**Course Water Valuation**

**Lecture 7. Contingent Valuation Method**

**Exercise**

1. What are the pros and cons of the Contingent Valuation Method?
2. How could you cross check the answers of the respondents. In other words how can you verify if the respondent indicates the correct price that he/she is Willing To Pay (for treated waste water).
3. The answers of the respondent was given in ordered classes (1 = 0-15 fils; 2 = 51-100 fils; 3 = 101-150 fils). Which type of functions can be used to model the responses?
4. Why would you conduct a multivariate analysis to explain the given price categories?
5. Calculate the over and underestimation of the model outcomes.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Model Estimated classes | | | | | |
|  |  | 1 | 2 | 3 | 4 | 5 | Total |
| **Farmers respond** | 1 | 45 (11.66) | 18 (4.66) | 10 (2.59) | 13 ( 3.37) | 1 (0.26) | 87 (22.54) |
| 2 | 42 (10.88) | 16 (4.15) | 18 (4.66) | 2 (0.52) | 0 (0) | 78 (20.21) |
| 3 | 14 (3.63) | 15 (3.89) | 19 (4.92) | 24 (6.22) | 0 (0) | 72 (18.65) |
| 4 | 1 (0.26) | 5 (1.30) | 4 (1.04) | 94 (24.35) | 0 (0) | 104 (26.94) |
| 5 | 0 (0) | 0 (0) | 0 (0) | 34 (8.81) | 11 (2.85) | 54 (11.66) |
| Total | 102 (26.42) | 54 (13.99) | 51 (13.21) | 167 (43.26) | 12 (3.11) | 386 (100) |

1. What is more dangerous an over- or under-classification of the model?

**Table 1. Parameter estimates from an ordered logit model explaining the indicated price categories for the Willingness To Pay.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **JV regions** | | | | | |
|  | **North** | | **Middle** | | **South** | |
| Factor | **Estimated** | **Standardized** | **Estimated** | **Standardized** | **Estimated** | **Standardized** |
| **Intercept 1** | 3.1063 |  | 2.6753 |  | 2.1894 |  |
| **Intercept 2** | 5.1347 |  | 5.2179 |  | 2.8765 |  |
| **Intercept 3** | 7.5652 |  | 6.8389 |  | 4.9361 |  |
| **Intercept 4** | 9.3847 |  | 7.5401 |  | 11.7405 |  |
| **own\_est** | -1.5093 | -0.3059 | -1.0568 | -0.2858 | \_\_\_ | \_\_\_ |
| **Conce\_Wat\_Tariff** | 4.0549 | 1.0019 | \_\_\_ |  | \_\_\_ | \_\_\_ |
| **Opin Direct** | -0.6513 | -0.346 | \_\_\_ |  | \_\_\_ | \_\_\_ |
| **InfhEnv** | -0.8495 | -0.411 | 0.9268 | 0.4608 | \_\_\_ | \_\_\_ |
| **InfPsy** | 1.0334 | 0.5126 | 1.268 | 0.5987 | 2.9005 | 0.6689 |
| **Cultiv\_Area** | \_\_\_ | \_\_\_ | 0.0264 | 0.2761 | \_\_\_ | \_\_\_ |
| **Fertilizer saving** | \_\_\_ | \_\_\_ | -5.2474 | -0.9374 | \_\_\_ | \_\_\_ |
| **HavingWell** | \_\_\_ | \_\_\_ | -3.7477 | -0.504 | 2.0588 | 0.5573 |
| **Conc\_water\_qual** | \_\_\_ | \_\_\_ | -1.1645 | -0.3564 | -0.8306 | -0.3439 |
| **educ\_est** | \_\_\_ | \_\_\_ | \_\_\_ | \_\_\_ | -2.603 | -0.8243 |
| **crop\_est** | \_\_\_ | \_\_\_ | \_\_\_ | \_\_\_ | -1.3714 | -0.2812 |
| **NetPro\_Faryea** | \_\_\_ | \_\_\_ | \_\_\_ | \_\_\_ | -0.00021 | -0.5557 |
| **Irrigat\_Equipment** | \_\_\_ | \_\_\_ | \_\_\_ | \_\_\_ | -4.047 | -1.1185 |
| **Ava\_Fresh** | \_\_\_ | \_\_\_ | \_\_\_ | \_\_\_ | 3.0235 | 0.4415 |
| **Conc\_impact** | \_\_\_ | \_\_\_ | \_\_\_ | \_\_\_ | 4.1331 | 1.3149 |
| **InfHealth** | \_\_\_ | \_\_\_ | \_\_\_ | \_\_\_ | 1.6289 | 0.8467 |

1. Explain the significant estimated variables (profile of the farmers) in relation to their WTP preferences. Note a negative sign indicates the tendency for WTP for a higher price category.

**Discussion Pricing Water; your opinion.**

1. The current water price for the agricultural sector is too low?
2. The use of treated waste water is a serious option to expand the agricultural sector?
3. Before waste water is released if should undergo a tertiary wastewater treatment?
4. The price of water should be high enough to equal the O&M, running and investment costs?
5. What other types of non-conventional water can be used for the development of the agricultural sector?