CAP Project

Module 2: Video 4 Transcript: Which costs should I estimate?

Hello and welcome to Module 2 Video 4, Which costs should I estimate? This video discusses how to determine which costs to include in your analysis.

One critical step in designing a cost analysis is figuring out *what* you want to cost out.

I'll walk you through a few different hypothetical scenarios to demonstrate the options.

Along the way, I'll be defining a few important concepts such as what we mean by the counterfactual condition, business as usual, total costs, incremental costs, supplementary programs, and substitute or replacement programs.

In some cases, which costs to include in your analysis is obvious. If you are in a Dr. Seuss-like fantasy world building some kind of crazy contraption – a Whooziwhatzit or what have you - where there was none before, everything that went into building the contraption would be included in the cost.

In an educational context, if you were building a new school entirely from scratch, the same logic would apply – all of the resources needed to create the school

- from the land
- to the building
- to the staff and
- books and materials would be counted as the costs of the school.

But in most real-world applications, figuring out where the thing you're costing begins and the rest of the world ends is not always so straightforward.

Even when you're doing a standalone cost analysis that doesn't tie to any kind of outcomes or comparisons, your costs are still often relative to something else –

the state of the world without your investment or program or intervention, or the counterfactual condition, which we'll call "business as usual."

The school-from-scratch scenario may be unlikely unless you are working in an international context, but we can tweak it slightly to arrive at what is likely to be a common scenario – the supplementary or "Add-on" program.

- You may not be building a whole school, but creating a new program on top of regular school – let's say an after-school program**.** Some costs will be absorbed by the fact that the school already exists and students will already be on location.
- For example, you don't need to account for transporting students TO the program because they are already there. These costs are part of business as usual and don't need to be included in your analysis.
- Nor do you need to include any other regular costs of school such as time teachers spend teaching during the regular school day.
- But most of the costs of the after-school program will be new, for example, transporting students home FROM the program if they would miss their regular transportation home and need to make alternate arrangements.
- You will need to pay teachers extra beyond their regular salaries.
- And even though the school is already built you will need to use space for this particular purpose. This incurs an opportunity cost because the space can't be used for something else or rented out to generate revenue.
- You also need to think about whether there are additional administrative overhead, utilities, maintenance, or security costs due to keeping the school building open longer.

In this scenario, the costs of these new resources needed to implement the after-school program are considered the total costs of the program. They may also be termed "incremental" to business as usual.

When comparing alternative programs, your audience may be interested in:

- the total costs of each of the programs

- or the difference in costs between the 2 programs - that is the incremental or differential costs of program 1 relative to program 2 or both!

It can get even trickier when, for instance, one program partially or fully substitutes for business as usual. This happens often in education research where a particular curriculum, instructional approach, or program takes the place of another.

For instance, with a new math curriculum, students would be learning math and teachers would be teaching math either way, but you still have to consider how much more or less the new approach may cost relative to what would happen otherwise.

If the math curriculum completely replaces the existing curriculum, the total costs of the program are the sum of the costs of resources reallocated from BAU activities, plus the costs of any additional resources, or minus the costs of any resources no longer needed – costs may be higher or lower than BAU and thus total costs could be negative, representing cost savings over BAU.

- In this example, all resources needed for the new curriculum already exist at the school and are simply being reallocated to the new program. But the new curriculum actually needs fewer resources than the old one, maybe because it saves teachers some prep or grading time, so the total costs of the new math curriculum are lower than BAU, resulting in cost savings.

While, in this example, total costs of the new curriculum are higher than business as usual. All resources used in the old curriculum are being reallocated to the new one but a few extra resources are needed, maybe something like additional PD for the teachers, so there are *some* incremental costs.

If the new curriculum partially replaces the existing curriculum – say, some new modules or a new approach to teaching fractions but with much of the original curriculum remaining, the total costs of the program could be more, less, or the same as business as usual. This is the hardest scenario for estimating costs because what you need here is the sum of the:

- costs of new resources used to implement the program
- plus the costs of resources reallocated to the program from BAU activities.

In a cost-effectiveness analysis where you need to tie costs to measured effects, the question of *which* costs to estimate is somewhat more straightforward to answer. You already know that for an effectiveness analysis you are looking at the effect of treatment minus effect of control, that is, incremental effects.

- It's the same for costs – you need to estimate the difference in costs between resources needed to implement the treatment condition and those needed to implement the control condition, which may be business-as-usual or a comparison program.
- The most rigorous way to deal with this is to estimate the total costs of implementing each condition and subtract one from the other. Of course, if the control condition is simply business as usual, you'll only need to figure out whether the treatment needs more or fewer resources for implementation and estimate the value of these to calculate costs or savings.

But what if you don't have good data on what business as usual really is or what alternative services the control group might be engaging in? Or what if it's complex because different individuals in the control group are doing different things?

- For example, your treatment students may all be engaging in Reading Recovery, but the control students may be each be participating in one of 6 – or 16 - alternative literacy activities.

In these cases, it may just not be feasible within the time and budget you have available to estimate the costs of each alternative. You'll need an acceptable strategy to estimate incremental costs and will likely need to address such uncertainties in sensitivity analysis.

One piece of advice for you: try to figure out what you are up against *before* you agree to conduct a cost analysis. You may think your hardest task is to estimate the costs of the treatment program, but that may actually be the easy part of your work as you are likely to have access to the developers, implementers, and participants. Your budget, timeline, and data collection plans should all reflect the complexity you may have to deal with in estimating costs of the control condition.