



MODULE 3 VIDEO 10 SOURCES OF PRICE DATA

Hello and welcome to Module 3, Video 10. I'm Rob Shand and I'll walk you through some sources of national prices that my colleagues and I have found useful in our work. You should have already made a decision on whether to report national or local costs, or both. To quickly recap, to make that decision, consider the purpose of the analysis and audience for the results, the availability of relevant prices from national or local sources the number of different sets of local prices that you might need to collect, and your budget.

The CAP Project's Cost Analysis Standards and Guidelines has some more guidance on how to think about this decision on page 19. In this video, we will cover: Sources of national average prices, mainly focused on personnel; national average fringe benefit rates; sources of national prices for facilities, materials, and equipment. In the next video, we'll cover similar sources for local prices and indices to convert between national and local prices.

Now, let's take a look at some useful sources of national average prices. The CAP Project has already compiled national prices for many educational resources in a Database of National Prices and Fringe Benefit Rates, which you can access from the Resources tab at capproject.org. This may save you a lot of time trying to find prices from the original sources, but you may need a price for an ingredient that is not listed in our database, so it's important to know where to look yourself.

For personnel, the most comprehensive source of national prices is likely the US Department of Labor's Bureau of Labor Statistics at bls.gov which has multiple sources of data on wages and salaries by occupation. I'm going to go through 3 of these sources. The first one is the Current Population Survey (CPS), run in conjunction with the US Census Bureau, which reports median gross wages per occupation reported by occupied households. To find it from the Bureau of Labor Statistics homepage, select "Subjects" then "Pay & Benefits," and then "Current Population Survey" under "Wages by Occupation and Area."

This brings you to the Current Population Survey homepage. Here, you click “Earnings” and then “Occupation and Industry” and then select a file format for “Annual table: Earnings by detailed occupation and sex.” I’m choosing an Excel file.

You can see Median weekly earnings for all workers, or specifically for men or women, for a number of occupations. For example, if I search for or scroll down to School Psychologists, the median weekly earnings in 2021 were \$1,343. Because positions (except for teachers) are standardized to have a 2,080-hour year, you could divide the weekly earnings by 40 to get an hourly wage of \$33.58 or multiply them by 52 to get an annual salary of \$69,836. Teachers are asked to give usual earnings regardless of number of hours worked, so you could multiply the weekly earnings by the number of contractual weeks teachers work in your context to get an annual salary (using the range of 36-40 for national averages based on NCES data) or divide by the number of contracted hours per week to get an hourly wage.

You can find many relevant personnel ingredients under the sub-heading of “Education, training, and library occupations.” If a field has a dash instead of a number, that means there was an insufficient sample of that occupation in the survey for reliable estimates. <https://www.bls.gov/cps/earnings.htm>

The second source I want to show you is the Occupational Employment and Wage Statistics (OEWS) program. This provides information on employment, wages, and mean, median, and various percentile estimates for the distribution of salaries for over 800 occupations and industries. It does not, however, break down salary variance by employee characteristic like gender, age, and race. From the Bureau of Labor Statistics home page <https://www.bls.gov/>, select “Subjects.” Now look under “Pay & Benefits” for Wage Data by Occupation. Click on that and it will bring you to the Occupational Employment and Wage Statistics page. Click on or scroll down to “OEWS Data,” and then click “Occupation Profiles.”

After that, you can scroll down to the relevant group – most educational personnel ingredients would be under category 25-0000, “Educational Instruction and Library Occupations,” though some senior administrative positions may be in other categories such as 11-0000, “Management Occupations.” Here is the start of the list of educational instruction occupations, with a number of postsecondary instructors by discipline.

If you scroll down to 25-2023, Career/Technical Education Teachers, Middle School, this is what you'll see. You can see the estimated Mean Annual Wage, Median/50th percentile wage, and wage estimates at various percentiles. You can select the appropriate price based on your context – in most cases, the median will be preferred because it is less sensitive to outliers than the mean.

You can use other percentiles to obtain a range for a sensitivity analysis or if your desired price may be unusually high or low. For instance, if your intervention requires an experienced teacher, then you might select a higher percentile, like the 75th or 90th percentile. If the intervention is typically delivered by novice teachers, you might choose a lower percentile, like the 10th or 25th.

<https://www.bls.gov/oes/>

The third source I want to show you is the Bureau of Labor Statistics' estimates of Employer Costs for Employee Compensation from the National Compensation Survey. This reports fringe benefits for various sectors of the economy. The state and local government employee sector includes many educational personnel. From the Bureau of Labor Statistics home page, click Subjects and then, under Pay and Benefits, select Employment Costs. From there, scroll down to the section ECT News Releases and look for a headline that refers to average compensation costs like this one.

As of this recording, the most recent release available is from June 2022 and this reports March 2022 data. If we choose the PDF, we'll get the report we are looking for: Employer Costs for Employee Compensation. This includes hourly costs for total personnel compensation and also the breakdown into wages and salaries, total benefits, and specific fringe benefits. Table 3 in the report provides information on educational employees of state and local governments.

<https://www.bls.gov/ncs/ect/home.htm>

You can see that, on average, Educational Services personnel earn \$38.01 per hour in wages or salary, plus \$21.11 per hour in benefits, which adds up to their total compensation of \$59.11 per hour. If you want to express benefits as a percentage of salary, it's simply \$21.11/\$38.01 which is 56%. That's the number you'd use in the CAP Project templates where it asks you for the fringe rate as a percent of salary. <https://www.bls.gov/ncs/ect/home.htm>

If you are interested in what exactly goes into that \$21.11 benefits amount, you can see the breakdown in the other columns: paid leave \$3.56/hr; supplemental pay 28c/hr; insurance \$6.65/hr; retirement and savings, which is often the biggest portion of benefits, \$7.70/hr; and legally required benefits \$2.92. But you aren't likely to need that level of detail in your cost analysis so you can stick with using the sum of these which is the \$21.11 amount.

<https://www.bls.gov/ncs/ect/home.htm>

Now that we've covered the three different sources, let me address some challenges you may encounter. As you try to find the best price to match your ingredient, you may run into three separate but related issues. First, there may be more than one occupation or subcategory within the same occupation that could match the ingredient needed to implement your intervention. For example, if all you knew was that you needed a principal, there are 183 "principal" prices in the CAP Project price database from different sources and with different characteristics.

But, if you knew you needed an experienced principal of a public high school, the choices in our database are much narrower. You can read the details about each type of principal in the list of possibilities to find one that best matches your requirements. The details may specify years of experience, the type of school, enrollment numbers, the percentage of students receiving free or reduced-price lunch, or whether the school is in a city, town, suburban, or rural location.

I found a listing for public school principals with 10+ years of experience serving Grades 9-12. This seems to be the most appropriate for my needs so I will use the national average salary shown of \$109,100.

If you keep scrolling a few columns over to the right, you'll see that this price is from 2015 and the source is the National Teacher and Principal Survey. While it may be ideal to use a price from the same year in which you are presenting costs, these salary surveys are not administered every year and, by the time the data are published, they are already a year or two out of date. We deal with this lag by adjusting for inflation, which we'll show you how to do in Module 4.

Second, even within each occupation, there may be multiple prices, such as the mean, median, or another percentile in the wage distribution. If in doubt, stick with the median, or mean if there is no median. But earlier I gave you a couple of

suggestions about when you might want to use the price at one of the higher or lower percentile points. Finally, an ingredient may be so specific to your intervention that a direct analogue does not exist in aggregated survey data. For instance, if you need a price for an interventionist - which you won't find listed - you may need to select a price from a broader category such as "teachers." Similarly, if you are looking for a price for assistant principals, you may need to choose one from the category of "Education Administrators," or use a salary at one of the lower percentiles for principals to reflect the likelihood that Assistant Principals, on average, are paid less than principals.

Even if using national average prices, be mindful of how prices may not be fully accurate or up to date, especially in rapidly changing labor markets. National average prices will not fully capture cost differences associated with quality or even particular qualifications. Prices may be rapidly changing as in the case of teachers in the wake of the COVID-19 pandemic, with high reports of teacher dissatisfaction and, at least in some districts and states, measurably higher rates of job vacancies, though the overall effect on the teacher labor market remains unclear. Under these kinds of circumstances, using prices from one year and adjusting for inflation may be insufficient to accurately reflect differences over time. National average salaries may also be missing elements such as teacher recruitment and retention bonuses that many school districts funded with ESSER COVID relief funds.

According to the National Council on Teacher Quality, about 40% of the largest school districts in the US provided some kind of monetary bonus to recruit and/or retain teachers through the COVID-19 pandemic during the 2021-22 school year <https://www.nctq.org/blog/COVID--related-incentives-for-teachers-during-the-2021--22-school-year>

Depending on the purpose of, audience for, and timeline for your analysis, you may want to specifically look for any bonuses or additional compensation that should be included in the price for school staff, especially if your analysis has a short time horizon so that current conditions are likely to continue to be relevant. Also, consider qualitatively how conditions may affect unobservable characteristics like quality when price cannot adjust, such as states and districts

lowering qualification requirements for teachers, and include those as caveats in your discussion.

For facilities prices, rental rates would capture the opportunity cost of foregone rental income due to using the space for your intervention. However, there are not generally large, transparent markets for renting educational facilities, so national average rental rates would be challenging to obtain. As Fiona mentioned in Module 3, Video 8, this leads us to using new construction prices to estimate the national average costs of educational spaces. In addition to the sources of national average facilities prices that Fiona mentioned, a convenient source is the CAP Project Cost of Facilities calculator at <https://capproject.org/resources> which you can use to estimate the annualized or hourly use costs of various types of educational spaces, based on national average facility sizes and construction costs spread over the useful life of the facility.

Now let's move on to sources of national prices for materials and equipment. Most materials and equipment are traded on national or even global markets, so prices from national retailers or industry-specific vendors are often a decent guide to market value. Prices may fluctuate, for example, due to seasonal sales, so averaging prices from a few vendors or over a few time points can help iron out small idiosyncrasies. Appendix II of the CAP Project Standards and Guidelines has some suggestions for national retailers, as well as other sources of national prices. Vendors like Amazon.com or Walmart for general supplies, Staples for office supplies, and Best Buy or CDW for computer equipment would all be reasonable to use. That covers a range of sources of national average prices. In the next video, I will suggest a few sources of local prices.