

2016

# The Modified Contingent Valuation Method for Evaluating the Willingness of the Citizenry to Participate in Excavation and the Restoration of the Ancient Theatre of Lefkada

Kopsidas, Odysseas

David Publishing

---

<http://hdl.handle.net/11728/11904>

*Downloaded from HEPHAESTUS Repository, Neapolis University institutional repository*

# The Modified Contingent Valuation Method for Evaluating the Willingness of the Citizenry to Participate in Excavation and the Restoration of the Ancient Theatre of Lefkada

Odysseas Kopsidas and Andreas Hadjixenofontos

*Department of Economics and Business, School of Economics and Business, Neapolis University Paphos, Paphos 8042, Cyprus*

**Corresponding author:** Odysseas Kopsidas, Ph.D., main research field: environmental economics.

**Abstract:** This proposed project is not viable in profitable terms to private enterprise, so it applied a modified version of the Contingent Valuation Method (CVM) to realize this project. A survey was conducted in Lefkada Island in Greece, where 200 interviewees took part in order to consider whether they wish to voluntarily participate in the excavation and restoration of the ancient theater of Lefkada. Half of the interviewees were given information on the history of the site and then were asked to fill out a questionnaire. The other half of the interviewees were given no historical information on the archeological site and also were asked to fill out a questionnaire. The interviewees who were not given any information on the history of the site briefed on the history and then were asked to fill out another questionnaire. The purpose was to observe the different responses that the interviewees gave before and after being informed. This study aims to compare the willingness to participate (WtP) for this public good among those who were informed and those who were not.

**Key words:** Experimental Economics, willingness to participate (WtP), information, questionnaire

## 1. Introduction

The Contingent Valuation Method (CVM) is an important technique in the scientific field of Experimental Economics. This technique is essentially subjective but tries to objectively accumulate opinions/attitudes and gather information from the interviewees who were asked to fill out a questionnaire to determine the value of non-market goods and assess the externalities [1 - 3]. The main objective of the questionnaire was to measure the willingness of the interviewees to (i) pay to remove a negative externality and (ii) accept a negative externality (WTP and WTA, respectively) [4 - 5].

More specifically, the WTP reflects the maximum amount of money a person is willing to pay for the public good. The WTA is the measurement of the minimum amount of monetary units a person is willing to be compensated to abandon the public good [6 - 7]. Conceptually, the CVM could be extended to (or considered to be part of) a corresponding cost-benefit analysis of expenditure on implying capital and operating costs or benefits including externalities [8].

A survey was conducted in which 200 interviewees took part in a survey in order to consider whether they wish to voluntarily participate in the excavation and restoration of the ancient theater of Lefkada. Half of the interviewees were informed of the historical significance of the site and the other half were uninformed. The questionnaire was presented to the interviewees with and without historical information, after which the group who were not informed on the history of the site were presented with the historical significance of the ancient theatre.

This study aims to compare the willingness for voluntary participation (WtP) among those who received the informed questionnaire compared to those with the uninformed questionnaire. Furthermore, it should be considered that the willingness of the citizens to participate in the restoration of the ancient theatre before and after the information was received.

## **2. History**

Information of the ancient theater of Lefkada was nonexistent, because it has never been noted by ancient sources. In the early part of the 20th century, minimal excavation had taken place under the direction of the German archaeologist E. Kruger who was a colleague and partner of the archaeologist W. Dörpfeld. The early excavation data were not published, but the excavation diaries and drawings that are available to us today indicated the identification of the ancient theater of Lefkada.

The Archaeological Authorities of Aetolia - Akarnania and Lefkada excavated thirteen separate sections of the site in question and the results of the work confirmed the position of the ancient theater, including the rows of seats, part of the orchestra pit and parts of a wall that incorporated art works and also an auditorium and stage.

Specifically, in the six excavated sample sections, stone carved seats were found at a depth ranging from 0.73 to 0.90 m and a height ranging from 0.22 to 0.33 m. The orchestra was located in the quarter part of the excavated site, with a width of up to 0.60 m. The theatre seating was found to be at a length of approximately 3m and a width ranging up to 0.79m. The peripheral wall was detected at a length of 25 m and with an approximate height of up to 0.75m.

## **3. Methodology**

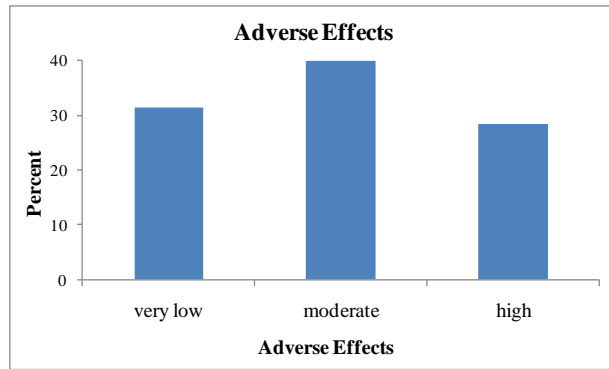
The Contingent Valuation Method can be applied to a hypothetical economy with no monetary units, where the trade for goods is time. By asking the citizens their '*Willingness to Participate - WtP*' in the restoration of the archaeological site, it is tried to measure the willingness for voluntary participation.

Thus, the interviewees were asked to choose between their paid employment and voluntary activity. Here, an opportunity cost was noticed between paid employment and unpaid voluntary activity. The dependent variable was '*Willingness to Participate - WtP*' by the interviewees participating in unpaid voluntary activity. All other variables of the model were independent. Voluntary participation was not motivated by money or other means and all other factors that could influence the opinion of the interviewees were considered *ceteris paribus*.

## **4. Implementation**

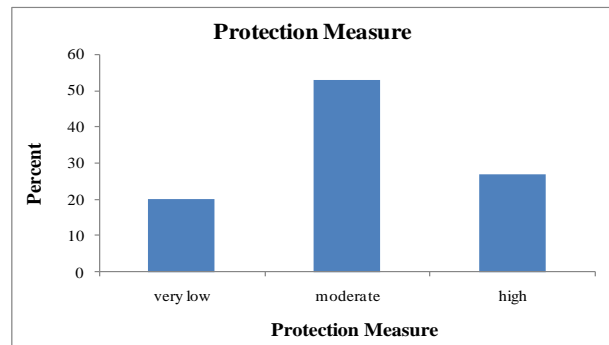
The research was conducted with citizens aged between 18-30 years of age. The antiquities are treated as public and non-tradable goods. The WtP curve shows the function of the interviewees' voluntary supply of labour and the willingness to participate. Accordingly, it is considered that voluntary demand is a function of willingness to participate and tends to be infinite in a given period of time.

Descriptive statistics of the findings were presented to the interviewees.



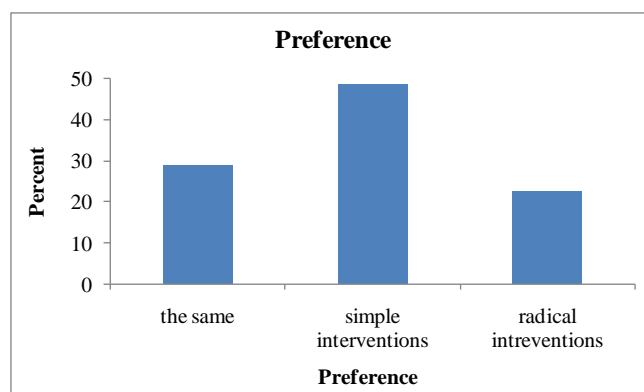
**Fig. 1** Bar graph on the opinions of the interviewees.

In Fig. 1, it is presented that 31.5%, 40% and 28.5% of interviewees believe that the negative externalities of the archaeological site around the natural and human environment space (land and buildings) is very low, moderate and high, respectively.



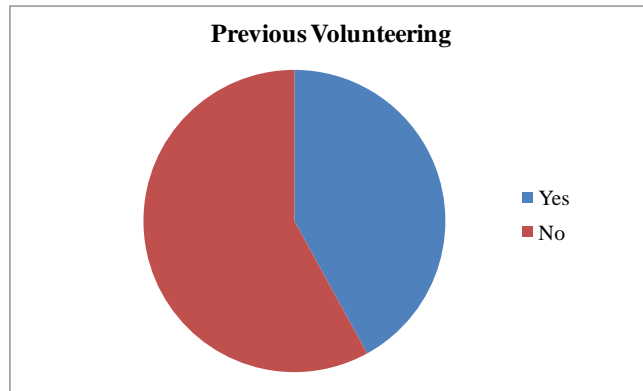
**Fig. 2** Bar graph shows the interviewees concern on the measures taken by the local authorities for the protection and conservation of the site.

In Fig. 2, it is shown that 20%, 53% and 27% of interviewees believe that the measures taken by the authorities for the protection and preservation of the ancient theatre are negligible, moderate or high.



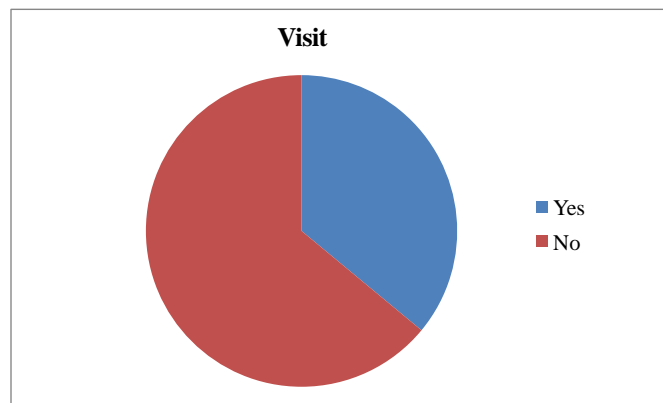
**Fig. 3** Bar graph on the interviewees' preferences.

In Fig. 3, it is shown that 29% of the interviewees prefer negligible changes, 48.5% prefer minimal changes and 22.5% of the interviewees would like to see further excavation and the restoration expropriations surrounding the ancient theatre of Lefkada (Ancient Ithaka).



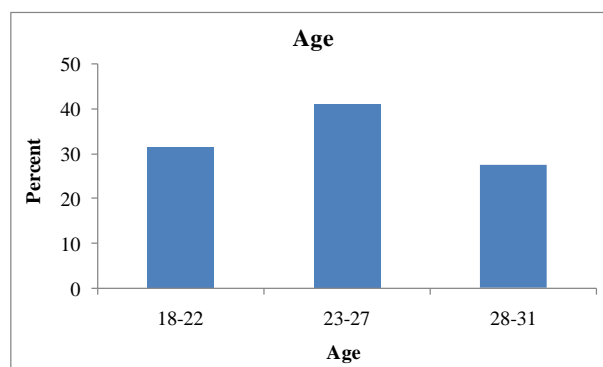
**Fig. 4** Pie chart form on whether the interviewees had previously engaged in voluntary labour.

In Fig. 4, 58% of interviewees have previously volunteered in similar work, whereas 42% have not.



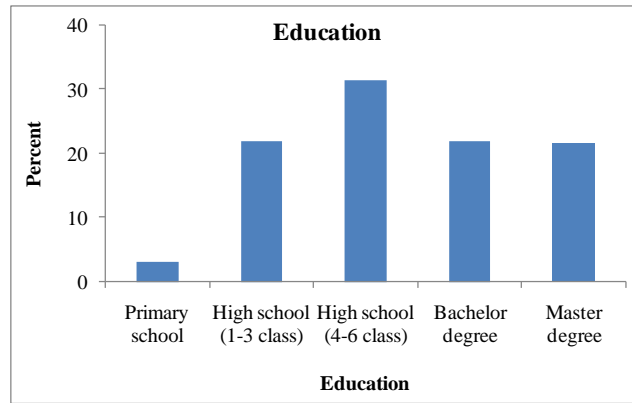
**Fig. 5** Pie chart showing the percentage of interviewees that have visited the site of the ancient theatre.

According to Fig. 5, it is shown that 36% of the interviewees have visited the site of the ancient theatre of the Lefkada, while 64% have not.



**Fig. 6** Bar graph depicting the age of the interviewees.

In Fig. 6, it is shown that 31.5%, 41% and 27.5% of the interviewees were aged between 18-22, 23-27 and 28-31 years old, respectively.



**Fig. 7 Bar graph on the education level of the interviewees.**

In Fig. 7, it is shown that 3%, 22%, 31.5%, 22% and 21.5% of the interviewees have completed either primary school, high school (1-3 class), high school (4-6 class), university or technological institution or postgraduate studies.

## 5. Discussion

The willingness to participate in the restoration of the ancient theatre of Lefkada is an important indicator for assessing the cultural value of the archaeological site in terms of allocated time invested by the Greek citizens. The level of education and age of the interviewees affect the willingness to participate (WtP) in the excavation of the site. Thus, the interviewees who have a higher education and who are older shows an increased willingness to participate in the excavations compared to those who have received a lower education and are younger. It is important to note that the interviewees from Lefkada and the surrounding islands are more willing to participate in the excavation of the ancient theatre compared to those who are not from Lefkada.

## 6. Conclusion

The socioeconomic welfare of Lefkada has a positive curve due to the citizens' willingness to participate in the voluntary work of the excavation and restoration of the ancient theatre of Lefkada. Those involved in the Pareto-optimal socioeconomic equilibrium, where all satisfied with their participation and those involved in the activity optimize their private prosperity without reducing the benefit to other citizens. Thus, interviewees are invited to participate in a reconstruction of a monument of world cultural heritage.

The local community enjoys increased economic benefits from the restoration of the ancient theatre due to an increase of tourism. The Municipality's involvement in this project increases the confidence and character of the local community. The reputation of the Municipality enjoys a welcomed increased benefit due to its involvement in the excavation of the ancient theatre. Additional benefits are the enhanced learning, knowledge of history / archeology and the emergence of classical antiquities.

In conclusion, the result of the Pareto-optimal socioeconomic equilibrium model is an optimal solution. This proposed project is not viable in profitable terms to private enterprise, so the authors apply a modified version of the Contingent Valuation Method (CVM) to realize this project.

We compared a research which was carried out on the ancient walls of Piraeus in Greece, with the project of the ancient theatre in Lefkada and measured the voluntary contribution of citizens in monetary units for the restoration of the antiquities [8]. When we asked the interviewees how

many days they are willing to participate in the restoration of the ancient walls of Piraeus, the interviewees showed significantly a lower level of willingness to participate in the voluntary activities, which were from zero to two days with a strong preference for one day. The two archaeological sites being that of Lefkada and Piraeus, and we believe that they are both equal in historical significance. All interviewees were actively involved in the labour force. Thus, there is an opportunity cost as each interviewee must forfeit the paid labour for unpaid labour. In the model, the economic value of the monument is measured by willingness to participate despite the fact that no insurance company would be willing to insure these antiquities. Positive externalities provide an incentive for volunteers to participate in the restoration of archaeological antiquities; therefore, the willingness to participate tends to be positive.

## References

- [1] Bedate, A., Herrero, L. C., Sanz, J. A. 2005. "Economic Valuation of the Cultural Heritage: Application to Four Case Studies in Spain." *Journal of Cultural Heritage* 5 (1): 101-111.
- [2] Hanemann, W. M. 1991. "Willingness to Pay and Willingness to Accept: How Much Can They Differ?" *American Economic Review* 81 (3): 635-647.
- [3] Bateman, I., Munro, A., Rhodes, B., Starmer, C., and Sugden, R. 1997. "A Test of the Theory of Reference-dependent Preferences." *The Quarterly Journal of Economics* 112: 479-505.
- [4] Horowitz, J. K., and McConnell, K. E. 2003. "Willingness to Accept, Willingness to Pay and the Income Effect" *Journal of Economic Behavior and Organization* 51 (4): 537-545.
- [5] Brown, T. C. 2005. "Loss Aversion without the Endowment Effect, and other Explanations for the WTA–WTP Disparity." *J. Econ. Behav. Org.* 57 (3): 367-379.
- [6] Liao, T. F. 1994. *Interpreting Probability Models: Logit, Probit, and Other Generalized Linear Models*. LA: SAGE Publications Inc.
- [7] Menard, S. 2001. *Applied Logistic Regression Analysis*. 2nd ed. LA: SAGE Publications Inc.
- [8] Kopsidas, O., and Batzias, F. 2011. "Improvement of Urban Environment and Preservation of Cultural Heritage through Experimental Economics by a Modified Contingent Valuation Method (CVM)." *Recent Researched in Energy, Environment, Devices, Systems, Communications and Computers* 157-162.