

How Do We Aggregate Contingent Valuation Responses?: Rural Transit Benefits

Eric Jessup
Ken Casavant
Phil Wandschneider

Department of Agricultural and Resource Economics
Washington State University

Outline:

- Objectives
- Background
- Research Design
 - Study Area (see map)
 - Focus Groups
 - CVM Panel Groups
- Results
- Conclusion and Implications
- Questions ?

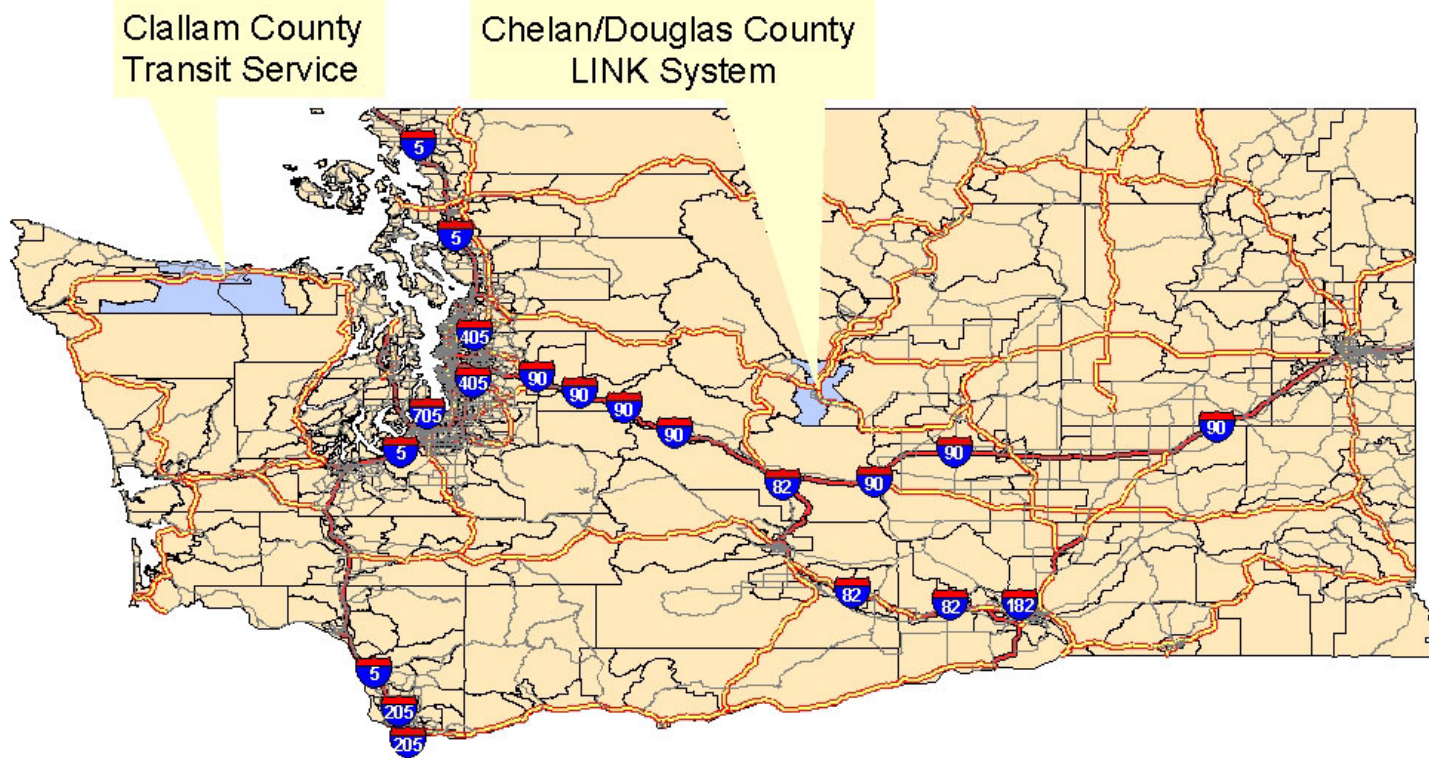
Objectives:

- Quantify the value of rural transit benefits from aggregating both transit users and non-users by both individual and household responses.
 - Develop and test a questionnaire on appropriate aggregation panel responses.
 - Conduct telephone interview survey of sample population.
 - Analyze survey data, comparing it to the range of benefits developed in earlier studies.

Background:

- As part of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 all transportation projects must include Benefit-Cost Analysis.
- Casavant, Painter and Scott conduct earlier study to determine monetary value of rural transit benefits (study sponsored by TransNow and WSDOT).
- Earlier study produces a range of benefits, leaving question of appropriate aggregation technique.

Study Area:



Research Design:

- 1st Step: Development of focus groups to investigate the nature and benefits of rural transportation.
- 2nd Step: Random sample of names drawn from telephone directory for the two study areas, conducted quick telephone survey and recruited participants for CVM Panel Group.
- 3rd Step: CVM Panel Groups participate in survey at two study areas; Wenatchee and Port Angeles, WA.

Focus Group:

- Total Community Benefits fell into three primary categories:
 - Direct Benefits
 - Social Benefits
 - Environmental Benefits
- Overall findings:
 - Participants felt strongly that public transit increased their quality of life.
 - Participants had difficulty placing a dollar value on annual transit benefit.

Phone Survey:

- Total of 287 phone survey respondents:
 - Chelan / Douglas County = 175
 - Clallam County = 112
- Phone Survey Contained 15 questions:
 - User or Non-User of Transit System
 - Number of Motor Vehicles in household
 - Transit ridership frequency by age group
 - Reasons for not using transit in their region

CVM Panel Groups:

- Total of 170 CVM participants:
 - 81 from Wenatchee
 - 89 from Port Angeles
- CVM Questionnaire contained about 120 questions, took 1 hour and 15 minutes to complete.
- Participants held response dial which recorded each response directly into computer.

Results:

Variable	Definition	Avg. User (80)	Avg. Non-User (90)
V- Good System	WTP per month for a Good transit system that is trouble free and free of minor irritants.	12.53	6.43
V- Good System, Non-User	WTP per month for a Good transit system which the respondent doesn't use.	10.03	4.50
V- Current System	WTP per month for the current transit system.	9.79	4.63
V- No Fare System	WTP per month for a fare-free system (Port Angeles).	19.50	9.81
V- Compensation for no Transit	WTA per month if public transit were no longer available.	62.36	30.37

Results: Demographic Characteristics

Location	Total Households	Household User/Non-User	Total Population (20 yrs and older)	Total Population User/Non-User
Chelan/ Douglas County	33,913	10,513 User (31%) 23,400 Non-User (69%)	61,246	18,986 User (31%) 42,260 Non-User (69%)
Clallam County	27,336	6,651 User (24%) 20,755 Non-User (76%)	49,395	11,855 User (24%) 37,540 Non-User (76%)

Results: Household to Population Range

Variable	Annual WTP	Aggregate by Household \$000	Aggregate by Population \$ 000
V-Good System	User: \$150.33 Non-User: \$77.16	\$3,386 Chelan \$2,589 Clallam \$5,975 Total	\$6,115 Chelan \$4,769 Clallam \$10,794 Total
V-Good System, Non-User	User: \$120.36 Non-User: \$54.00	\$2,529 Chelan \$1,912 Clallam \$4,441 Total	\$4,567 Chelan \$3,454 Clallam \$8,021 Total
V-Current System	User: \$117.48 Non-User: \$55.56	\$2,535 Chelan \$1,925 Clallam \$4,460 Total	\$4,578 Chelan \$3,478 Clallam \$8,056 Total
V-No Fare System	User: \$234.00 Non-User: \$117.72	\$3,981 Clallam	\$7,193 Clallam
V-Compensation for No System	User: \$748.32 Non-User: \$364.44	\$16,394 Chelan \$12,840 Clallam \$29,234 Total	\$29,608 Chelan \$22,552 Clallam \$52,160 Total

Point Estimates:

Response Basis	Weighted Percent
Household	56%
Individual	44%
Total	100%

Point Estimate Results:

Variable	WTP Household to Population Range \$000	Weighted Point Estimate \$000
V-Good System	\$5,975 – 10,794	\$8,095
V-Good System, Non-User	\$4,441 - \$8,021	\$6,016
V-Current System	\$4,460 - \$8,056	\$6,043
V-No Fare System	\$3,981 - \$7,193	\$5,394
V-Compensation for No System	\$29,234 - \$52,160	\$39,121

Conclusion:

- Quantifying all benefits of public transit is a difficult task.
- Prior research provided methodology for obtaining a range of benefits, segmented by users and non-users.
- Traditional approach is to aggregate by “household” rather than population.
- This particular approach allows point estimates, that may be more applicable when the range of benefits is wide.