performance within China's public and private educational sectors (Sethar et al., 2022). Quantitative methods are pivotal for systematically collecting and analyzing numerical data to identify patterns and relationships (Alam, 2021). This approach facilitates comprehensive insights by leveraging statistical analyses from large sample sizes (Carbery et al., 2021). Data were collected using a structured, validated questionnaire designed to measure leadership styles, job performance, and educational training (Shin, 2021). The questionnaire incorporated established scales to ensure reliability and used Likert-type scales to gather uniform data across participants (Kalkan et al., 2021). This allowed for effective quantitative analysis of the variables under study. To analyze the data, conventional statistical methods were employed, including correlation and multiple regression analyses. Correlation analysis examined the relationships between leadership styles, job performance, and educational training. Regression analysis assessed the moderating effect of educational training on these relationships, accounting for potential confounding factors (Carbery et al., 2021; Kwan, 2020). Questionnaires provided a standardized method of data collection, ensuring consistency and objectivity in measuring participants' perceptions and experiences related to leadership styles and job performance (Kwan, 2020). This method allowed for a systematic evaluation of complex variables and their interactions. In addition to primary data collected via questionnaires, secondary data were utilized to enhance the study's efficiency and contextual understanding. Secondary data offered historical insights into leadership practices and training methods, which complemented the primary data and improved the robustness of the findings (Carbery et al., 2021; Kwan, 2020). The combination of primary data from surveys and secondary data sources resulted in a comprehensive analysis of the moderating role of educational training. This integrated approach provided a detailed understanding of the interplay between leadership styles, educational training, and job performance across the educational sectors in China (Kalkan et al., 2021).

Following the introduction, the questionnaire generally includes demographic questions to collect control variable data. The main body of the questionnaire is then divided into sections corresponding to the different types of variables being measured. The questionnaire is formatted as below:

## 2.3 Validity and Reliability Testing

For this study, Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were used to evaluate the validity of the scales while reliability testing of each scale was assessed using Cronbach's alpha, a measure of internal consistency. A Cronbach's alpha value of 0.70 or higher is generally considered acceptable.

**Table 1.** Questionnaire (Part A: Demographic Profile).

| Demographic Category | Options (tick) |
|---|---|
| **Age Group** | |
| 20-30 | |
| 31-40 | |
| 41-50 | |
| 51-60 | |
| 61 and above | |
| **Gender** | |
| Male | |
| Female | |
| Educational Qualification | |
| High School | |
| Bachelor's | |
| Master's | |
| Doctorate | |
| **Years of Experience** | |
| 0-5 years | |
| 6-10 years | |
| 11-15 years | |
| 16-20 years | |
| Above 20 years | |
| **Sector (Public/Private)** | |
| Public | |
| Private | |
| **Job Role** | |
| Teacher | |
| Principal | |
| Administrator | |
| Counselor | |
| Support Staff | |
| Other | |
| **Preferred Leadership Style** | |
| Autocratic | |
| Democratic | |
| Laissez-Faire | |
| Transformational | |
| Area of Shanghai | |
| Pudong | |
| Huangpu | |
| Xuhui | |
| Jing'an | |
| Hongkou | |

Table 1 continued

| Demographic Category | Options (tick) |
|---|---|
| **Income Level in RMB** | |
| <5000 | |
| 5001-10000 | |
| 10001-15000 | |
| 15001-20000 | |
| >20000 | |
| **Job Role** | |
| Research | |
| Teaching | |
| Research and Teaching | |

**Table 2.** Questionnaire (Part B: Variables).

| **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |

| **Items** | **Likert Scale** | **Reference** | **Likert Scale** |
|---|---|---|---|
| **Independent Variable: Autocratic Leadership** | | | |
| 1. My superiors in the organization demonstrate strict control over decision-making processes. | 1-5 (Strongly Disagree to Strong Agree) | (Wuni & Shen, 2022). (Kelly et al., 2023). | 1 2 3 4 5 |
| 2. Subordinates are rarely involved in the decision-making process under my superiors' leadership. | | | 1 2 3 4 5 |
| 3. My immediate supervisor handles dissent or disagreement among team members assertively. | | | 1 2 3 4 5 |
| 4. I feel comfortable expressing my opinions and ideas to my superiors. | | | 1 2 3 4 5 |
| 5. My autonomy in carrying out organisational tasks and responsibilities is limited. | | | 1 2 3 4 5 |
| **Independent Variable: Transformational Leadership** | | | |
| 1. My immediate supervisor inspires and motivates me to achieve common goals and objectives. | 1-5 (Strongly Disagree to Strong Agree) | (Tims et al., 2022). | 1 2 3 4 5 |
| 2. My supervisor encourages personal and professional growth among team members. | | | 1 2 3 4 5 |
| 3. I feel supported in taking on new challenges and initiatives within my role. | | | 1 2 3 4 5 |
| 4. There is a high level of trust and respect between my immediate supervisor and team members. | | | 1 2 3 4 5 |
| 5. My immediate supervisor fosters a positive and supportive work environment for team members. | | | 1 2 3 4 5 |
| **Independent Variable: Transactional Leadership** | | | |
| 1. The performance expectations communicated by my immediate supervisor are clear. | 1-5 (Strongly Disagree to Strong Agree) | (Moris et al., 2022) | 1 2 3 4 5 |
| 2. Performance-based rewards or recognition are frequently provided to individuals or teams. | | | 1 2 3 4 5 |
| 3. My supervisor effectively handles non-compliance or subpar performance among team members. | | | 1 2 3 4 5 |
| 4. I am motivated to achieve work-related goals based on the rewards and consequences offered by my immediate supervisor. | | | 1 2 3 4 5 |
| 5. I am satisfied with the system of rewards and consequences for organisational performance. | | | 1 2 3 4 5 |

Table 2 continued

| Items | Likert Scale | Reference | Likert Scale |
|---|---|---|---|
| **Independent Variable: Laissez-faire Leadership** | | | |
| 1. My immediate supervisor provides minimal guidance and direction in my day-to-day work. | 1-5 (Strongly Disagree to Strong Agree) | (Kruse et al., 2020). | 1 2 3 4 5 |
| 2. My supervisor is often inaccessible for support and assistance when needed. | | | 1 2 3 4 5 |
| 3. My immediate supervisor struggles to address conflicts or challenges within the team. | | | 1 2 3 4 5 |
| 4. I am dissatisfied with the support and feedback I receive from my superiors. | | | 1 2 3 4 5 |
| 5. The expectations provided by my immediate supervisor regarding my role and responsibilities are unclear. | | | 1 2 3 4 5 |
| **Moderating Variable: Educational Training** | | | |
| 1. I have participated in formal, non-formal, and informal educational training programs or workshops within the last year. | 1-5 (Strongly Disagree to Strong Agree) | (Lischewski et al., 2020). | 1 2 3 4 5 |
| 2. The formal, non-formal, and informal educational training programs provided by my organization are directly relevant to my job responsibilities. | | | 1 2 3 4 5 |
| 3. Participating in formal, non-formal, and informal educational training has noticeably enhanced my leadership skills and capabilities. | | | 1 2 3 4 5 |
| 4. I have observed a positive impact on my job performance as a result of engaging in formal, non-formal, and informal educational training. | | | 1 2 3 4 5 |
| 5. I am satisfied with the availability and accessibility of formal, non-formal, and informal educational training opportunities offered by the organization. | | | 1 2 3 4 5 |
| **Dependent Variable: Educational Job Performance** | | | |
| 1. I consistently achieve high levels of instructional effectiveness, leading to positive learning outcomes for students. | 1-5 (Strongly Disagree to Strong Agree) | (Yu et al., 2021). | 1 2 3 4 5 |
| 2. My students' academic achievements demonstrate notable progress under my guidance and teaching. | | | 1 2 3 4 5 |
| 3. I feel a strong sense of job satisfaction as an educator, which positively impacting my performance. | | | 1 2 3 4 5 |
| 4. I am highly engaged in my work, fostering a positive and dynamic learning environment for students. | | | 1 2 3 4 5 |
| 5. I effectively handle challenging situations in the classroom and adapt my teaching methods to meet the diverse needs of students. | | | 1 2 3 4 5 |

## 2.4 Population Sampling

The population of this study comprises all employees working in the public and private educational sectors in Shanghai, China. The type of sampling used in this study is random sampling. This study aims to create a representative sample that captures the diversity of workforce roles, experiences, and characteristics by randomly selecting a subset of employees from the public and private educational sectors. The Krejcie and Morgan sample size determination method were opt in this study for calculating the required sample size when the population is larger than 1 million. The formula is as follows:

Sample size (n) = N / (1 + N * e^2) (Eq. 1)

Where: n = Sample size N = Population size e = Margin of error (expressed as a decimal)

# 3. Discussion

This study employs a comprehensive data analysis approach combining descriptive and inferential statistical techniques to examine the relationships between leadership styles, job performance, and educational training within Shanghai's educational sectors.

## 3.1 Descriptive Analysis

Descriptive analysis provides an overview of the key variables, summarizing the data through means, standard deviations, frequencies, and percentages. This step is crucial for understanding the distribution and characteristics of participants' perceptions.

### *3.1.1 Demographic*

#### *3.1.1.1 Age group distribution*

The analysis of Shanghai's educational workforce presents a multifaceted demographic landscape, with notable age, gender, educational qualifications, experience, and sectoral distribution patterns. The most prominent age group is 31-40 years, representing 34.08% of the workforce, highlighting mid-career professionals who combine experience with ongoing professional development. The 20-30 years cohort, comprising 23.09%, injects fresh insights and technological skills into the sector. Conversely, older professionals aged 41-60, representing 26.46% and 14.57% respectively, bring institutional knowledge and mentorship, while those over 61 (1.79%) embody continuity and tradition.

**Table 3.** Demographic.

| Demographic Category | Frequency | Percentage |
|---|---|---|
| **Age Group** | | |
| 20-30 | 103 | 23.09% |
| 31-40 | 152 | 34.08% |
| 41-50 | 118 | 26.46% |
| 51-60 | 65 | 14.57% |
| 61 and above | 8 | 1.79% |
| **Gender** | | |
| Male | 255 | 57.08% |
| Female | 191 | 42.75% |
| **Educational Qualification** | | |
| High School | 52 | 11.66% |
| Bachelor's | 197 | 44.15% |
| Master's | 148 | 33.18% |
| Doctorate | 49 | 10.98% |
| **Years of Experience** | | |
| 0-5 years | 98 | 21.97% |
| 6-10 years | 122 | 27.35% |
| 11-15 years | 85 | 19.06% |
| 16-20 years | 88 | 19.73% |
| Above 20 years | 53 | 11.88% |
| **Sector (Public/Private)** | | |
| Public | 298 | 66.82% |
| Private | 148 | 33.18% |

Table 3 continued

| Demographic Category | Frequency | Percentage |
|---|---|---|
| **Job Role** | | |
| Teacher | 203 | 45.52% |
| Principal | 53 | 11.88% |
| Administrator | 81 | 18.14% |
| Counselor | 32 | 7.17% |
| Support Staff | 63 | 14.12% |
| Other | 19 | 4.26% |
| **Preferred Leadership Style** | | |
| Autocratic | 103 | 23.09% |
| Democratic | 178 | 39.91% |
| Laissez-Faire | 69 | 15.48% |
| Transformational | 96 | 21.52% |
| **Area of Shanghai** | | |
| Pudong | 153 | 34.31% |
| Huangpu | 78 | 17.49% |
| Xuhui | 98 | 21.97% |
| Jing'an | 62 | 13.90% |
| Hongkou | 55 | 12.33% |
| **Income Level in RMB** | | |
| <5000 | 53 | 11.88% |
| 5001-10000 | 118 | 26.46% |
| 10001-15000 | 99 | 22.20% |
| 15001-20000 | 87 | 19.51% |
| >20000 | 89 | 19.95% |
| **Job Role** | | |
| Research | 82 | 18.39% |
| Teaching | 249 | 55.84% |
| Research and Teaching | 118 | 26.46% |

### *3.1.1.2 Gender distribution*

Gender distribution reveals male dominance, with 57.08% male respondents compared to 42.75% female. This imbalance may indicate underlying systemic biases, occupational stereotypes, or sociocultural norms influencing career pathways. Addressing these disparities through gender-sensitive policies can promote greater inclusivity, foster talent utilization, and enhance innovation within the educational sector.

### *3.1.1.3 Educational qualification*

Educational qualifications demonstrate a diverse range of academic backgrounds. Bachelor's degree holders constitute the largest group (44.15%), serving as a foundational entry point into educational roles. Individuals with Master's degrees, accounting for 33.18%, often bring specialized knowledge and advanced expertise, contributing to the sector's intellectual capital. Doctorate holders, though only 10.98%, play crucial roles in research and leadership. Meanwhile, high school graduates (11.66%) underscore varied pathways and roles, likely representing entry-level or support positions.

### *3.1.1.4 Experience level*

The distribution of experience levels reveals that 27.35% of respondents have 6-10 years of experience, signifying the importance of mid-career professionals within the workforce. Early-

career professionals (0-5 years) account for 21.97%, contributing energy and adaptability, while those with 11-15 years (19.06%) and 16-20 years (19.73%) bring a wealth of expertise and leadership. The most seasoned professionals, with over 20 years of experience (11.88%), provide wisdom and mentorship, vital for long-term sectoral stability.

#### *3.1.1.5 Public vs. Private sector*

The public sector dominates employment, with 66.82% of respondents, reflecting the critical role of government-funded institutions. The private sector, comprising 33.18%, provides alternative career options, emphasizing innovation and flexibility.

#### *3.1.1.6 Job roles*

Teaching is the most common role, with 45.52% of respondents. Administrative, counselling, and support roles are essential but smaller in proportion.

#### *3.1.1.7 Income levels*

The majority fall within mid-income ranges of 5001-10000 RMB (26.46%) and 10001-15000 RMB (22.20%). A smaller percentage earns higher incomes (>20000 RMB), indicating professionals with advanced qualifications or leadership positions.

#### *3.1.1.8 Geographical representation*

Lastly, geographical distribution shows Pudong (34.31%) as a central hub of educational activity, followed by Xuhui (21.97%) and Huangpu (17.49%), illustrating Shanghai's varied educational ecosystems.

### *3.1.2 Validity and Reliability Testing*

#### *3.1.2.1 Validity Testing (Construct Validity)*

a) Construct Validity (Convergent)

Convergent validity is a crucial aspect of validating constructs in structural equation modeling (SEM) and assessing the extent to which different measures of the same construct are related. Table 1 presents the outer loading values, a crucial component of Structural Equation Modeling (SEM), used to assess convergent validity in this study. Outer loadings, also referred to as factor loadings, measure the strength and direction of the relationship between each indicator (item) and its corresponding latent construct. These values help determine how effectively each indicator measures the intended construct. The table includes outer loading values for leadership constructs such as Autocratic Leadership (AL), Transformational Leadership (TL), Transactional Leadership (TRANL), Laissez-faire Leadership (LFL), Educational Training (ET), and Educational Job Performance (EJP). Indicators with outer loading values above 0.70 demonstrate strong convergent validity, meaning they serve as reliable and robust measures of the underlying constructs. In contrast, values below 0.50 indicate weak convergent validity, suggesting that such indicators may not fully capture the essence of the construct and could require refinement or reconsideration.

Here is the result from Table 4. Autocratic Leadership (AL) and Educational Job Performance (EJP): There are positive correlations between AL and EJP dimensions (ranging from 0.808 to 0.857), suggesting that higher perceptions of autocratic leadership are linked to improved job performance. However, the correlations are moderate, indicating a relationship that is not overwhelmingly strong. Educational Training (ET) and Autocratic Leadership: A positive correlation (0.820 to 0.849) indicates that employees participating in training perceive higher levels of autocratic leadership. This suggests that training may enhance awareness of leadership behaviors. Educational Training and Transformational Leadership (TL): Positive correlations (0.810 to 0.861) suggest that training enhances perceptions of transformational leadership, aligning with the idea that training fosters personal and professional growth. Educational Training and Transactional Leadership (TRANL): Positive correlations (0.850 to 0.874) imply that training may enhance perceptions of transactional leadership, indicating alignment with performance-based rewards. Educational Training and Laissez-faire Leadership (LFL): Correlations are weaker (0.790 to 0.878), suggesting that training has less influence on perceptions of laissez-faire leadership. Interaction Effects: The correlation between ET and TRANL is

perfect (1.000), indicating a strong interaction effect, suggesting that the combination of training and transactional leadership significantly influences job performance.

The correlations highlight the complex dynamics between leadership styles, educational training, and job performance perceptions in the educational sectors of Shanghai, indicating the multifaceted nature of leadership perception. Further analysis is needed to understand these intricate relationships.

**Table 4.** Outer Loading.

| | AL | EJP | ET | LFL | TL | TRANL | ET x AL | ET x TL | ET x TRANL | ET x LFL |
|---|---|---|---|---|---|---|---|---|---|---|
| **AL1** | 0.841 | | | | | | | | | |
| **AL2** | 0.849 | | | | | | | | | |
| **AL3** | 0.845 | | | | | | | | | |
| **AL4** | 0.82 | | | | | | | | | |
| **AL5** | 0.832 | | | | | | | | | |
| **EJP1** | | 0.857 | | | | | | | | |
| **EJP2** | | 0.853 | | | | | | | | |
| **EJP3** | | 0.834 | | | | | | | | |
| **EJP4** | | 0.808 | | | | | | | | |
| **EJP5** | | 0.857 | | | | | | | | |
| **ET x AL** | | | 0.812 | | | | | | | |
| **ET x LFL** | | | 0.861 | | | | | | | |
| **ET x TL** | | | 0.821 | | | | | | | |
| **ET x TRANL** | | | 0.874 | | | | | | | |
| **ET1** | | | 0.88 | | | | | | | |
| **ET2** | | | | 0.866 | | | | | | |
| **ET3** | | | | 0.864 | | | | | | |
| **ET4** | | | | 0.878 | | | | | | |
| **ET5** | | | | 0.875 | | | | | | |
| **LFL1** | | | | 0.838 | | | | | | |
| **LFL2** | | | | | 0.825 | | | | | |
| **LFL3** | | | | | 0.845 | | | | | |
| **LFL4** | | | | | 0.81 | | | | | |
| **LFL5** | | | | | 0.818 | | | | | |
| **TL1** | | | | | 0.79 | | | | | |
| **TL2** | | | | | | 0.863 | | | | |
| **TL3** | | | | | | 0.85 | | | | |
| **TL4** | | | | | | 0.874 | | | | |
| **TL5** | | | | | | 0.855 | | | | |
| **TRANL1** | | | | | | 0.863 | | | | |
| **TRANL2** | | | | | | | | | 1 | |
| **TRANL3** | | | | | | | 1 | | | |
| **TRANL4** | | | | | | | | 1 | | |
| **TRANL5** | | | | | | | | | | 1 |

b) Construct Validity (Discriminant)

The Heterotrait-Monotrait Ratio (HTMT) is a vital statistical measure for evaluating discriminant validity in structural equation modeling (SEM) and confirmatory factor analysis (CFA). Its primary function is to ensure that constructs within a research model are distinct, accurately reflecting different underlying concepts rather than exhibiting high correlations due to conceptual overlap.

Table 5 presents the Heterotrait-Monotrait Ratio (HTMT) values, which provide critical insights into the discriminant validity of the constructs in this study. The HTMT value of 0.407 between Autocratic Leadership (AL) and Educational Job Performance (EJP) indicates a clear distinction, affirming that these constructs measure separate aspects within the organizational context. The HTMT value of 0.083 between Educational Training (ET) and AL reinforces the conceptual separation, suggesting that employees' experiences with training do not overlap with perceptions of autocratic leadership. Similarly, the HTMT value of 0.016 between ET and Transactional Leadership (TL) further underscores their distinctiveness, highlighting that educational training opportunities are separate from transactional leadership styles. Additionally, the HTMT values of 0.129 between ET and Transformational Leadership (TRANL) and 0.016 between ET and Laissez-faire Leadership (LFL) confirm that these constructs maintain their discriminant validity. The HTMT value of 0.410 between TL and TRANL emphasizes the separation of these leadership styles, while the value of 0.097 between LFL and TL reaffirms their distinctiveness.Overall, the HTMT analysis effectively confirms the discriminant validity of the measured constructs, enhancing the study's reliability and validity for subsequent analyses.

**Table 5.** Heterotrait-Monotrait Ratio (HTMT).

| | AL | EJP | ET | LFL | TL | TRANL | ET x AL | ET x TL | ET x TRANL | ET x LFL |
|---|---|---|---|---|---|---|---|---|---|---|
| **AL** | | | | | | | | | | |
| **EJP** | 0.407 | | | | | | | | | |
| **ET** | 0.046 | 0.171 | | | | | | | | |
| **LFL** | 0.45 | 0.392 | 0.071 | | | | | | | |
| **TL** | 0.447 | 0.422 | 0.097 | 0.492 | | | | | | |
| **TRANL** | 0.423 | 0.311 | 0.034 | 0.448 | 0.41 | | | | | |
| **ET x AL** | 0.083 | 0.178 | 0.059 | 0.018 | 0.013 | 0.128 | | | | |
| **ET x TL** | 0.016 | 0.066 | 0.01 | 0.114 | 0.045 | 0.136 | 0.498 | | | |
| **ET x TRANL** | 0.129 | 0.268 | 0.048 | 0.158 | 0.136 | 0.041 | 0.456 | 0.383 | | |
| **ET x LFL** | 0.016 | 0.109 | 0.116 | 0.108 | 0.133 | 0.181 | 0.479 | 0.412 | 0.361 | |

c) Reliability Test Results

This study employs several key metrics to evaluate the reliability and validity of its measurement model. Cronbach's alpha, a widely recognized measure of internal consistency, shows strong values ranging from 0.876 to 0.916 for constructs such as Autocratic Leadership, Educational Job Performance, and others. These values indicate that the items within each construct consistently measure the same underlying concept, reinforcing the reliability of the measurement model. Composite reliability is also assessed, with rho_a values between 0.879 and 0.938 and rho_c values ranging from 0.876 to 0.916. These high values affirm strong internal consistency across constructs, further supporting their reliability in structural equation modeling. Additionally, Average Variance Extracted (AVE) is utilized to measure convergent validity. The AVE values range from 0.669 to 0.747, indicating that a substantial portion of the variance in observed variables is attributable to the respective latent constructs. These findings highlight effective convergence, suggesting that the items collectively capture the essence of the constructs being investigated. Overall, the high values for Cronbach's

alpha, composite reliability, and AVE collectively strengthen the validity of the measurement model. This robust framework ensures that the constructs are not only internally consistent but also effectively measure the intended latent variables, enhancing the credibility and rigor of the research findings.

**Table 6.** Reliability Test Results.

| | Cronbach's alpha | Composite reliability (rho_a) | Composite reliability (rho_c) | Average variance extracted (AVE) |
|---|---|---|---|---|
| **AL** | 0.894 | 0.896 | 0.922 | 0.702 |
| **EJP** | 0.897 | 0.898 | 0.924 | 0.709 |
| **ET** | 0.906 | 0.938 | 0.929 | 0.723 |
| **LFL** | 0.916 | 0.918 | 0.937 | 0.747 |
| **TL** | 0.876 | 0.879 | 0.91 | 0.669 |
| **TRANL** | 0.913 | 0.916 | 0.935 | 0.742 |

# 4. Conclusion

The findings of this paper emphasise the importance of a strategic approach to leadership and education and training in the Shanghai education sector. Whether it is authoritarian leadership, transformational leadership, transactional leadership and laissez-faire leadership, there are different differences in work performance, through education and training can greatly play a key moderating role, managers should develop a special charisma, able to establish a long-term vision with employees and encouragement; able to establish leadership subordinates consistent values, consistent with the values of the enterprise; to the Sensitive to the environment around the enterprise, able to quickly identify the advantages and disadvantages of new external factors, tend to avoid harm; focus on the care of subordinates, appreciate the real needs of subordinates, and cultivate the subordinates of the enterprise or the work of the sense of identity; in the face of new challenges, never retreat, and to lead the organisation to overcome various difficulties.

Different is the leadership style, the purpose is to adapt and complete performance management, maximise the motivation of employees, and through training, enhance the psychological effect of employee ownership. Managers should strengthen the leader's concern for their employees, which is both a critical step and a beginning step. To increase the level of organisational commitment of employees, which is an important way to enhance the psychological ownership effect of employees. Finally, it is important to continuously observe employees' job satisfaction and keep abreast of their psychological needs. Improve and optimise the relationship between leaders and employees. In the era of innovation, the relationship between leaders and employees is constantly facing new challenges, which requires corporate management to keep abreast of the times and build a new type of labour-management relations by improving and optimising the organisational management model.

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https://journals.bilpubgroup.com/index.php/jsbe

**ARTICLE**

# Social Sustainability in Cultural Heritage Tourism: The Case of Lijiang Old Town and Venice

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## ABSTRACT

This article focuses on the importance of social sustainability within the field of tourism management, focusing on the preservation of cultural heritage and the role of community participation in this context. The article explores how sustainability strategies can promote tourism development while ensuring that cultural heritage is properly maintained and promoting the active participation of local communities. By examining a number of case studies and management practices, the paper aims to propose effective strategies to achieve a balanced development of tourism activities in relation to society, culture and the environment.

***Keywords:*** Tourism management; Social sustainability; Cultural heritage; Community participation; Sustainability Strategies

## 1. Introduction

In contemporary perspectives, the term "heritage" has come to encompass the process of evaluating, selecting, interpreting, and utilising valuable things from the past (Larkham, 1999). Since the emergence of heritage tourism in Europe in the 1990s, cultural heritage tourism has become an economic mainstay of many cultural heritage sites around the world, not only providing opportunities to explore history, traditions and culture as an important part of the tourism industry, but also having a variety of positive impacts on heritage regeneration and development.

To fulfil the role of heritage tourism and maintain this positive impact, sustainable development is essential, where social sustainability requires an assessment of the impacts of development activities on the community's inhabitants, cultural traditions

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ARTICLE INFO
Received: 20 June 2024 | Revised:28 June 2024 | Accepted: 23 July 2024 | Published Online: 30 July 2024
DOI: http://doi.org/10.26549/jsbe.v7i3.21534

CITATION
O, 2024. pianming. Journal of Sustainable Business and Economics. 7(3): 33–38. DOI: http://doi.org/10.26549/jsbe.v7i3.21534

and social structure (Hall, 2008). In the context of cultural heritage tourism, social sustainability includes advocating the importance of preserving and disseminating local cultural heritage, but also emphasis the importance of engaging and sharing the fruits of development with local communities, and how to amplify the positive impacts of cultural heritage tourism to provide more tangible development opportunities for the region (Richards, 2012). Therefore, an in-depth study of the importance of social sustainability in cultural heritage tourism, which together with economic and environmental sustainability constitutes the three pillars of sustainable tourism development, is of great significance for the formulation of more effective heritage management measures and development strategies for the healthy development of cultural heritage tourism.

## 2. Research Background

### 2.1 Definition of social sustainability

With regard to the definition of social sustainability and what it encompasses, some scholars have argued that it pursues the same fundamental goal as the other two pillars of sustainability, that is, the ability to satisfy current needs while guaranteeing that future generations will be able to maintain the same or a higher level of quality of life, only in terms of guaranteeing social equity, human rights, and social well-being (Yoonhee Jung, 2023). This concept emphasises the balanced development of society, environment and economy, respecting social justice and human rights while ensuring the rational use and protection of resources. Some definitions of social sustainability emphasise equity and inclusiveness of social systems, community development and participation, robustness of social security systems and respect for cultural identity and diversity (Bouchier, 2012).

A definition that has gained more consensus from the United Nations Development Programme (UNDP) document state that social sustainability takes into account factors such as equality, inclusion, participation, education, health care, culture, etc. for all segments of society with the aim of achieving a stable, prosperous and harmonious society.

In addition, Hieu and Hai (2023) state that political stability and governance effectiveness are also critical in achieving social sustainability, and that effective political systems and governance mechanisms promote civic engagement, legality, and transparency, thereby maintaining social order and stability. Scholars have also noted that policies and regulations related to health and well-being are also key components of social sustainability. Moreover, good health-care services, education, housing and social security systems can improve people's quality of life and contribute to the long-term stability and development of society (Birn, 2009).

### 2.2 Social Sustainability from a Heritage Tourism Perspective

In the context of cultural heritage tourism, social sustainability has been defined by some scholars as the preservation, dissemination and utilisation of cultural heritage while actively contributing to an inclusive, participatory and just society, while respecting and meeting the needs of current and future generations (Lai, 2020). Regarding specifics, Brooks, et al. (2023) puts a strong emphasis on how to promote host community participation and enhance their long-term health and well-being in heritage tourism, where heritage tourism brings positive impacts such as economic development, infrastructure development, and so on, while also focusing on, but potentially, negative impacts on community health such as limiting community participation, and community relocation or fragmentation.

Similarly, based on the problems of gentrification and cultural preservation caused by over-tourism in many areas, some studies have emphasised that sustainable heritage tourism means ensuring that local communities and indigenous peoples are able to benefit from cultural heritage tourism while avoiding and reducing the social inequalities and conflicts that may result. In order to ensure that

tourism development has a positive and sustainable impact on local societies (Bertocchi et al., 2020).

### 2.3 Social Problems Caused by socially Unsustainable Tourism Development

Social problems that may result from heritage tourism with low social sustainability include community change, social inequity, and heritage damage. Among them, community change may be manifested by the increase in real estate development, gentrification and foreign population as a result of heritage tourism, leading to problems such as higher cost of living and cultural conflicts faced by local community residents. Noise pollution, environmental damage and traffic congestion caused by tourism activities may also affect the quality of life of local residents. In addition, the problem of social inequity may be reflected in the fact that the economic benefits brought about by heritage tourism are not equitably distributed to local residents, thus further widening the gap between the rich and the poor. Various unfavourable factors may lead to the loss of local community residents and the disruption of daily life, which is not conducive to the cultural survival and sustainable development of heritage sites (Timothy and Nyaupane, 2009).

## 3. Social Sustainability Assessment Framework for Heritage Tourism

Research on assessing the level of social sustainability of heritage tourism in a particular location encompasses several aspects, for example, studies by Biju et al. (2024) and huang, Lin and Li (2019) explored the relationship between Community participation and the sustainability effects of the project through the local community's perception of the heritage tourism activities and and the level of Community participation in the project, and referred to how to to maximise the respect and protection of local communities' interests.

In addition, Bertocchi et al. (2020) focused on the effects of tourism projects on the preservation and transmission of culture in heritage sites. They studied the impact of tourism activities on historical sites, folk culture and daily life of residents, and how to avoid commercialisation and distortion of unique cultures. zhao et al. (2022) analysed the local economic and social changes and the role transformation of the local residents resulting from the context of spatial consumption activities in heritage sites.

Finally, some scholars focus on the interaction between the local government and the community during the project process, talking about the government's policy making in terms of community resettlement and heritage culture preservation, as well as the impact of governance measures on sustainable heritage tourism (Liu, 2012).

## 4. Case Study

### 4.1 Sustainability performance in tourism development

#### *4.1.1 Community participation*

Local communities play a crucial role in the development of heritage tourism in both Lijiang old town and Venice, and in Lijiang, local communities have a closer relationship with specific tourism activities, as they participate in the tourism industry and derive economic benefits from it by providing tourists with folklore performances, handicrafts, and organising festivals and events (Pan et al., 2019 ). However, the resulting community development is limited due to the fact that with the rise of the tourism industry, there has been an influx of foreign merchants, leading to the marginalisation of local communities in the network of interests (SHO, 2012). Another study points out that with the development of external links and tourism in Lijiang old town, the foreign population has increased, which may affect the voice and influence of the original community. The rising cost of living may also affect the quality of life of the aborigines and their commitment to the community. Some residents choose to relocate out of dissatisfaction with the status, this may lead to the phenomenon of "empty nesting" in the original

community (Qi, 2021). In terms of the voice of the local community, local government agencies, such as the Ancient City Protection Administration, are in a dominant position and have strong interests in tourism enterprises, while the community is involved in serving tourists and lacks a channel to speak out for the impacts on their original way of life and space (Zhao et al., 2022). The social inequalities resulting from the above factors and the disconnection between local communities and places have a negative impact on the social sustainability of local heritage conservation and utilisation.

#### *4.1.2 Cultural preservation*

In the development of heritage tourism in Lijiang old town and Venice, both the tangible heritage buildings and intangible daily life culture of the area have been affected by tourism to varying degrees. The initial phase of heritage conservation in Lijiang old town focused on the preservation and maintenance of historic buildings and local features, neglecting the importance of community residents and cultural traditions. This has led to the development of heritage tourism in Lijiang old town since the beginning of the 21st century to the present day, which has been criticised for over-commercialisation, destruction of the original culture, and alteration of lifestyles (Qi, 2021). In order to solve this problem, measures to encourage the return of aborigines and to support the heritage and presentation of traditional culture have been implemented, such as inviting aborigines to lead tourists to experience the traditional lifestyle of the Naxi people, and organizing cultural festivals, such as the Jade Dragon Snow Mountain Cultural Festival, which can promote understanding and respect for local culture. In addition, some scholars have noted that although the connection between the community and the old town places is difficult to repair, the aborigines in the resettlement community still maintain a lifestyle with cultural value that deserves attention and preservation (Pan et al.,2019)

#### *4.1.3 Local governance*

Officials in both Lijiang old town and Venice have taken a range of measures to regulate heritage tourism activities in order to protect the rights of local communities and enhance social sustainability. In Lijiang old town, low-priced or free residential housing has been provided in a number of resettlement residential areas, such as Beimenpo and Xi'an Street, to divert the residents of the old town through new residential areas (Pan et al., 2019), in order to alleviate the environmental pressure in the core area of the old town and improve the quality of life of the local residents. In addition, the Lijiang old town government has clarified the list of business projects and market management methods in the old town to control the old town business and balance the relationship between business and culture. In order to protect the rights of the indigenous people, the local government has implemented the "Aboriginal Housing Repair Subsidy Programme" and stipulated the proportion of aboriginal people amongst the business operators in the Old Town, which ensures the spatial rights of the aboriginal people and promotes the inheritance of the local culture while providing employment opportunities (Shao, 2012). Despite these efforts, sustainability issues such as 'empty nesters' still exist and require further strategies for improvement.

### 4.2 Feasible improvement measures for heritage tourism

The cases of Lijiang and Venice show that the status and role of local or original communities in heritage tourism development depends on a variety of factors. The establishment of effective community participation mechanisms and the implementation of conservation policies are crucial for balancing tourism development with the interests of local communities and improving social equity. Heritage tourism should take into account and benefit local communities, rather than becoming a threat to their way of life and cultural traditions.

Secondly, heritage tourism development in Lijiang old town and Venice faces different cultural preservation problems. Therefore, more effective conservation measures and cultural dissemination

strategies need to be developed to address the different geographic environments, cultural traditions and tourism development conditions, in order to ensure that heritage tourism activities can truly promote the transmission and preservation of local cultural heritage.

## 5 Conclusion

This essay focuses on the exploration of social sustainability in the development of heritage tourism. Firstly, the definition of social sustainability and the research results on social sustainability in the context of heritage tourism are reviewed. A framework for assessing social sustainability in terms of Community participation, cultural preservation and local governance is then developed through a literature review, and the social sustainability performance of heritage tourism in Lijiang old town and Venice is discussed according to the framework. Finally, suggestions for the social sustainability of heritage tourism are provided to inform subsequent heritage conservation and utilisation practices.

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