



Benefits Valuation Method:

TRAVEL AND OPPORTUNITY COSTS

Overview

The *travel cost method* captures the economic benefit of an activity or experience based on what attendees have spent or are willing to pay. This method includes costs associated with traveling to the location where the activity or experience is occurring, as well as attendee fees and other associated costs to stay in an area to participate in the activity.

Calculating the *opportunity cost* can serve as a proxy for the value of time spent doing an activity and is based on the wage an individual would be paid in the next best opportunity (i.e., working and getting paid a salary) for their time spent. These methods can be used separately or combined to estimate the value of attending a workshop, training, or meeting.

The methods are based on the assumption that the value of these activities is at least as valuable as the cost of travel to, and time spent traveling and doing, the activity. In this sense, this methodology provides a lower-bound, conservative estimate for the value of that activity (training, workshop, or event), as there are likely collaborations and other new directions of value that also result from that event taking place.

When to Consider

Use these methods separately or together when you want to estimate the benefits associated with:

- Attending a training, workshop, or meeting that requires travel or time
- Participating in a free activity without a market price that requires travel or time
- Participating in a volunteer activity that requires travel or time
- Other activities that require travel or time for which there is not a market value

In the short term, it's possible to estimate part of the economic value of these activities using the travel cost and or opportunity cost method to approximate what attendees are willing to pay to attend or participate in these opportunities. For example, workshop participants choose to attend because they see the value of the knowledge, skills, and other benefits as

outweighing the cost. However, this approach does not capture all of the benefits of these activities. Many of these activities have long-term outcomes associated with the purpose of the workshops and knowledge gained during the workshops, trainings, and capacity building, and the methodology to value any of those long-term outcomes will depend on actions taken after the event.

Data Needs

The data required for these methods are dictated by the activities of interest and data collection efforts. The data elements below are ideal for users to implement the travel or opportunity cost methods to estimate a minimum economic benefit of an activity such as a workshop or meeting.

- Number of attendees
- Occupation(s) of attendees
- Duration of workshops, trainings, stakeholder meetings, or capacity-building opportunity (hours)
- Average attendee distance traveled
- Transportation method (e.g., airline, car, public transit)
- Average attendee time spent traveling
- Total costs paid for attendees to stay overnight
- Information on other attendee expenses incurred (e.g., lunch, dinner, parking)

One way to gather this information is for the grantee hosting the workshop or meeting to ask attendees to fill out a short survey on the topic. The grantee can often estimate much of this information relatively accurately, as well, if they know the composition of their attendees.

Important Results

Travel cost and opportunity cost methods can provide proxies for the benefits of certain activities requiring travel and time. These proxies serve as lower bounds for these benefit estimates. These methods can be used to estimate the benefits of

- Workshops
- Trainings
- Meetings
- Stakeholder meetings
- Volunteer activities
- Other capacity-building activities
- Some recreational activities like fishing, beach-going or bird-watching

Strengths

- Can be relatively easy to calculate
- Results provide some benefit estimates quickly, although based only on the short term

Challenges

- Estimates are proxies only
- Estimates don't incorporate the long-term benefits of workshops and trainings if participants take actions that result in changes

Key Suggestions, Interpreting Results, and Potential Mistakes

- Remember to describe benefits that cannot be quantified. For example, it may be challenging to quantify or monetize the value added, such as worthwhile new collaboration opportunities that arise from a workshop. These benefits can still be described qualitatively in a narrative.
- Once short-term benefits have been estimated, consider revisiting benefits associated with these activities after some months to see if long-term benefits exist. You may want to consider a follow-up survey of workshop or training participants to see if actions were taken based on knowledge gained in the workshop or training.
- Remember to describe these results as proxies for the actual benefits.
- Remember to describe these results as a minimum estimate.

Key Steps

This calculation represents the minimum willingness to pay for a workshop, training, stakeholder meeting, or capacity-building opportunity.

1. Calculate the travel cost paid by all attendees.
 - a. Transportation costs and vehicle travel: If possible, it is best to gather attendees' actual transportation costs and miles traveled for defensibility and transparency. In the absence of data, estimate these values using the [General Services Administration's \(GSA's\)](#) privately owned vehicle mileage reimbursement rate (\$0.58 per mile in 2019).
 - b. Hotels and food (if applicable): In the absence of actual rates incurred, the [GSA per-diem lookup rate](#) can help you find defensible rates for hotels if your training or workshop lasts multiple days and requires these expenses.
2. Calculate the total cost (e.g., fee to attend a workshop, all travel costs) paid by all attendees.
3. Calculate the value of the attendee's time (i.e., the time that attendees are willing to give up to attend when they could be doing something else or working for their employer).

- a. Include the number of hours of your workshop or training, and the number of hours it takes to travel there and back.
- b. Sum these hours up across all attendees with similar job types.
- c. Multiply these hours by the median hourly wage in your state to calculate the value of their time.
 - i. See the Bureau of Labor Statistics State Occupational Employment and Wage Estimates webpage.

Occupation code	Occupation title (click on the occupation title to view its profile)	Level	Employment	Employment RSE	Employment per 1,000 jobs	Location quotient	Median hourly wage	Mean hourly wage	Annual mean wage	Mean wage RSE
00-0000	All Occupations	total	8,794,050	0.6%	1000.000	1.00	\$17.23	\$22.96	\$47,750	0.4%
11-0000	Management Occupations	major	474,730	0.9%	53.983	0.98	\$42.60	\$51.56	\$107,250	0.5%
11-1011	Chief Executives	detail	26,300	3.1%	2.991	2.13	\$79.14	\$87.02	\$181,000	1.5%
11-1021	General and Operations Managers	detail	147,680	1.3%	16.794	1.03	\$40.52	\$50.61	\$105,260	0.7%

Figure 1. Wages for Florida. The median hourly wage is circled.

- ii. Click your state and select the “median hourly wage” for “all occupations” (Figure 1 shows wages for Florida) if you have a mix of occupations. If your attendees are primarily from a specific occupation, find the median hourly wage from that occupation (Figure 2).

Occupation code	Occupation title (click on the occupation title to view its profile)	Level	Employment	Employment RSE	Employment per 1,000 jobs	Location quotient	Median hourly wage	Mean hourly wage	Annual mean wage	Mean wage RSE
11-9141	Estate and Community Association Managers	detail	22,260	3.8%	2.532	1.68	\$26.37	\$30.59	\$63,620	3.1%
11-9151	Social and Community Service Managers	detail	(8)	(8)	(8)	(8)	\$29.75	\$32.91	\$68,460	1.3%
11-9161	Emergency Management Directors	detail	400	6.4%	0.045	0.65	\$39.96	\$39.68	\$82,530	2.0%
11-9171	Funeral Home Managers	detail	500	10.5%	0.057	0.88	\$30.83	\$37.20	\$77,380	5.8%

Figure 2. Wages for Florida. The median hourly wage is circled for the occupation of Emergency Management Directors.

- d. Sum the value of time across all job types or attendees so you have captured the value of time across everyone.
4. Add the values of steps 1, 2, and 3.
 5. Communicate this as the economic benefit of your offering, as attendees or their employers are willing to pay this because they value the benefit of your offering more than the cost.

Travel Cost and Opportunity Cost Method Example

A grantee hosted a workshop to teach community members the importance of a pollutant-free shoreline habitat. Three people attended the four-hour workshop, each of whom paid \$30 (including gas) to travel ½ hour to and from the workshop (one hour total), and \$40 to register for the workshop. All three attendees have the same job and earn a median loaded (i.e., with benefits) hourly wage of \$24 per hour.

To stay organized, you can calculate the travel cost and the opportunity cost (value of their time) separately and then add them together. To estimate the economic benefit of this workshop using the travel cost and opportunity cost methods, example calculations would be:

Example Travel Cost (and registration cost if applicable)

$(\$30 \text{ [travel]} + \$40 \text{ [registration]}) \times 3 \text{ [attendees]} = \mathbf{\$210 \text{ [travel cost]}}$

Example Opportunity Cost

$(\$24 \text{ [median loaded hourly wage]} \times 5 \text{ hours [length of workshop + travel time]}) \times 3 \text{ [attendees]} = \mathbf{\$360 \text{ [opportunity cost]}}$

Travel Cost + Opportunity Cost

$\$210 \text{ [travel cost]} + \$360 \text{ [opportunity cost]} = \mathbf{\$570 \text{ [estimated economic benefit]}}$

In this example, the estimated economic benefit of the grantee’s workshop is **\$570**. It is important for the grantee to describe this estimate as part of the total economic benefit or a lower bound of the economic benefit. This in no way reflects the entire economic benefit of the workshop as there could be long-term outcomes linked to these events. This is simply a method to estimate the minimum willingness to pay (economic benefit) that can be readily quantified. A well-crafted value chain showing your calculation steps can be a powerful way to communicate this important economic benefit.

Creating a well-crafted impact statement can be an effective way to qualitatively describe value if the grantee does not have enough information to implement the travel cost method. For example, say a grantee hosts a training open to the public for water conservation in the home, and it is hard to implement the travel cost method because the grantee cannot comfortably determine wage rates for the stakeholders that attended. The grantee can craft a qualitative impact statement describing the training, location, and purpose with the information they do have. This will allow readers to understand that economic value does exist, it just cannot be defensibly estimated. For example, “[Grantee name] hosted a public workshop on environmental best practices for the home to teach attendees techniques to conserve water during daily activities. [Grantee name] hosted this workshop in [County, State] and had 24 attendees from 11 surrounding counties.”

Resources to Dive Deeper

Getting Help

- Reach out to our team (econguidance@noaa.gov) for specific questions or to brainstorm how to start your travel cost and opportunity analysis.
- Hire a private consultant or request support from academic partners. Researchers, graduate students, and academic scholars may be able to provide guidance or work directly on your travel and opportunity cost analysis.

Other Resources

The following databases provide data on inputs that can be used to value an individual's time and foregone work through wage estimates. As noted in the methodology steps above, the Bureau of Labor Statistics provides the following databases on mean annual income:

- [General Services Administration's database on per-diem travel rates](#)
- [National Occupational Employment and Wage Estimates](#)
- [State Occupational Employment and Wage Estimates](#)