

Institute for Environmental Studies (IVM)

Value Transfer

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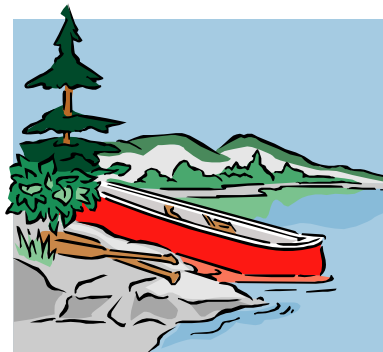
Outline

1. Value Transfer (VT) – why and how
2. How accurate is VT? – some evidence
3. When is good good enough? – value of information
4. Discussion

Why and how

Value Transfer is the adaptation of existing information or data to new contexts.

For example: it uses WTP estimates for some environmental change from a previous study (the study site) to value environmental change at another site (the policy site)



Study site



Policy site

Why and how

Value Transfer is cheaper and faster than an original valuation study, but ..

Its accuracy is less because of the transfer error:

$$TE = |WTP_T - WTP_P| / WTP_P$$

So there is a trade-off between costs (and time) and accuracy.

Why and how

Unit Value Transfer

- Simple Unit Transfer
- Unit Transfer with adjustments

Function Transfer

- Value Function from one or a few similar studies
- Meta analysis (from many studies with different scope)

How accurate is VT? Pennine Dales



Pennine Dales - England

CV study in 1995 estimated WTP for conservation scheme is £112 (£101-£123) per household per year (visitors).

How accurate is VT? Pennine Dales



Would VT have accurately predicted this WTP value?

£112(£101- £123)

Simple Unit Transfer	Same site, different method Other site, same method
Unit Transfer with adjustments	Same site, adjusted for method Other site, adjusted for income
Value function	Other site
Meta-analysis	64 observations from 19 studies; ind. variables: change in landscape; population; valuation method

How accurate is VT? Pennine Dales



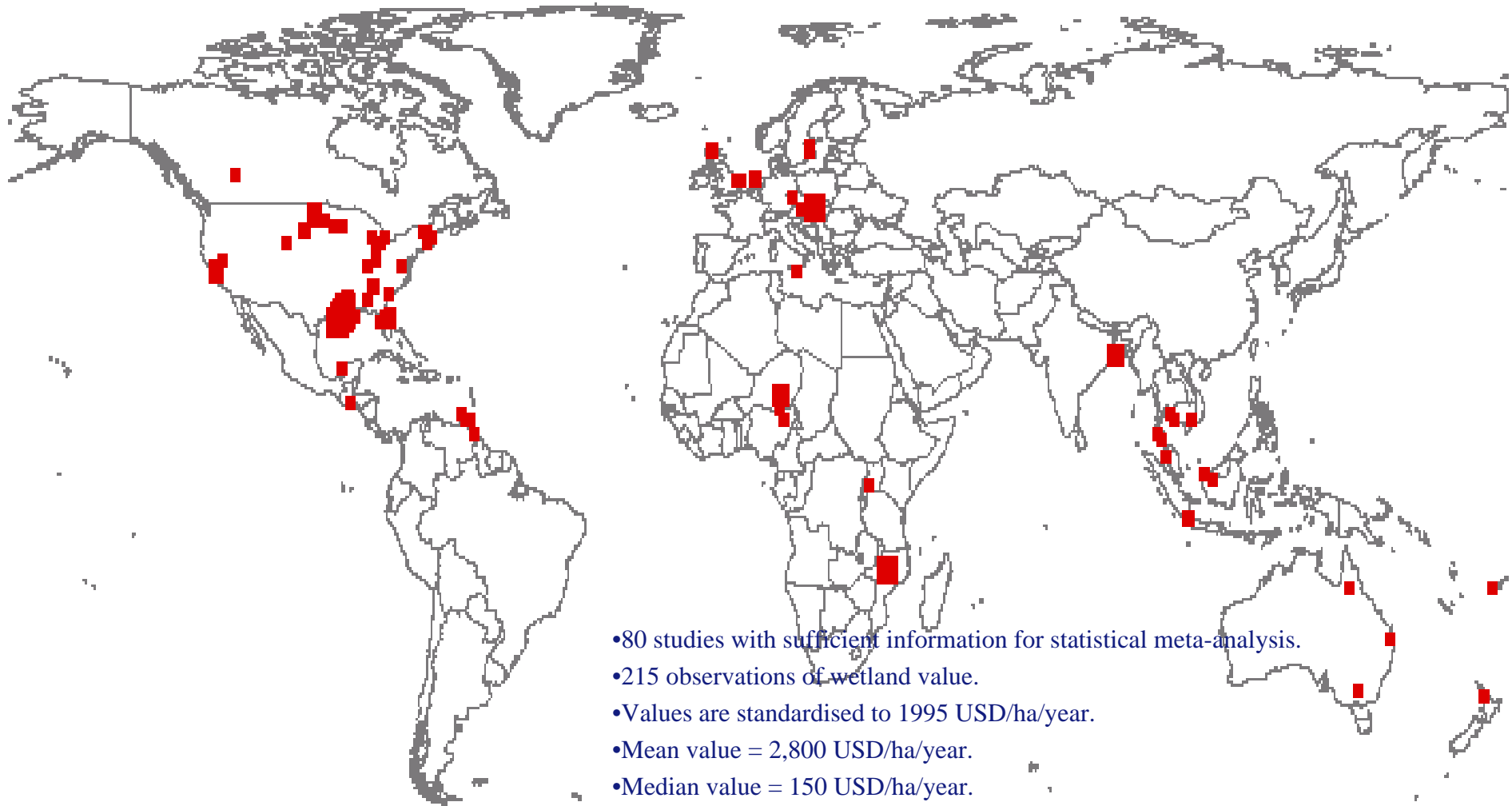
Would VT have accurately predicted this WTP value?

£112 (£101- £123)

Simple Unit Transfer	Same site, different method	29 (23-35)
	Other site, same method	56 (52-61)
Unit Transfer with adjustments	Same site, adjusted for method	96 (77-115)
	Other site, adjusted for income	90 (83-97)
Value function	Other site	68 (54-83)
Meta-analysis	OE format	34 (26-43)
	DC format	87 (64-118)

How accurate is VT? Wetlands

Brander, L., Florax, R., and Vermaat, J. (2006) The Empirics of Wetland Valuation: A Comprehensive Summary and a Meta-Analysis of the Literature. *Environmental and Resource Economics*, 33(2): 223-250.

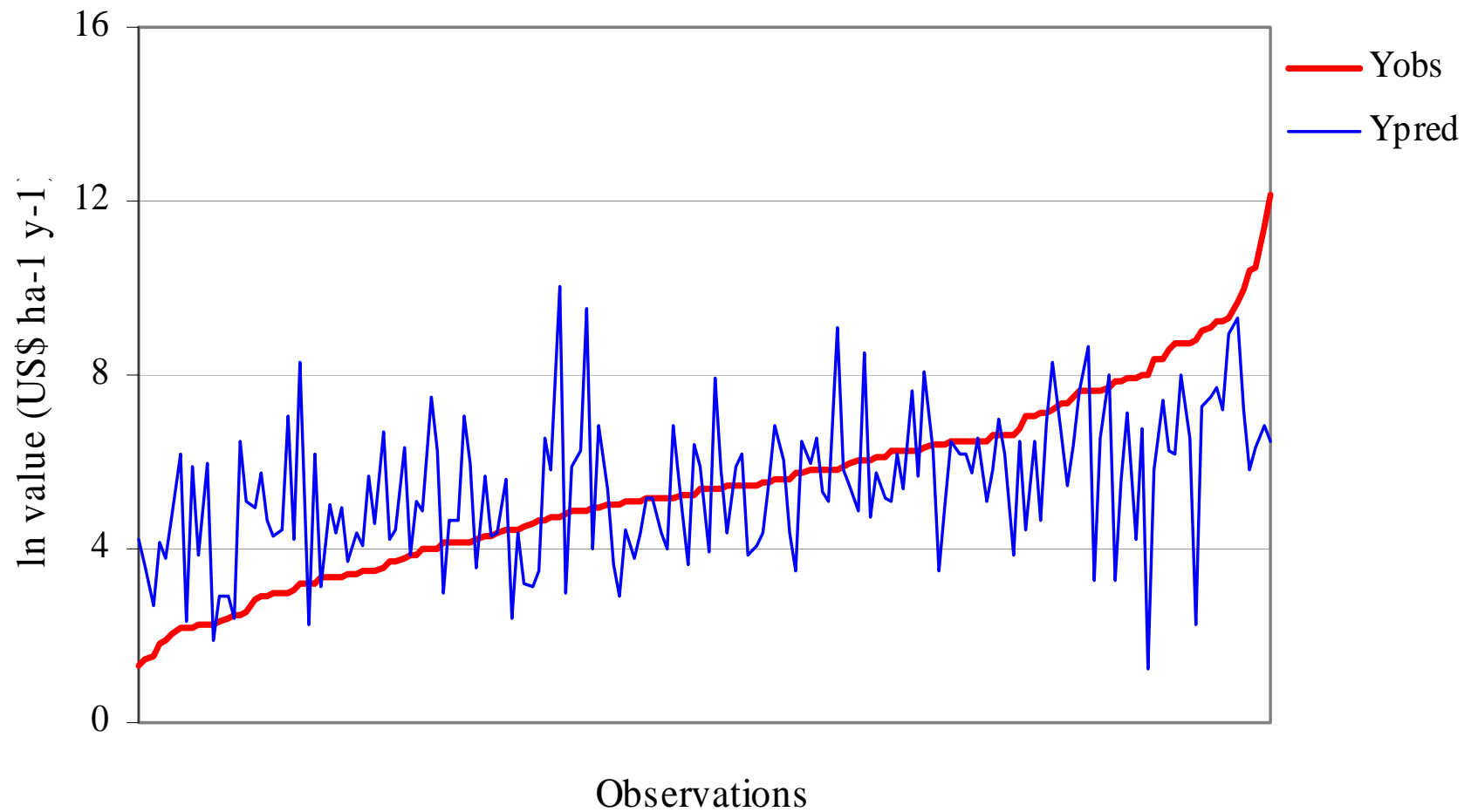


How accurate is VT? Wetlands

Variables		Coefficient	Standard error
Dependent	Wetland value (ln)		
	Constant	-6.98	4.67
Socio-economic	GDP per capita (ln)	1.16	0.46
	Population density (ln)	0.47	0.12
	Urban area	1.11	0.48
Location	Wetland area (ln)	-0.11	0.05
	Africa	3.51	1.52
	Australasia	1.75	0.94
Wetland type	Freshwater marsh	-1.46	0.59
	Freshwater woodland	0.86	0.42
Wetland function	Recreational hunting	-1.10	0.43
	Materials	-0.83	0.42
	Fuelwood	-1.24	0.45
Valuation	CVM	1.49	0.73
	Marginal	0.95	0.48
Ramsar	Ramsar proportion	-1.32	0.70
R^2 - adjusted = 0.45		N = 202	

How accurate is VT? Wetlands

Observed vs Predicted Wetland Values



How accurate is VT?

Average transfer errors for spatial value transfer within and between countries are in the range of 25-40% (Ready and Navrud, 2006)

Individual transfers could have errors of more than 100%

Value transfer studies have so far concentrated on the transfer of use values, little is known about the transfer of non-use values

Function transfer does not seem to perform better than unit transfer. Meta-analysis can also produce high transfer errors (but it can provide useful information for adjusting unit values)

To minimize transfer error use only studies with limited scope in terms of environmental goods and similar state-of-the-art methodology

Use Value (Benefit) Transfer Protocols, e.g. Navrud and Ready, 2007; Desvousges, Johnson & Banzhaf, 1998.

When is good good enough? – value of information

What level of accuracy is needed:

1. Compensation payments (natural resource damage assessments)
2. Green taxes
3. Green National Accounting
4. Cost Benefit Analysis

But it depends of course on how close costs and benefits are together.

When is good good enough? – value of information

What level of accuracy is required?:

Pragmatic approach: define a maximum transfer error and do checks (for example with the one-out statistical technique). Add to the set of original valuation studies until the maximum transfer error is equal or smaller than this threshold.

More advanced approach: use VT values as priors in a Bayesian updating approach, where the practitioner evaluates whether to go ahead with a new original study based on a welfare loss function, weighing study costs against the value of expected reduction in policy uncertainty.