



Economic Valuation of Ecosystem Services

NVO “Baltic coasts”

Dr.paed. Aija Peršēvica





Why economic valuation?

- Economics is about choice and every decision is preceded by a weighing of values among different alternatives (Bingham et al., 1995).
- Economy is the language that can be understood by most of all people.





Ecosystem value



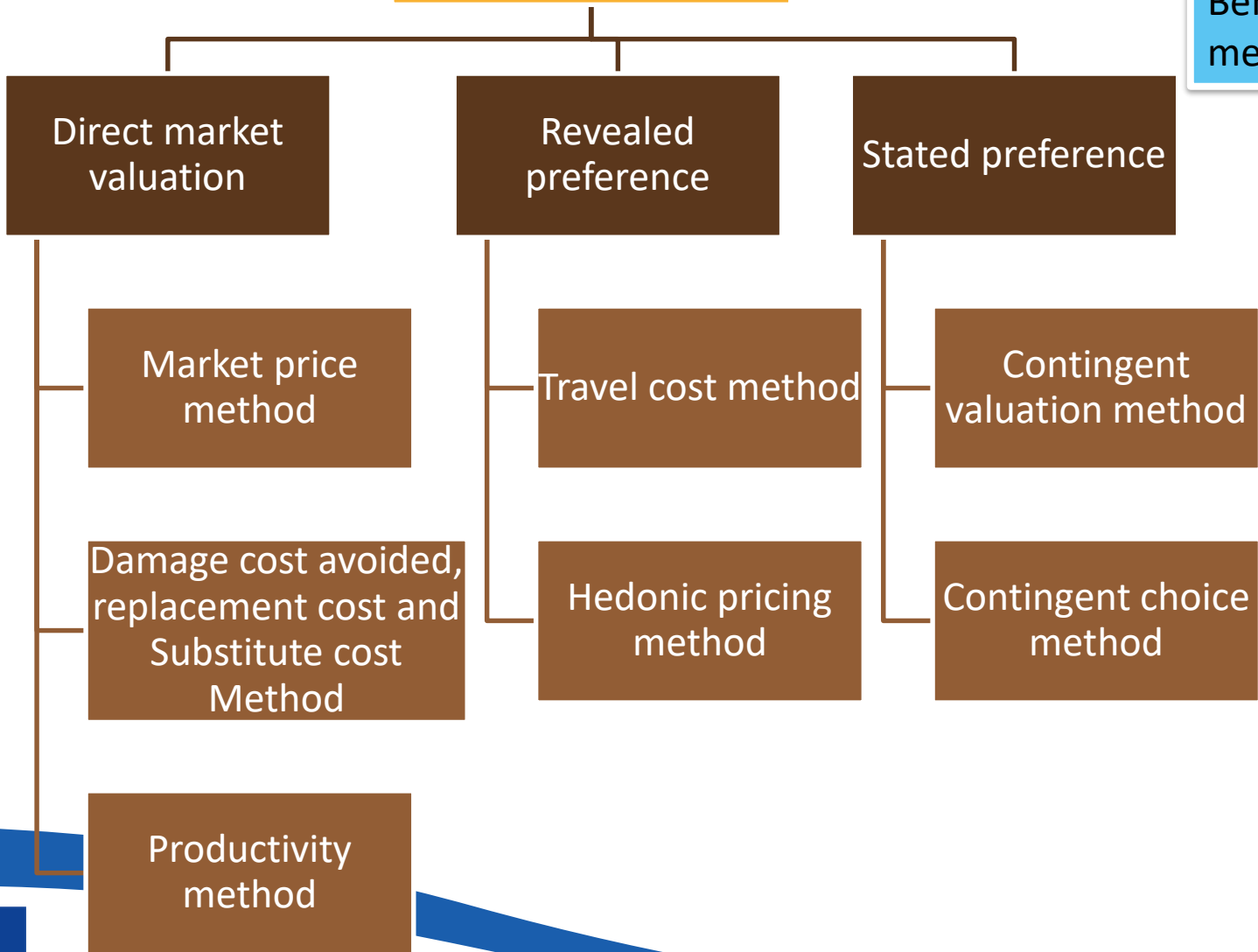
- Ecosystem values are measures of how important ecosystem services are to people – what they are worth.
- Monetary unit is used as a common metric to compare aspects of wellbeing
 - Widely recognized, comparable to other services
 - Easily incorporated into decision-making





Ecosystem economic valuation approaches

Benefit transfer method





Ecosystem valuation methods used in the Project

Valuation method

Benefit transfer

Market price

Travel cost

Contingent valuation

Ecosystem services

Provision (wild berry; fishing; wood; medical plant)

Regulation (erosion control; noise reduction; Flood protection; Storm protection; pollination; water quality)

Cultural (Active and passive recreation; environmental education; cultural heritage; Aesthetic landscape attractiveness)



Market price



PHOTO: THINKSTOCK

- Market price method uses standard economic techniques for measuring the economic benefits from marketed goods, based on the quantity people purchase at different prices, and the quantity supplied at different prices.





Market price method used in project

- Wild berry market price and consumer's willingness to pay has been set.
- It has been identified that environmental changes are not expected and won't affect market price;
- It is expected that market prices won't arise and thus won't be any changes in quantity of purchased berry.
- **Producer loss** of economic benefits are not expected because there aren't expected any production activity.



LIFE13 ENV/LV/000839 projekts LIFE Ekosist

Geospatial unit	Area, ha	Potencia l wild berry harvest, kg/ha	Wild berry harvest, kg	EUR (10EUR/kg) 2015.g. prices	EUR/h a
Beach	5.55	0	0	0	0.0
Embryonic dunes	0.82	0	0	0	0.0
Foredunes	3.85	0	0	0	0.0
Wooded coastal dunes and old or natural boreal forests, grown and outgrown wood	45.12	186	8392.32	83923.2	1860.0
Wooded coastal dunes and old or natural boreal forests, middle-aged and mature forest	23.8	286	6806.8	68068.0	2860.0
Wooded coastal dunes, grown and outgrown wood	0.12	186	22.32	223.2	1860.0
Wooded coastal dunes, middle-aged and mature forest	3.8	286	1086.8	10868.0	2860.0
Public building area, the area around the building	5.4	0	0	0	0.0
Urban areas	0.74	0	0	0	0.0
Transport infrastructure area	4.4	0	0	0	0.0
Total	93.6		16308.24	163082.4	1742.3



Market price

Advantages and Limitations

Advantages

- Market prices reflect the private willingness to pay for goods and benefits that are traded (e.g., fish, timber, fuelwood, recreation).
- Price data are relatively easy to obtain.
- The method uses standard, accepted economic techniques.

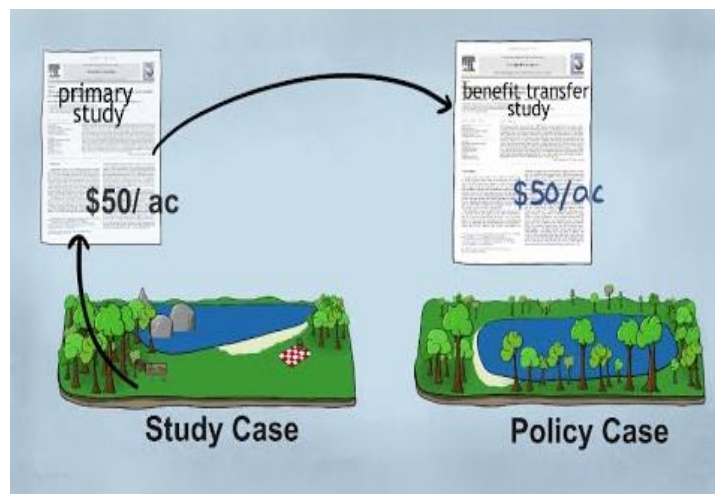
Limitations

- Limited number of goods and services
- Seasonal variations and other effects on prices need to be considered when market prices are used in economic analysis.





Benefit Transfer



The benefit transfer method is used to estimate economic values for ecosystem services by transferring available information from studies already completed in another location and/or context.





Benefit Transfer method used in the Project

Example:

Regulation ecosystem service – Storm protection

Biome	Service	Subservice	Country	Year	Value Type	Value	Unit
Coastal Wetlands	Extreme events	Storm protection	United Kingdom	2004	Annual	7100.0	GBP/ha/year

1. GBP convert to USD

- $7100.0 / 0.632441 = 11226.34$ USD/ha/year

2. 2004. prices to 2014 prices

3. USD to Euro (in Latvia)

- $13641.19 \cdot 0.502261 = 6851.4$ EUR/ha/year

4. 2014, prices to 2015 prices





Benefit Transfer

Geospatial unit	Area, ha	ES qualitative assessment (ES QA)	ha*(ES QA)	EUR (6892.55 EUR/ha)	ES adjusted value EUR	EUR/ha
Beach	5.55	1	5.55	38253.64	28712.7	5173.5
Embryonic dunes	0.82	1	0.82	5651.9	4242.2	5173.5
Foredunes	3.85	1	3.85	26536.3	19917.8	5173.5
Wooded coastal dunes and old or natural boreal forests, grown and outgrown wood	45.12	1	45.12	310991.8	233426.5	5173.5
Wooded coastal dunes and old or natural boreal forests, middle-aged and mature forest	23.8	2	47.6	164042.6	246256.7	10346.9
Wooded coastal dunes, grown and outgrown wood	0.12	1	0.12	827.1	620.8	5173.5
Wooded coastal dunes, middle-aged and mature forest	3.8	2	7.6	26191.7	39318.3	10346.9
Public building area, the area around the building	5.4	0	0	0	0	0.0
Urban areas	0.74	0	0	0	0	0.0
Transport infrastructure area	4.4	0	0	0	0	0.0
Total	93.6		110.66	572495.02	572495.0	6116.4



LIFE13 ENV/LV/000839 projekts LIF



Benefit Transfer

Advantages

Benefit transfer is typically less costly than conducting an original valuation study.

Economic benefits can be estimated more quickly than when undertaking an original valuation study.

The method can be used as a screening technique to determine if a more detailed, original valuation study should be conducted.

The method can easily and quickly be applied for making gross estimates of recreational values. The more similar the sites and the recreational experiences, the fewer biases will result.

Limitations

Benefit transfer may not be accurate, except for making gross estimates of recreational values, unless the sites share all of the site, location, and user specific characteristics.

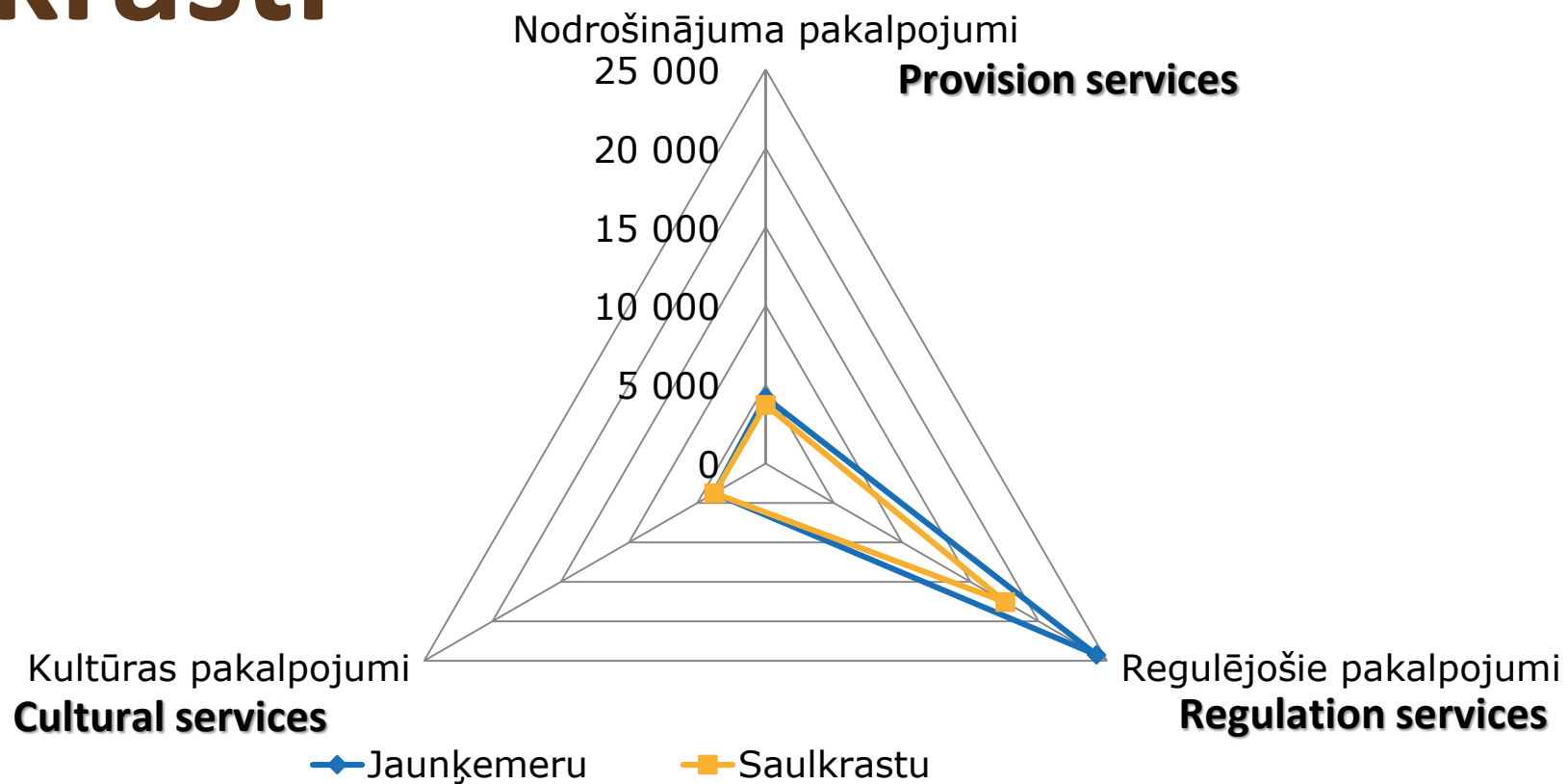
Good studies for the policy or issue in question may not be available.

Adequacy of existing studies may be difficult to assess.

Benefit transfers can only be as accurate as the initial value estimate.

Unit value estimates can quickly become dated.

Comparison of Jaunķemeri and Saulkrasti





Travel costs



The basic idea of the travel cost method is that the time and travel cost expenses that people incur to visit a site represent the “price” of access to the site





Gathered information:

- How did you get to this particular place?
 - How many km did you?
 - How much time did you spent?
 - How big were the material costs?
 - In how large group you are visiting this place?
 - How much time did they spend that time using specific ecosystem service?
- +
- Questions about use of ecosystem services

Travel costs

Valuated ecosystem services:

Medical plants

Bird waching

Active and passive recreation

Environmental education

Cultural heritage

The cultural visual identity





Travel cost method

Advantages and Limitation

Advantages

- The method is based on actual behavior—what people actually do—rather than stated willingness to pay—what people say they would do in a hypothetical situation.
- The method is relatively inexpensive to apply.
- On-site surveys provide opportunities for large sample sizes, as visitors tend to be interested in participating.
- The results are relatively easy to interpret and explain.

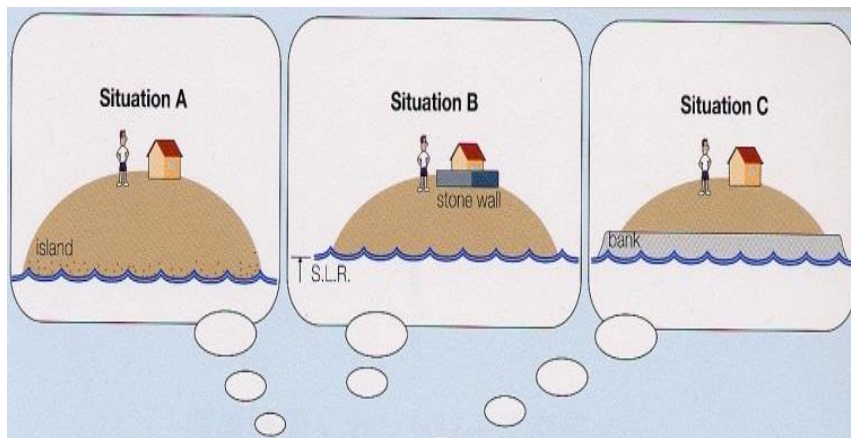
Limitation

- The most simple models assume that individuals take a trip for a single purpose – to visit a specific recreational site. Thus, if a trip has more than one purpose, the value of the site may be overestimated
- Defining and measuring the opportunity cost of time, or the value of time spent traveling, can be problematic. Because the time spent traveling could have been used in other ways
- Standard travel cost approaches provides information about current conditions, but not about gains or losses from anticipated changes in resource conditions



Contingent valuation

Value for service demand elicited by posing hypothetical scenarios that involve some valuation of land use alternatives. For example, people would be willing to pay for increased preservation of beaches and shoreline.





Contingent valuation

Gathered information:

- Are you ready to pay once in a year to keep the possibilities of specific ecosystem services you use as they are now?
- How much?

Valuated ecosystem services:

Medical plants

Bird watching

Active and passive recreation

Environmental education

Cultural heritage

The cultural visual identity





Contingent valuation

Advantages and Limitation

Advantages	Limitations
<p>Very flexible.</p> <p>Can be used to estimate economic value of about anything but best to use it to estimate value of goods and services easily identified and understood by users</p> <p>CV is the most widely accepted method for estimating TEV including non use, option and bequest values (only method to estimate option or existence values)</p>	<p>Whether CV really measures WTP still controversial (most people unfamiliar making choices about ecosystem services)</p> <p>Results highly sensitive to design of choice scenarios and how survey conducted (psychological aspects)</p> <p>Many people including jurists, policy makers, economists and others do not believe the results of CV analysis</p>





Thank you.

Aija Peršēvica
aija.persevica@baltijaskrasti.lv