



# Modified Contingent Valuation Method for Agricultural Wastes between the Areas of Peloponnese and Thessaly in Greece.

**Odysseas N. Kopsidas<sup>1</sup>, Athanasios N. Kopsidas<sup>2</sup>**

1. Department of Civil Engineering, Technological Educational Institute of Thessaloniki, 17thKm Thessaloniki - Sindos, 57400, Thessaloniki, Greece, e-mail: [odykopsi@yahoo.gr](mailto:odykopsi@yahoo.gr)
2. School of Civil Engineering National Technical University of Athens, Heron Polytechniou 9,157 80 Zografos – Athens, Greece

## Contingent Valuation Method (CVM)

- The basic partial techniques used in **CVM** are:
  - (i) willingness to pay (**WtP**), which is the maximum monetary amount that an individual would pay to obtain/preserve a good, and
  - (ii) willingness to accept (**WtA**) compensation, which is the minimum monetary amount required to relinquish the good.

## WtP and WtA

- According to classic economic theory, a significant difference between **WtP** and **WtA** should not occur, on condition that there is:
  - (i) **no transaction cost**
  - (ii) **perfect information** about goods/services and corresponding prices
  - (iii) **no income effect**
  - (iv) a market that engenders **truthful revelation** of preferences

## Experimental Economics

**Contingent Valuation Method** is:

the **first technique** of hypothetical experiments using a questionnaire applied to assess the economic value of **public goods** and services and is the predominant assessment technique in the scientific field of **Experimental Economics**.

## The Framework

- We compare the results of the descriptive statistical analysis among the answers of the interviewees in the mainland Greece (**Thessaly**) and on **Peloponnese**.
- The similarities and differences in the attitude of these **two categories of rural population** are outlined.
- We observe that the interviewees in the previous year owned bigger areas of land (more stremmas) per cultivated item on Peloponnese compared to Thessaly.
- Also the interviewees stated that they had almost **the same number of stremmas** against the average stremmas owned by the farmers in Thessaly, on Peloponnese.

## On the contrary...

- However, we notice that the minimum compensation amount each interviewee asks in order **they may be in a position to gather and carry away the leftovers differs among the areas.**
- More specifically **on Peloponnese the farmers ask for higher remuneration compared to farmers in the Thessaly area.**
- However, the willingness shown by the farmers for participation in gathering the crops without any extra remuneration **does not differ among the areas.**

## As regards the income...

- Of each interviewee farmer against that of inhabitants in other areas of similar agricultural exploitation **it does not differ between the two area categories, as the results show.**
- Additionally we notice that **the percentage of the interviewees' income originating in farming is bigger in Thessaly compared to that on Peloponnese.**

## Regression Statistics

- The interviewees aged **15 to 25 years** wish to be remunerated with smaller amounts compared to those aged **56 up** (**p-value=0.045<0.05**)
- Further, we notice that the farmers aged **26 to 40 years** wish to be remunerated with higher amounts compared to those of **56 years up** (**p-value=0.018<0.05**)
- Finally, **the interviewees in the Thessaly area wish to be remunerated with smaller amounts compared to those on the islands of Peloponnese.**



## The $R^2$ Index

$$R^2 = 1 - \left\{ \frac{L(M_{\text{Intercept}})}{L(M_{\text{Full}})} \right\}^{\frac{2}{N}}$$

$$R^2 = \frac{1 - \left\{ \frac{L(M_{\text{Intercept}})}{L(M_{\text{Full}})} \right\}^{\frac{2}{N}}}{1 - L(M_{\text{Intercept}})^{\frac{2}{N}}}$$

## The R<sup>2</sup> Index

**Cox and Snell=0,656**

and the coefficient

**Nagelkerke = 0.683**

## The question formulates the Willingness to Accept (WtA) of the interviewee that is their wish for remuneration in order to allow someone to gather and take away the leftovers of the agricultural exploitation

- The **71.7%** of the specimen, answered that they would relinquish their farming leftovers without asking for any monetary remuneration.
- Out of the remaining **28.3%** of the specimen, **11.7%** answered that they would ask for **1-5 euro** to relinquish the farming leftovers in each cultivated stremma on a yearly basis.
- Similarly another **11.7%** of the specimen answered that they would ask for **6-10 euro** for the same above reason.
- One person in each category(1.67% of the specimen), answered that the remuneration he would ask to relinquish his farming leftovers would be **11 – 15 euro** in the first instance, **16 – 20 euro** in the second instance and **21 euro up** in the last instance.

## We observe that in the first category...

- That is the one of those stating that they do not ask for any remuneration to relinquish their farming leftovers
- **58.1%** of the specimen would participate without any recompense in the entire process
- while **41.8%** would not participate without recompense.

## In the second category...

- That is the one of those wishing to collect monetary remuneration to relinquish their farming leftovers
- **47%** of the specimen answered that they would participate in the relevant procedure
- contrary to the **52.9%** of the interviewees who stated that they would not participate

## In the first category...

- Those who stated that they do not wish any remuneration to relinquish their farming leftovers,
- **58.1%** of the specimen would participate in the whole procedure without recompense
- while **41.8%** would not participate without recompense.

## In the second category...

- Those wishing to collect monetary remuneration to relinquish their farming leftovers
- **47%** of the specimen answered that they would participate in the relevant procedure
- but **52.9%** of the interviewees stated that they would not participate

## Out of the first category which concerns those not wishing remuneration to relinquish their farming leftovers

- **26%** of the specimen stated that they abandon their farming leftovers in the field
- An equal percentage (**26%**) states that they burn the leftovers in the field
- Only **2.3%** gather the leftovers as fuel at home while
- The majority that totals **45.2%** mention utilization



**Out of the second category, which concerns those wishing remuneration to relinquish their farming leftovers**

- **26%** of the specimen stated that they abandon the leftovers of their farming exploitation in the field

**Out of the first category, i.e. those stating that they do not wish any remuneration to relinquish their farming leftovers**

- **18.6%** of the specimen report an income smaller of the average of the farmers in the area who are involved in similar farming exploitation
- **67.4%** of the specimen report an income approximately equal to the average and finally only
- **13.9%** of the interviewees report an income bigger than the average in the area

**Out of the second category, that is the one wishing to collect monetary remuneration to relinquish their farming leftovers**

- **23.5%** of the specimen report an income smaller than the average of the farmers in the area with similar farming exploitation
- **47%** of the specimen report an income approximately equal to that of the average and finally only
- **29.41%** of the interviewee report an income bigger than the average in the area

## Concluding Remarks

- External effects are observed when **supply or demand** impose costs or confer a benefit to others.
- More specifically, the external effect is the impact of the behaviour of a producer or consumer well-being of another, which is not reflected in market transactions.

## Pareto Condition

- The economic evaluation of research aimed at improving overall **social welfare**
- As an initial test for **social welfare**, the criterion used Pareto
- under which a fully competitive market, an action or policy is socially desirable if it improves the position of all the individuals composing the society or at least some (**weak criterion Pareto**)
- but difficult position of any other (**a strong criterion Pareto**)

## It is impressive that...

- **43 persons** who represent **71.7%** of the specimen answered that they would allow their gathering and carrying away of their farming leftovers without asking for any monetary remuneration
- Further, encouraging are the results concerning the willingness to participate in the gathering since the majority of the interviewees
- **55%** of the specimen, stated that they would participate in the gathering of the leftovers without any remuneration

Thank you for your attention!