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# **CRITICAL REVIEW OF THE APPLICATION OF CONTINGENT VALUATION METHOD FOR STUDYING THE PROTECTION OF CULTURAL-HISTORIC MONUMENTS**

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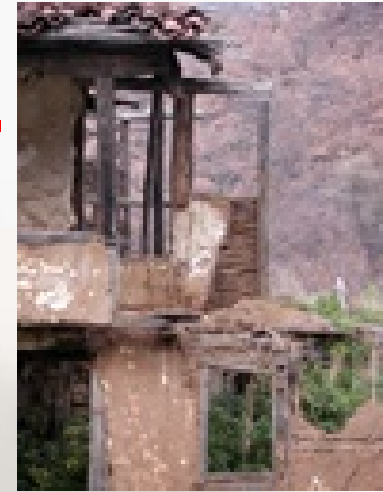


1. Introduction
2. Mastery of contingent valuation
3. Pros and cons of contingent valuation approach
4. Conclusions





## The need of valuing cultural-historic heritage.



- Decision makers need concrete estimations
- Important part of cost-benefit analysis.
- Objective necessity in the setting of scarce resources.

<http://www.seslavskimonastery.com/gallery1.html>



# Problems with valuing cultural-historic heritage.

- Multifarious effects of cultural-historic heritage.
- Variety of ways the effects can be analysed.
- Lack of markets to reflect real values.
- We do not know exactly what is the value of cultural-historic heritage.

Illustrations from Ettint's documentary:  
Valuing cultural heritage;  
<http://www.geocities.com/ettint>





## What is value?

- Value - we speak too much about prices and know almost nothing about value.
- Valuing cultural-historic heritage - very complicated story as the nature of its value is hidden.



Photo by Vasil Bachvarov





## The cultural-historic heritage has:

- **Intrinsic value.**
- **Instrumental (economic) value.**
- The problem with private and public goods.
- For public goods we use consumer surplus to measure benefits of public projects.



Photograph by Raul Touzon



## Cultural-historic heritage values:

- Value is subjective - depends on our value system.
- Important ethical aspects complicate economic analysis of value.
- In CBA we need to have more clear ideas about value.





# Value is important in measuring benefits:

- Direct and indirect benefits.
- Use and non-use value.
- Advices:
  - Concentrate on the basic effects.
  - Do not exaggerate the effects.

**Avoid  
the nightmare  
of effects.**

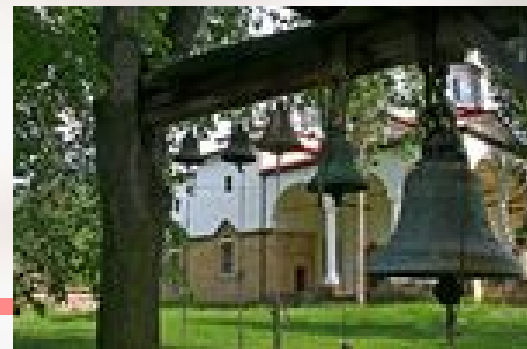






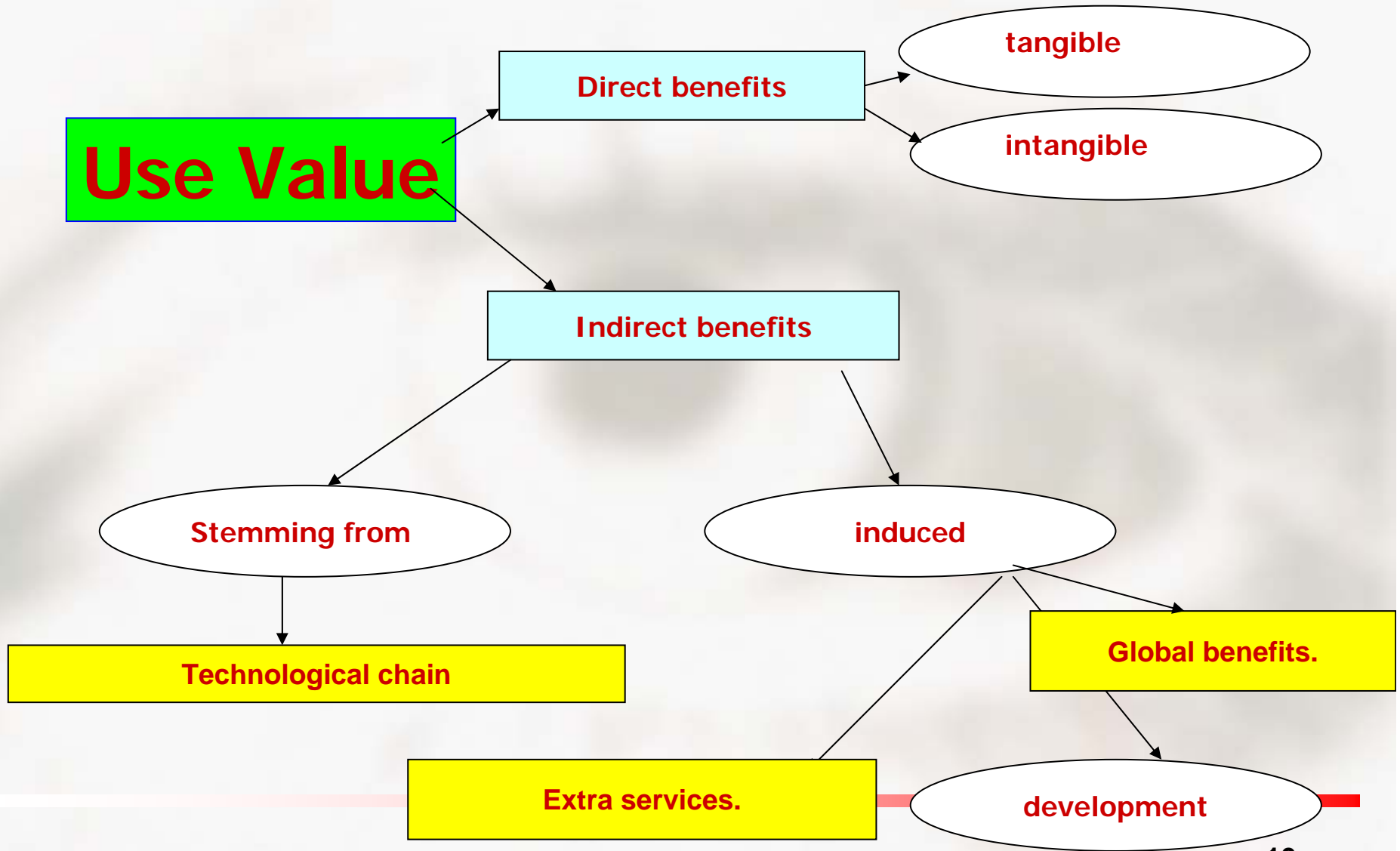
## Various ways of valuing are used...

- In valuing cultural-historic heritage we use the following assumptions:
  - cultural-historic heritage as goods have important use and non-use values.
  - Every good has its own general economic value - it is measured by our WTP for the good.



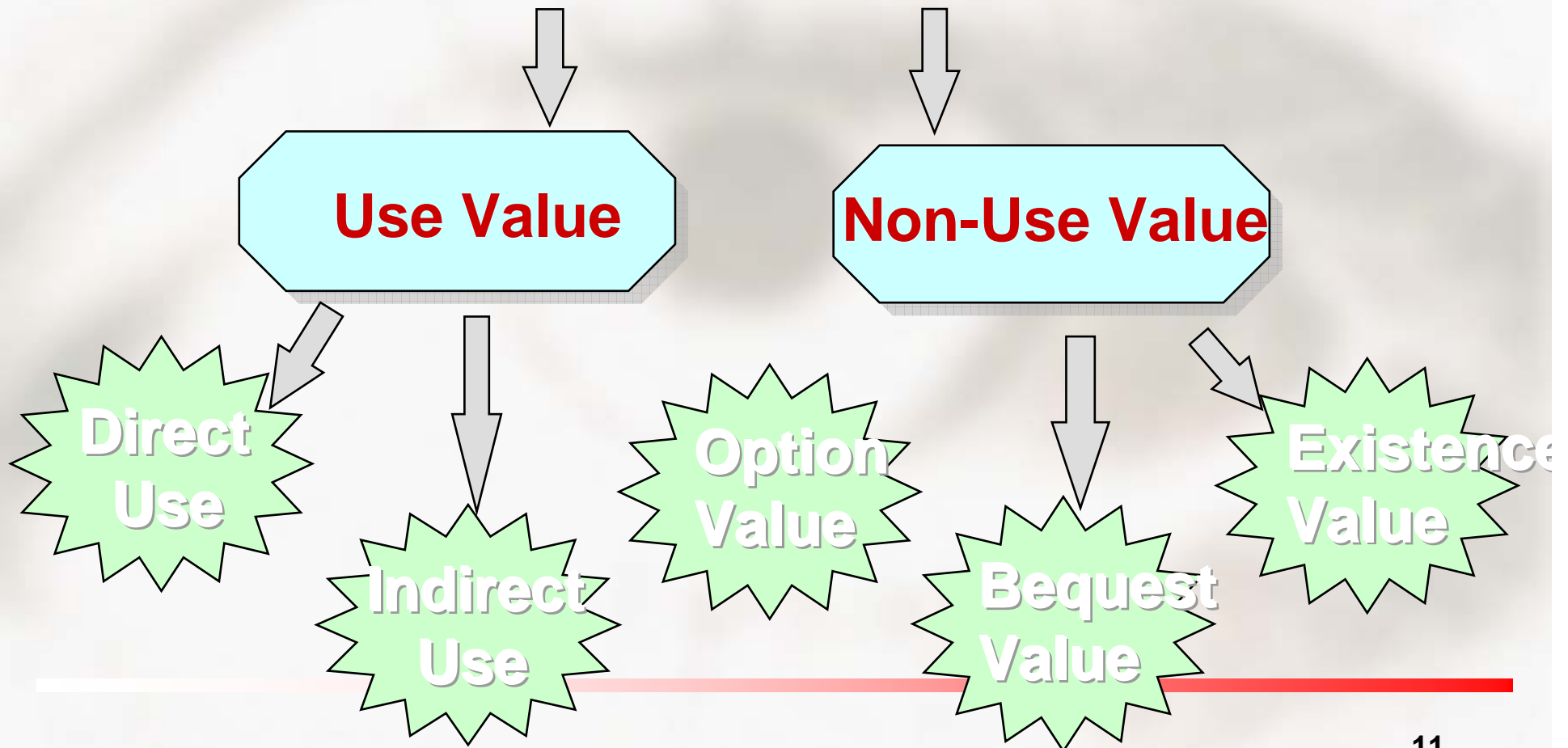


**Scheme of basic benefits of public projects.**



# Total value (General economic value)

## Attributes of value





# Theoretical foundations of measuring value.

- Indifference curve analysis (utility function).
- Demand analysis (demand function).

Arapovski monastery





## cultural-historic heritage valuation.

**Q = ORDINARY (PRICED) GOOD**

**E = cultural-historic heritage (ZERO PRICE)**

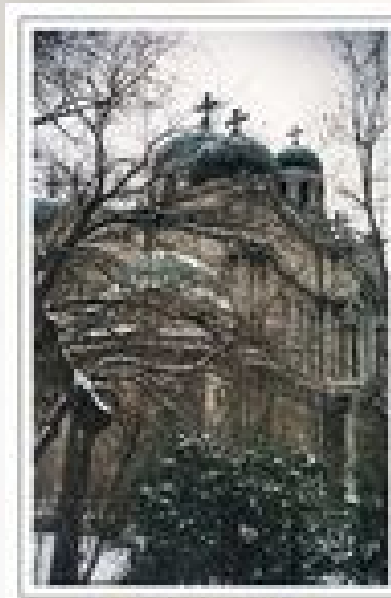
**U = UTILITY**

**Y = INCOME**

**P = PRICE INDEX OF ORDINARY GOOD**

**Individual's utility function:**

$$U = U(Q, E)$$







# Consumption of good Y depends on the following factors:

- - hedonic factors – connected with the pleasure of consuming the good.
- - demand factors - income, price, tastes and preferences, substitute goods, etc.



## Various kinds of preferences:

- We discuss here two basic kinds:
- Expressed (stated) preference - measured by our WTP.
- Revealed preference - estimated from our choices.





## From preferences to demand:

- We express our value by the demand of the good.
- WTP - basic measure of value.
- WTA - compensation for a possible cultural-historic heritage improvement not actually occurring for many reasons.





# Valuing cultural-historic heritage again: basic effects of cultural-historic heritage related decisions:

- Example – Benefits of giving the status of a protected cultural monument.
- Which would be the main benefits?
- Temptation to indicate a lot of benefits.
- Warning – be careful to avoid double counting.



# Basic problems of valuing cultural-historic heritage:

- In case there is a market:
- Direct methods applied: production function approach.
- Example: fees collected from visiting cultural monuments.
- BUT....
- There are no markets for most of the cultural-historic monuments.





# Basic methods



**When there is no market for the good**

**When there is a market for the good**

Revealed preference methods

Expressed (stated) preference methods

Replacement cost

Wage differential

Others: Dose - response, Mitigation behavior, etc.



# Basic methods used in benefits estimation.

- 1. *Methods of direct measurement.*
- 2. *Surrogate market-based methods.*
- 3. *Constructed market-based methods .*
- 4. *Experimental methods.*



# ***Estimating cultural-historic heritage Values***

## Impact/cost-based methods

- Dose response
- Earnings/Productivity loss
- Mitigation costs
- Substitute goods
- Replacement costs
- Shadow projects

## Demand Based methods

- Revealed preference
  - Travel cost
  - Hedonic pricing
- Expressed Preference
  - Willingness to pay/ be compensated
  - Preference scoring

**User Benefits**

**Non-user Benefits**

Source: Joe Morris presentation.



# What to do when there are no markets:

- Two options
  - - to use surrogate markets.
  - - to construct artificial markets.





## Using surrogate markets:

- - the price of property as surrogate of cultural-historic heritage quality - hedonic pricing method.
- - the spending on visiting cultural-historic heritage as a surrogate of how do we value it as users - travel cost method.





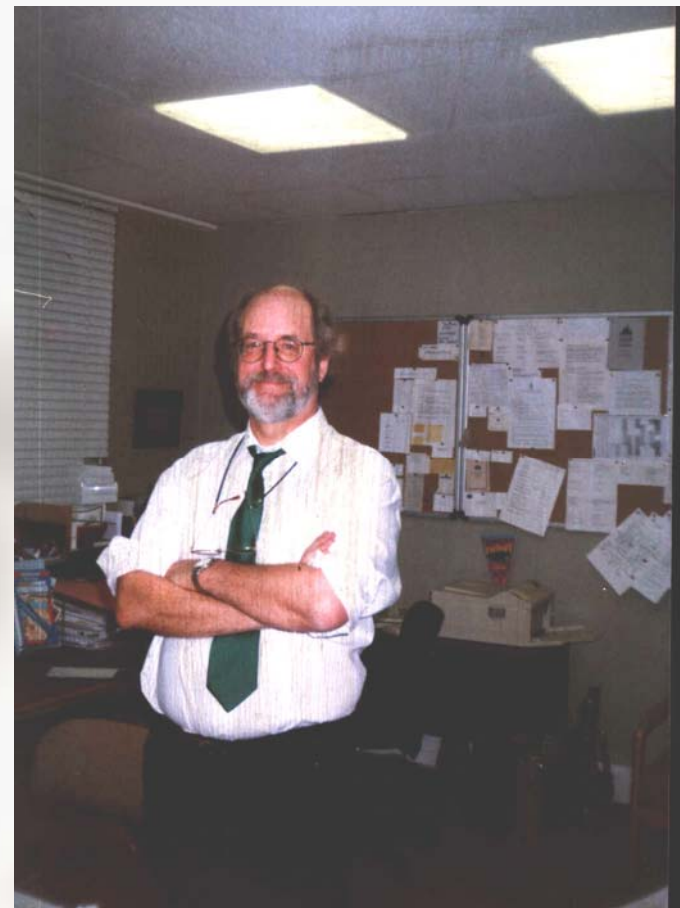
## Summary:

- Before we study economic aspects of some cultural-historic heritageal problem we need to construct the benefits (values) scheme and decide which methods of valuing to apply.
- We can not characterise value by one single figure, it is a complex category.



## PECO project

- **“The Measurement and Achievement of Sustainable Development in Eastern Europe” . , PECO programme, the EU. 01/01/1995-Dec 1997, **Principal Investigator:CSERGE-UCL, The UK****



Prof. David Pearce,  
The director of CSERGE.



# Table 1. Sample descriptive statistics

**Notes:** SD: standard deviation; BGL:  
Bulgarian Leva

| <i>Variable</i>             | <b>Mean</b> | <b>SD</b> |
|-----------------------------|-------------|-----------|
| Male (%)                    | 0.48        | 0.50      |
| Age (years)                 | 45          | 17        |
| Family size                 | 3           | 1.2       |
| Education                   |             |           |
| Primary (%)                 | 0.23        | 0.42      |
| Lower secondary (%)         | 0.53        | 0.50      |
| Upper secondary (%)         | 0.05        | 0.23      |
| University (%)              | 0.19        | 0.39      |
| Income (BGL)                | 23,910      | 13,087    |
| In full time employment (%) | 0.52        | 0.50      |
| No car (%)                  | 0.52        | 0.50      |



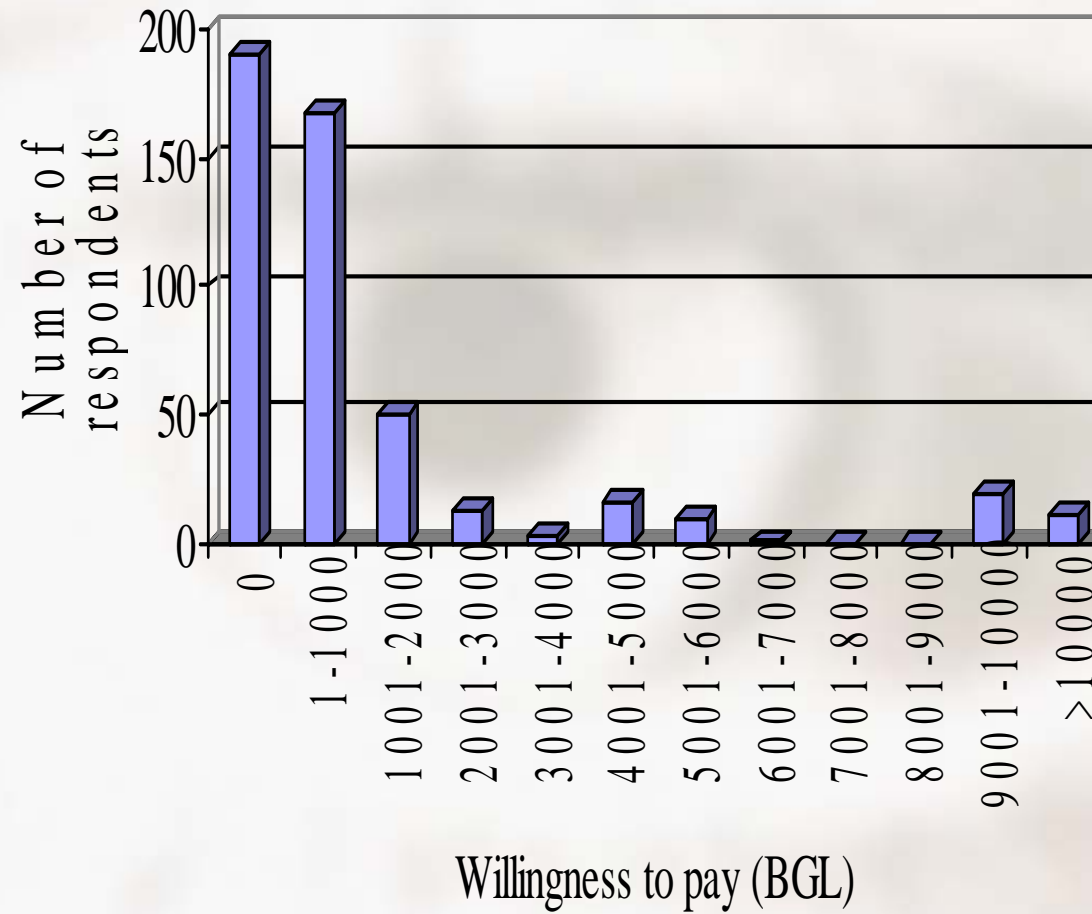
## Table 2. Attitudes and visits

| Attitudinal variables   | Sub-sample I:<br>less than 5<br>monasteries | Sub-sample II:<br>more than 5<br>monasteries |
|---|---|--|
| Interest in cultural heritage ( <i>5-very interested; 1-not interested at all</i> )   | 3   | 4  |
| Importance of monasteries conservation ( <i>5-very important; 1-not important at all</i> )  | 4   | 5  |
| Perceived state of monasteries conservation ( <i>5-excellent; 1-very bad</i> )  | 3   | 2  |
| Personal knowledge of monasteries historical role ( <i>5-very good; 1-very poor</i> )   | 2   | 3  |
| ‘I feel a sense of responsibility over the preservation of our cultural heritage’ ( <i>5-definitely agree; 1-definitely disagree</i> )  | 3   | 4  |
| ‘Monasteries have a value even for people who don’t visit them’ ( <i>5-definitely agree; 1-definitely disagree</i> )                    | 4   | 5  |
| ‘I don’t mind giving up money to protect monasteries’ ( <i>5-definitely agree; 1-definitely disagree</i> )                              | 4   | 5  |
| Cultural activities index: trip to museum, theatre, opera, classical concert, seen TV programme on monasteries ( <i>0-none; 1-all</i> ) | 0.2   | 0.4  |
| Reasons for visiting monasteries:   |   |  |
| Religion  | 13.2%                                       | 10.5%  |
| History and culture   | 46%   | 62%  |
| Percentage of sample  | 43%   | 57%  |



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# Distribution of willingness to pay







# Willingness to pay statistics

s.d.: standard deviation

| Variable            | N (%)       | Mean WTP in BGL (s.d) |
|---------------------|-------------|-----------------------|
| Full sample         | 483         | 1,943 (6,294)         |
| WTP>0               | 293 (60.7%) | 3,203 (7,832)         |
| WTP=0               | 190 (39.3%) | —                     |
| Valid answers       | 162 (33.5%) | —                     |
| Invalid answers     | 28 (5.8%)   | —                     |
| Total valid answers | 455 (94.2%) | 2,062 (6,466)         |



# Variables description

| <b>Variable name</b>            | <b>Description</b>  |
|---------------------------------|---|
| <b>WTP</b>                      | Annual household WTP in Bulgarian Leva (in taxes)   |
| <b>ONE</b>                      | Constant  |
| <b>SEX</b>                      | Dummy variable: 1-male; 0-female  |
| <b>AGE</b>                      | Interval midpoints from seven age groups  |
| <b>EDUCATION</b>                | 4-university; 3-upper secondary; 2-lower secondary; 1-primary   |
| <b>INCOME</b>                   | Interval midpoints from twelve income groups  |
| <b>STATE</b>                    | ‘What do you think is the general state of conservation of Bulgarian monasteries?’ 1-Very bad to 5-Excellent                                  |
| <b>MONASTERIES<br/>PRIORITY</b> | ‘When considering public spending in cultural heritage, how much a priority is monasteries conservation?’ 1-Low priority to 5-High priority   |
| <b>BEQUEST</b>                  | ‘What is the most worrying consequence of monasteries’ degradation?’<br>Dummy variable: 1-The next generation won’t see them; 0-other reasons |
| <b>NUMBER</b>                   | Number of monasteries visited   |
| <b>RESPONSIBILI<br/>TY</b>      | ‘I feel a sense of responsibility over the preservation of our cultural heritage’. 1-Definitely disagree to 5-Definitely agree.               |



# Econometric models

|                                 | <b>PROBIT<br/>(PROTESTS)<br/>(1)</b> | <b>TOBIT<br/>(2)</b>     | <b>PROBIT<br/>(PARTICIPATION<br/>)<br/>(3)</b> | <b>SELECTION<br/>(2-STAGE)<br/>(4)</b> |
|---------------------------------|--------------------------------------|--------------------------|--|--|
|                                 | Coefficient<br>(s.e.)                | Coefficient<br>(s.e.)    | Coefficient<br>(s.e.)                          | Coefficient<br>(s.e.)                  |
| <b>CONSTANT</b>                 | -1.73586***<br>(0.73602)             | -12187.6***<br>(3444.34) | -1.67563***<br>(0.45232)                       | -9794.3*<br>(5305.24)                  |
| <b>SEX</b>                      | 0.54360**<br>(0.26018)               | 1426.23<br>(923.477)     | 0.25640*<br>(0.14655)                          | 1137.26<br>(1046.32)                   |
| <b>AGE</b>                      | -0.00312<br>(0.00819)                | -67.3017**<br>(30.5648)  | -0.00418<br>(0.00463)                          | -71.1934**<br>(34.2309)                |
| <b>EDUCATION</b>                | -0.11396<br>(0.14813)                | 569.033<br>(501.621)     | 0.13869*<br>(0.07829)                          | 493.427<br>(602.337)                   |
| <b>INCOME</b>                   | 0.000002<br>(0.00001)                | 0.14028***<br>(0.03841)  | 0.000008<br>(0.000006)                         | 0.17145***<br>(0.04459)                |
| <b>STATE</b>                    | 0.27827**<br>(0.13638)               | -658.357<br>(487.841)    | -0.02339<br>(0.07676)                          | -864.337*<br>(537.213)                 |
| <b>MONASTERIES<br/>PRIORITY</b> | —                                    | 641.204<br>(473.61)      | —  | 1070.72**<br>(494.817)                 |
| <b>BEQUEST</b>                  | —                                    | 648.854<br>(1035.25)     | —  | 2121.2**<br>(1127.78)                  |
| <b>NUMBER</b>                   | —                                    | 106.083**<br>(53.3504)   | —  | 83.6474*<br>(51.7241)                  |
| <b>RESPONSIBILITY</b>           | —                                    | 1237.69***<br>(410.202)  | 0.23051***<br>(0.06080)                        | 848.977<br>(595.735)                   |
| <b>CULTURAL INDEX</b>           | -0.42982<br>(0.55595)                | 3351.94*<br>(1991.74)    | 0.56678*<br>(0.33189)                          | 3503.06<br>(2234.77)                   |
| <b>PROGRAMME INDEX</b>          | -0.23152**<br>(0.10966)              | 426.993<br>(459.852)     | 0.18687<br>(0.06967)                           | —                                      |
| <b>CHARITY</b>                  | —                                    | 1728.8*<br>(981.413)     | 0.68524***<br>(0.16954)                        | —                                      |
| <b>BORING</b>                   | 1.13473***<br>(0.38637)              | —                        | —  | —                                      |
| <b>LAMBDA/SIGMA</b>             | —                                    | 8124.55<br>(366.26)      | —  | 3977.35<br>(3009.23)                   |
| <b>RHO</b>                      | —                                    | —                        | —  | 0.49                                   |
| <b>E(WTP)</b>                   | —                                    | 0.64                     | —  | —                                      |
| <b>P(+)</b>                     | —                                    | 0.36                     | —  | —                                      |
| <b>R<sup>2</sup></b>            | —                                    | —                        | —  | 0.16                                   |
| <b>CHI 2 (df)</b>               | 29.03 (8)                            | 76.86 (12)               | 78.72 (9)                                      | 42.96 (10)                             |
| <b>LOG-LIKELIHOOD</b>           | -62.4492                             | -2717.991                | -205.8675                                      | -2624.15                               |
| <b>N</b>                        | 411                                  | 377                      | 386  | 254                                    |



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## Policy implications

- Generating funds for protection of cultural-historic heritage
- Giving priorities in conservation works.





**Thank you.**

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