CAP Project

Module 2 Video 6 Transcript: Setting Up Your Analysis in a Template

Hello, in this video, I'll use the Reading Recovery vs. Fast ForWord Reading example I described earlier to show you how to set up your cost analysis in an Excel template. This will get you ready for the second stage of conducting a cost analysis: collecting cost data. That will be the topic of Module 3.

First, I'll remind you of a few key details about the study design from that long checklist that I walked us through earlier on. Then I'll show you where to enter the study design information into one of CAP Project's Cost Analysis Templates, CAPCAT 1.2 Plus. This is an Excel Worksheet with lots of tabs. We'll be looking only at the first three tabs of the worksheet for now.

So, starting with key details of the study we're using as an example: We designed a cost-effectiveness analysis of two ongoing, supplementary programs. Reading Recovery was the treatment program and Fast ForWord Reading was the comparison. The programs were implemented at a medium-sized, urban school district that we're calling Vale in Kentucky.

Effectiveness of the programs was estimated using an RCT or randomized control trial in school year '17-18. 195 first graders participated in Reading Recovery in 15 elementary schools, and 195 different first graders participated in Fast ForWord Reading in 15 different schools.

We planned to include costs to all stakeholders to produce a societal perspective and, also to look at only the districts' and schools' costs to provide an education agency perspective.

You can find a blank version of the template we'll be using, CAPCAT 1.2 Plus, on the CAP Project resources web page, as well as the completed example we're following.

If you need help deciding which of our 3 templates is best for your particular analysis, we posted a chart above the templates on our website which shows similarities among the templates, and differences.

This is what the opening tab of CAPCAT 1.2 Plus looks like. It's labeled the Contents tab and the introductory text explains what the template can do for you.

All our templates function like any Excel worksheet so you can, for example, use the magnification bar at the bottom right of the window where the red arrow is pointing to enlarge or reduce the font by clicking on the tiny plus or minus signs.

To move from one tab to the next, use the tab bar along the bottom. At bottom left where the green arrow is pointing, there's a pair of small black triangles pointing in opposite directions.

You can click on those to move the bar in either direction and then select the tab you want to work on.

We've set the tabs in the order we think you are *most* likely to use them but feel free to click and drag them into different positions or hide any you don't want to see. Just don't delete any!

If you scroll down on the Contents tab, you'll see a list of all the tabs and a brief description of what's going on in each one. Don't panic, you'll only need to enter data in some of these. The others are results tabs and things like the default interest rates and geographical indices we use.

We are looking at the Contents tab right now and then I will talk about the next two: Study Details and Setup.

The second tab, Study Details, is optional. It's basically a replica of the study design checklist we reviewed with all the same information recorded here for the benefit of both the analyst and anyone else who wants to know how and why the study is being executed.

The third tab is where you must start entering information to set up the template for your data collection and analysis. No surprises, it's called the Setup tab.

You're looking at the first of four tables. There are some general instructions above each one and row-specific instructions over to the right.

Let's review Table 1 more closely. This is labeled Program Information. Note that red items in CAPCAT are default values that may need to be customized by you to reflect your particular study.

This is how we completed Table 1 for the example study:

We've entered Reading Recovery in the first row as the treatment program and Fast ForWord Reading in the next row as the control condition.

We kept the default of one year for the length of program implementation as Reading Recovery is normally implemented for about a semester and we collected 2 semesters of data. Year 1 of implementation for our study was 2017.

We don't need to change the next cell because our analysis only covers one year. If you did have data over several years of program implementation, you'd need to choose a base year to which CAPCAT should discount or compound costs from all years to reflect the time value of money. Most often, you'd want to use the first year of implementation as the base year which is why CAPCAT has 1 as the default value here.

The next row allows you to choose the year in which you want to present costs. CAPCAT will inflation-adjust all prices you use in your ingredients tabs to the year you enter here. So, while we kept this as 2017, if you were trying to inform someone about what these costs might look

like in 2022, you'd simply switch this to 2022 and all your costs results would be adjusted upwards to reflect inflation over the past 4 years.

The last two cells in Table 1 ask you to indicate your units of analysis. Often it will be schools with students as the sub-units as it was for our study. You might have a different design like classrooms and students, or districts and teachers. These labels are carried to many other cells in CAPCAT so that the worksheet is customized to your design.

That's it for Table 1.

Now, Table 2, which is for key parameters. These are important numerical values that will be used in CAPCAT's calculation formulas. As you can see, these are already filled in with what we think are sensible default values, meaning they should work for most users. But you can change them at any time.

In this table, the only cells you have to complete are the two red items which are the number of units in each condition.

The grey cells at the bottom will auto-populate as you enter the number of subunits of analysis later in Table 4.

Here's our completed Table 2 which I'll walk you through because we did make a few changes to the default values.

The top row in the table is where you can enter a geographical index which reflects whether the locality from which you are collecting local prices has higher or lower prices than the national average. CAPCAT will use this value to adjust your local cost results down or up to standardize them as national equivalent costs. But you can leave this at 1.00 if you are only interested in local costs.

In our study, we were using local prices from a metropolitan region of Kentucky. But we also wanted to produce a national cost estimate to compare our results with some previous cost analyses of Reading Recovery which had used national average prices.

We had 2 options – one to search for a national price for each and every ingredient and basically do a second cost analysis. Or, we could take a short cut like this and use a single geographical index to convert our total local costs to a national average equivalent. Which strategy do you think we chose? Both, of course, we're researchers and we wanted to see if we got similar results with both approaches! You'll find out what happened when we get to the summary tables in a later module.

To find a geographical index for Kentucky we looked in the Geo Indices tab of CAPCAT - it's the very last tab. CAPCAT uses geographical indices from the Bureau of Economic Analysis.

By definition the national average is 1.00. We found the index for Kentucky metropolitan is 0.90, meaning that prices there are about 10% lower than national average prices.

Back to Table 2. The default discount rate in CAPCAT is 3% which is the rate recommended for the reference case analysis I mentioned in an earlier video. We left it alone as it only matters when the program lasts more than a year.

The five cells highlighted here show the number of years over which CAPCAT will spread the costs of certain items.

Four of these cells are for start-up costs of various ingredients: personnel, materials, facilities rentals, and other inputs. Start-up costs are incurred for resources that are only needed when the program is first established, or only every few years once the program is in a steady state or ongoing phase.

A prime example of a start-up cost is personnel time for initial training. This won't be incurred again except for new hires so you can spread the cost over a period of time. We entered 7 years for all these startup costs because the average tenure of Reading Recovery teachers at Vale is 7 years.

If you really are running a one-off experiment and certain items will never be used again, you can change these numbers to reflect the length of your program implementation.

These values will be applied on a blanket basis to any ingredients you label as start-up in each of the next 4 tabs, but you will be able to modify individual ingredients. For instance, you might decide later that a start-up computer cost should only be spread over 3 years because that's as long as the computer is expected to last.

We did not change the default value of 30 years over which to spread facilities construction costs. This is the assumed lifetime of school and district buildings before they need renovating or replacing.

The next 2 cells ask for the number of units in each condition. Our units were schools and you'll remember I said there were 15 schools implementing each program.

That's all for Table 2. However, this is a good place to come back to when you are doing sensitivity analysis as you can test out whether changing each of these assumptions makes a substantial difference to your results.

Table 3 is the list of interest rates that are used in the formula for spreading the costs of durable resources like laptops or buildings over a number of years. The default rates in CAPCAT are U.S. Treasury bond yields from whichever year you entered in Table 1 as the year in which to present costs.

The exception is the 1-year rate which we set at 0 because, for simplicity, we assume investments are made at the beginning of the year. That means there would be no time for interest to be earned on first year funds.

We chose 2017 as the year in which to present costs so CAPCAT pulled in the relevant rates that look like this.

If you end up needing a rate for a number of years that isn't shown in the table, like 6 years, you can estimate it by interpolating the value.

The last table, Table 4 Site Names, is where you will overwrite the red text to enter the name of each site at which the programs you are studying are being implemented, and the number of participants in each condition at each site.

You'll also list here any centralized entities like the school district office or a state education agency which may not serve participants directly but might bear some of the costs of the programs. We'll revisit this table in more detail in Module 3 when we're ready to start entering the data we've collected about the ingredients.