

# NON-MARKET VALUATION AND NATURAL AREAS: ADVANTAGES AND LIMITATIONS

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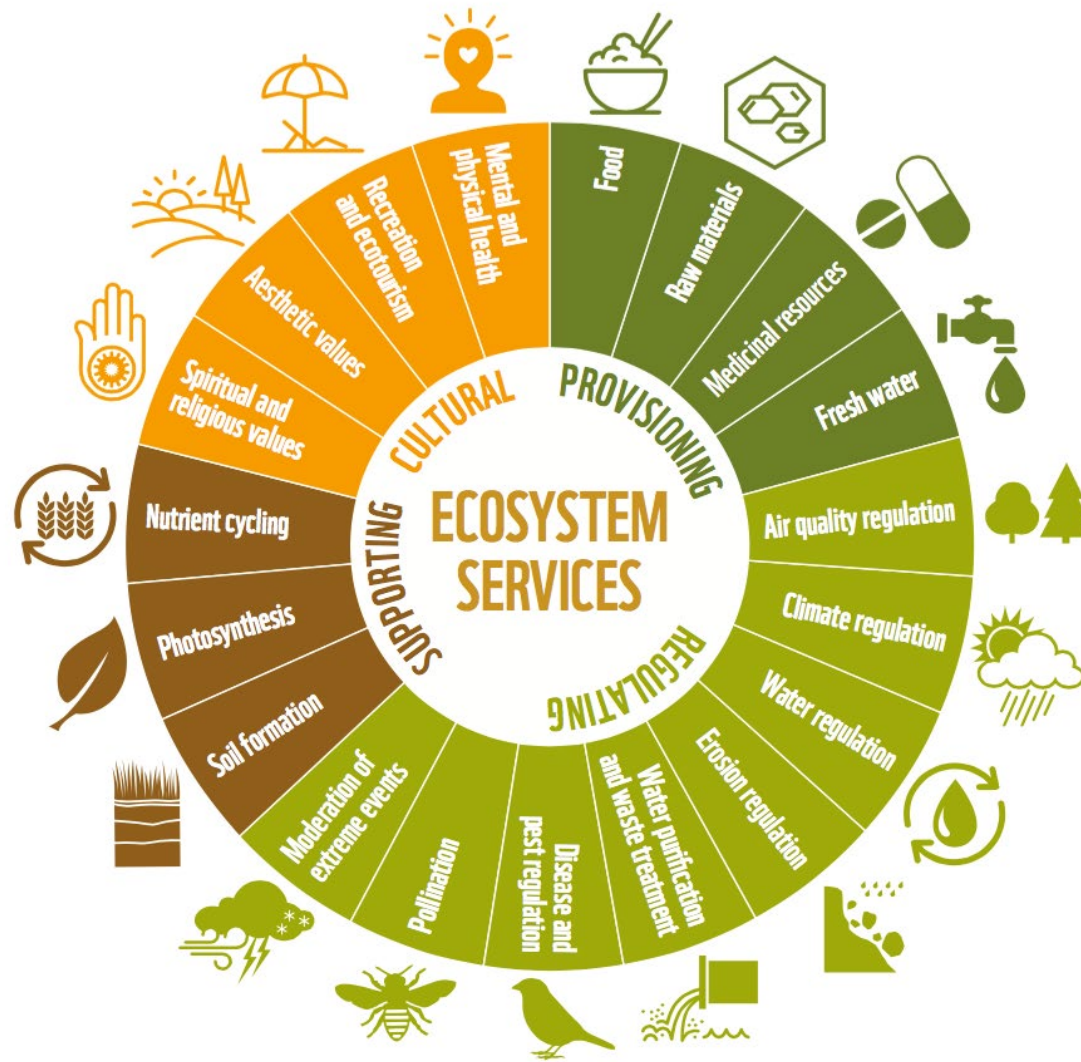
**Washington, DC**

# Expected Outcomes

- Understand important considerations for non-market valuation
- Become familiar with valuation terms and concepts
- Know which types of valuation approaches are often used
- Understand the limitations and advantages of these approaches



# Motivation



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Market valuation



Non-market valuation

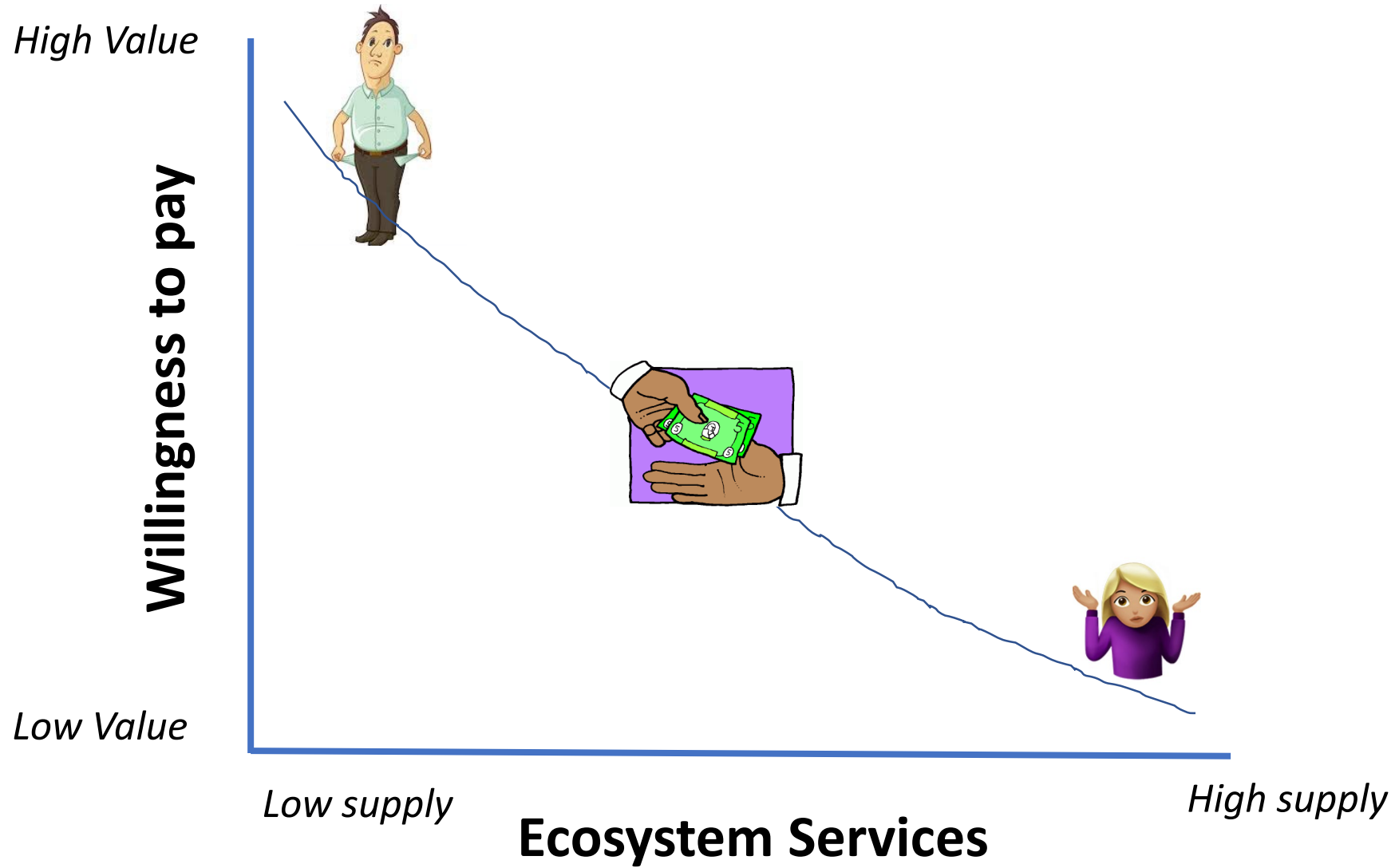


## Important Considerations

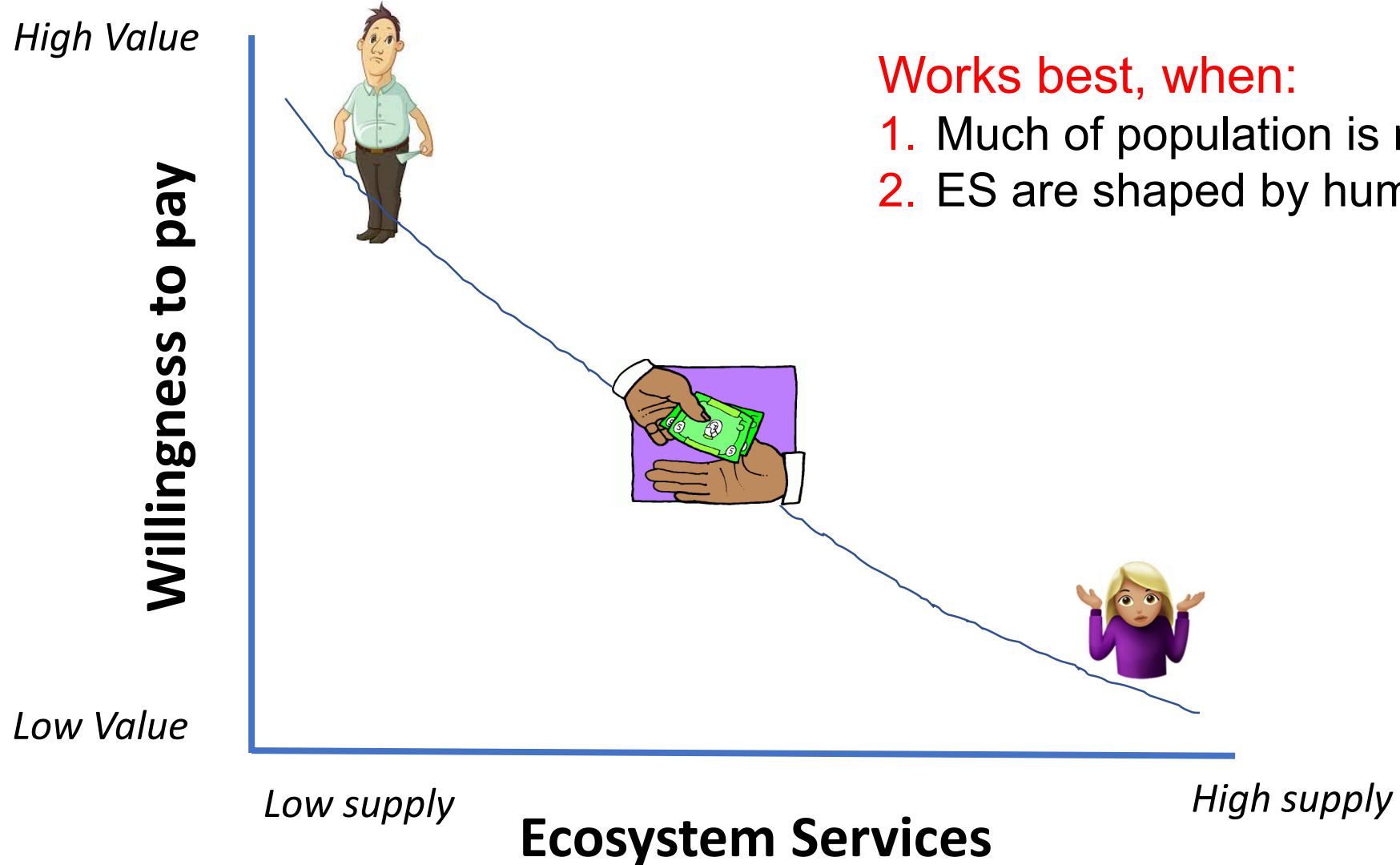
1. Ecosystem services must be in relatively good supply
2. People have to be aware of changes in services
3. People need to have enough discretionary income to express their preferences



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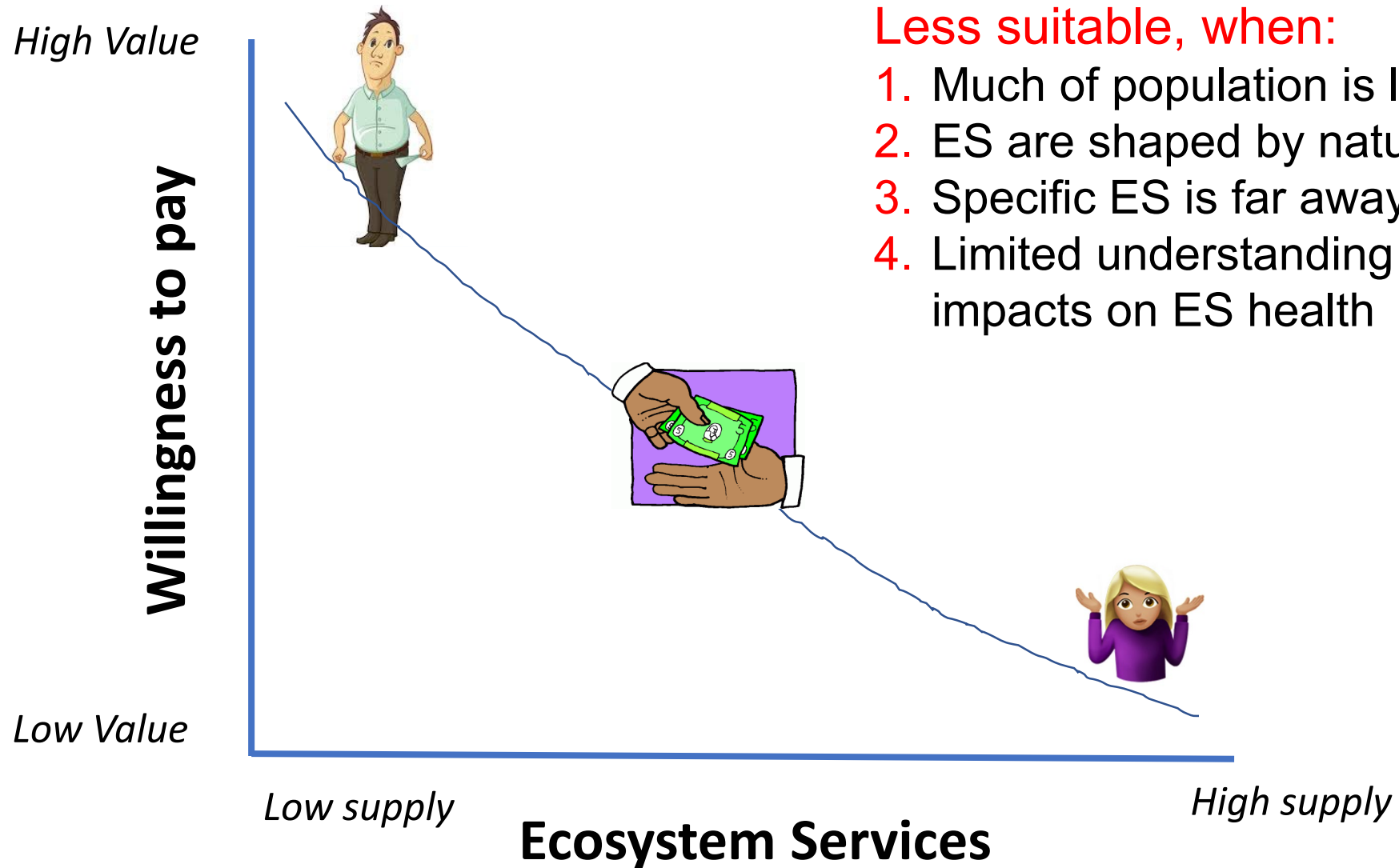
# Important Considerations



**Works best, when:**

1. Much of population is middle class
2. ES are shaped by human choices

# Important Considerations



## Less suitable, when:

1. Much of population is low income
2. ES are shaped by natural disasters
3. Specific ES is far away
4. Limited understanding about impacts on ES health



# Valuation: Two approaches

Revealed Preferences



Stated Preferences



# Revealed Preference: Hedonic Pricing

## Basic idea:

- Consumers seek to maximize their utility by purchasing various items
- Items consist of different characteristics
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  - Size | Age | Layout | Construction quality...
  - Location (location location!..)
    - Distance to work/shopping | crime rate | **scenic view**...
2. Use statistical techniques to
  - Understand how much of the variation in house prices is due to the variation in each characteristic
  - Separate the part of the variation in prices that is due to the difference in beautiful views



# Hedonic Pricing

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- Based upon actual choices
- Property data is relatively easy to collect and reliable
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## Limitations:

- Assumption that consumers are informed about environmental qualities
- Results may be very site-specific
- Statistic techniques & manipulations of large datasets can be complicated

## Travel Cost (Zonal)

### Basic idea:

- Placing values on recreation opportunities
- To understand the trade-offs travelers make between environmental quality and travel cost
- To compare benefits with costs of maintaining the site for visitors



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2. Estimate demand curve and annual CS for one site



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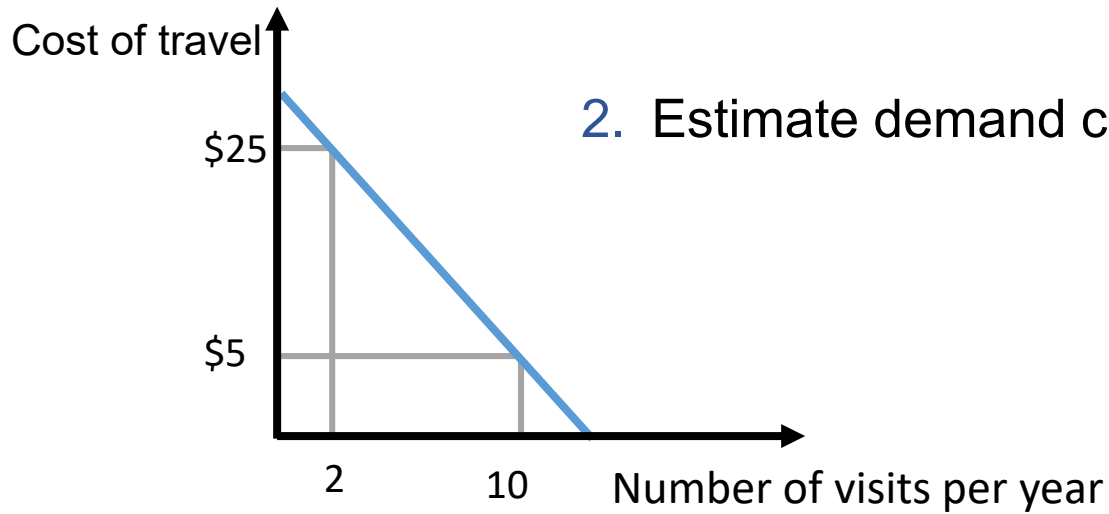
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  1. Opportunity cost of time spent traveling
    - Hourly wage | non-wage income
  2. Monetary costs
    - Operating cost of vehicle used to travel
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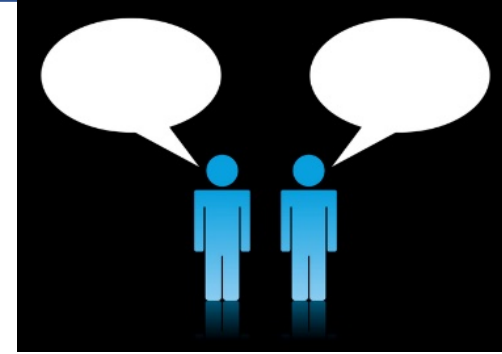
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- Difficult to analyze multiple-purpose trips
  - People stop at the lake on the way to somewhere..
- Value is underestimated when the focus is on private or local park
  - Travel needs to have an effect on visitors' income



## Stated Preference approaches

### Basic idea:

- Sample of people are asked to state their preferences for environmental qualities
  - *How much \$ they are WTP for a change in a certain ecosystem service*
- Obtained information is extrapolated to represent the population
- Estimate market demand and CS for the associated ES



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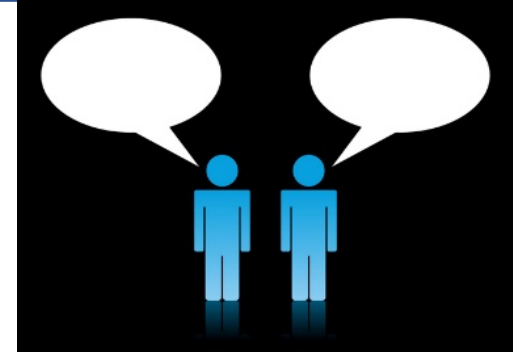
## Survey:

- Questions must be very carefully stated
- Clear description of the scenario
  - Payment vehicle
- Collect data on WTP for a hypothetical changes to ES
- Collect data on respondent characteristics

## Stated Preference

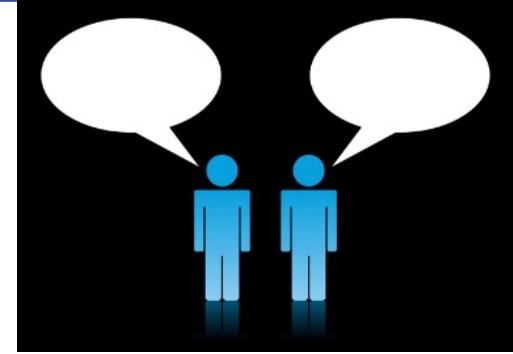
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## Limitations:

- Hypothetical bias
  - Difference between hypothetically answering what one is WTP and actually paying for environmental services
- Response bias
  - If survey respondents are not representative of the larger populations
- Survey mode influence
  - Internet | telephone | in-person | mail | mixed

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## Basic Idea:

- Taking results from one or more valuation studies and applying them to value an environmental good in a new context.



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- Used when:
  1. Conducting an original study would:
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    - Lack available data
    - Be too time consuming



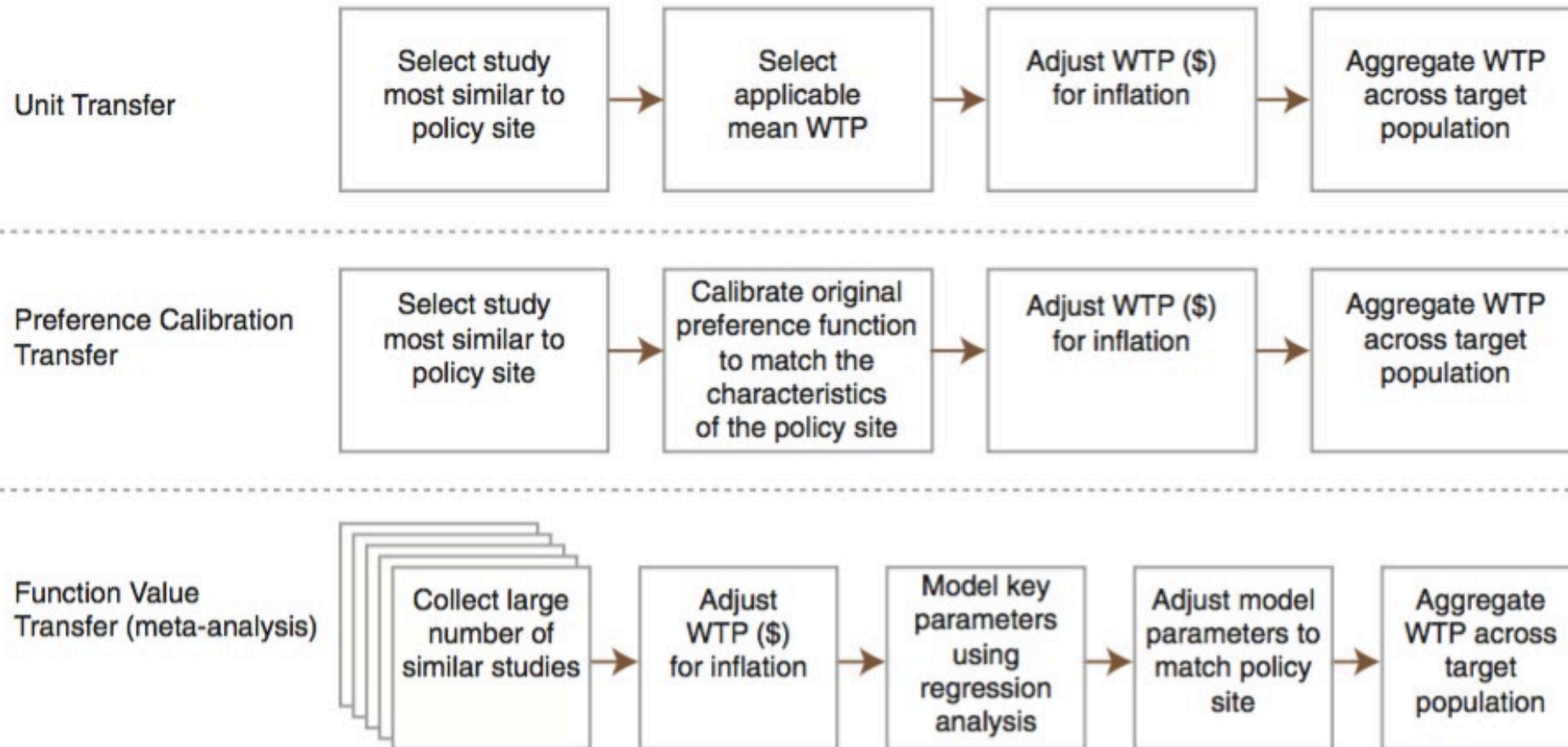
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- Used when:
  1. Conducting an original study would:
    - Be too expensive
    - Lack available data
    - Be too time consuming
  2. There are studies that can be used which address a *similar problem* in a *similar context*



# Benefit Transfer



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Advantage:

- Relative simplicity



# Benefit Transfer



## Advantage:

- Relative simplicity

## Limitations:

- Original study may be flawed
- Differences between the policy site and the study site are too severe:
  - Preferences
  - Goods
  - Sociodemographic characteristics
  - Availability of substitutes

## Concluding Remarks

- Decision-makers should include ecosystem service values
- Failing to account for diminished services might result in
  - Less effective policies and
  - Reduced social welfare
- Future research should focus on
  - Advancing valuation methods
  - Continuing to investigate how ecosystem service values are perceived by the general public



Thank You!

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