Parameters and Details Provided within Reports

Research Brief #3

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Overview

Parameters[1] are defined as the values that are included in a model that together determine the calculated cost. Questions explored through this analysis included what parameters were used across models, how these parameters were defined, and how frequently these parameters were included in models. The analysis identified six broad categories, which were defined across a total of 32 parameters.

Our review of 25 published models found that parameters are mostly similar across models, but how those parameters are set—the assumed values for each of those parameters—differs significantly. Additionally, across models, the level of detail included in public reports is also highly variable. Of the model reports analyzed, some had in-depth reports (11), others were summary reports (13), and a few were solely slide decks (2). This Research Brief will further explore these findings.

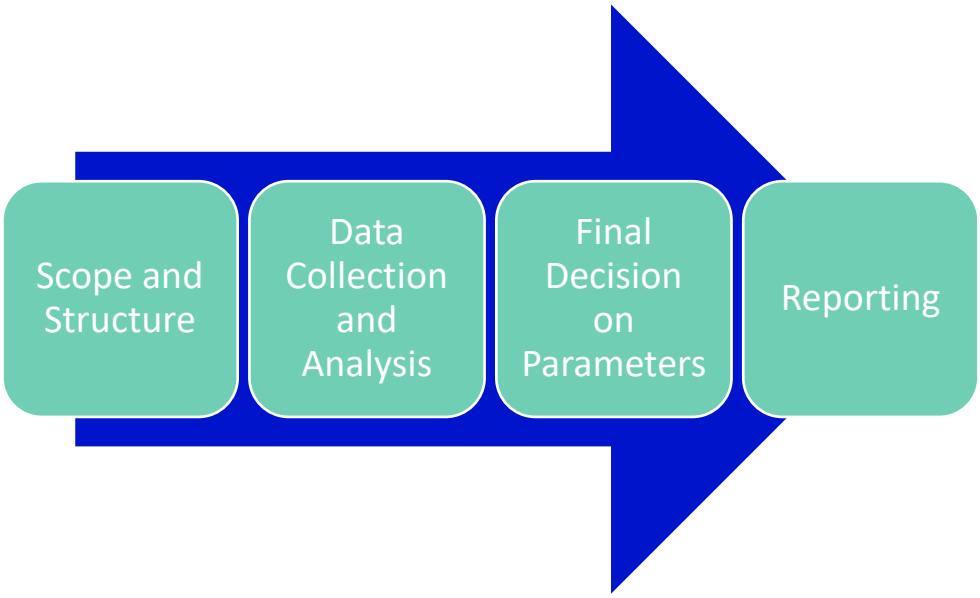
Phases of Cost Modeling

There are four distinct phases to building a cost model, outlined in Figure 1. This Research Brief will focus on the last two phases of this sequence, Phase 3: Final Decisions on Parameters, and Phase 4. Reporting.

[1] (Frost, 2020). Introduction to Statistics: An Intuitive Guide for Analyzing Data and Unlocking Discoveries.

Figure 1: Cost Modeling Phases

The four phases to developing and producing a cost model.



Phase 3: Final Decisions on Parameters

Within each parameter lie important decision points that drive the outcomes of the cost model. These decision points are informed by the data collected. When cost modelers were asked during our survey about their process for determining parameters, they reported most often starting with surveys to test research-informed assumptions (3), using previous Market Rate results (3), using administrative data such as from state data systems (2), and provider engagement methods such as focus groups (2).

Decisions made regarding any of the parameters can substantially shift the cost model's results, which is why it is critical that they be vetted by those providing services within the community or state. This "pressure testing" ensures accuracy and promotes trust in the results.

Commonly Included Parameters

Wages: Choice points exist regarding whether to build a model at the state's current minimum wage for child care staff, which ranges across the country from between $7.25 per hour to $17 an hour[2], or to establish a target or aspirational wages based on goals for livable wages or pay parity with K-12 systems. Some modelers felt that they didn't want to develop models that perpetuate unlivable wages for educators by using the minimum. Some models take an average of some of these metrics to develop their rates. Others calculate salaries informed by a workgroup. These wages are then often incorporated into a salary scale, across a set of positions or roles. Salary scales varied widely for the roles they included within models, with some focusing on teaching and administrative positions, and others including instructional coordinators, owners, cooks, bus drivers, and consultants.

Of the models analyzed, 10 included a salary scale within the model, outlining wage assumptions by position. The Bureau of Labor Statistics (BLS) is most often used. BLS data is a publicly available data set that allows the public to identify wage data by occupation, gender, and geographic location. Data is updated regularly and informed by the Quarterly Census of

[2] Minimum Wage.org (2024) List of Minimum Wage Ranges by State 2024. Minimum Wage Rates by State 2024

Employment and Wages (QCEW). Some models built into their assumptions a livable wage, which varies based on geographic location and is often defined by the MIT Living Wage Calculator. The MIT Living Wage Calculator is updated annually. Others developed wage assumptions from administrative data, surveys, and compensation studies. Across models, there were instances of a single wage assumption being used across the state, others using an urban and rural rate, whereas others calculating wage assumptions based on program type, quality level, city, and county.

Health Insurance: Across models, the Kaiser Family Foundation tool was most often used to inform most calculations regarding health insurance. None of the models analyzed noted calculation assumptions for utilization of the Health Insurance Marketplace.[3]

Other Benefits: Models most often built calculations to minimally meet legally required benefits such as Workers' Compensation, Social Security and Medicare, Unemployment Compensation, Family and Medical Leave, and Consolidated Omnibus Budget Reconciliation Act of 19866 (COBRA). Beyond this, models often include several minimal holidays as well as vacation days. Modelers can choose to include costs beyond non-federally required benefits such as retirement, sick time, and personal time for educators.

Cost of Serving Children with Special Needs: Across models, there were widely varying approaches to costs for inclusion and services for children with special needs, from no attributable cost differences because inclusion was presumed, to costs for adaptive equipment, differentiated curriculum and assessment, as well as added in-classroom personnel such as aides or inclusion specialists. When classroom personnel were included, these were salaried roles, included within personnel expense lines.

Ratios and Group Sizes: Considerations regarding these calculations include whether a program is presumed to be full, or whether costs are calculated with vacancies or enrollment under licensing capacity. Some modelers used licensing requirements to cost group size and capacity, whereas others were able to use administrative data to inform assumptions. Most models included a table with capacity and group size assumptions in their final reports. Of the models analyzed, three did not describe their approach related to group size and ratios. Among those that did, most models used licensing (13) and QRIS standards (7 models) to set these parameters. Others developed their own scale, for example, a "good, better, and best" scale, or developed a base assumption to build off (6 models).

Not surprisingly, ratio and group sizes varied widely from family child care homes serving between 4 to 12 children, and child care centers having anywhere from 4 to 30 children per classroom based on age. With ratios and group sizes often aligned to licensing and QRIS requirements, these are highly variable across states, and subsequently within each of the models.[4] In many model reports analyzed, the actual assumed ratios used for analysis were not included. Instead, simply a reference to the guideline that was used. This requires someone unfamiliar with the licensing requirements to look up the regulations.

Phase 4: Reporting

In our survey, cost modelers were asked to rank, in order from most to least important, the factors they believed were most important in their modeling. The format of the model and final report was ranked the highest with nine responses. Their second-most ranked responses included factors found in the final reports, including the number of scenarios modeled (8), inclusivity (7), referring to the accessibility and clarity of the report to a general audience (6), the ability for models to be replicated (6), and transparency in modeling methods (5). All of these responses speak to the tension between wanting to be transparent by including details, but also recognizing that you can include too much information, which makes it

[3] Opportunities Exchange (2021). OppEx: Health Insurance for Early Educators.
[4] Childcare.gov (2024). What is Child Care Licensing? What Is Child Care Licensing? | Childcare.gov

difficult to consume. The level of detail included in final reports has the power to promote inclusivity, replicability, and transparency.

Cost model reports reviewed for this analysis were in the form of full final reports (11), summary reports (13), the actual models themselves (4), technical reports (2), and PowerPoint presentations (1). When the full final reports were published, they rarely included the full model's data tables. However, several modeling entities shared back-end models for the purpose of this analysis.

Prior to publishing this Research Brief series, I engaged in a data validation process. This process entailed sending all cost modelers the coding that was conducted for their models for their review. During this process, modelers had the opportunity to provide additional notes, context, and corrections which occurred via e-mail and meetings. This data validation process proved very informative, and adjustments were made to codes informed by their review. In multiple instances, modelers shared that there were aspects that were not included within their reports, which were, in fact, part of their analysis.

Limitations: Very few models included information regarding limitations encountered as part of their study. They also rarely included the total number of providers in the sample size (i.e. how many early educators there were in the total population being surveyed). The absence of this information poses challenges to determining the representativeness of the data collected and, therefore, the significance of cost model findings. Including these details further promotes transparency, credibility, and informs future research.

Replicability

Replicability refers to the ability of a study or experiment to be repeated with the same methods and obtain similar results. It is a fundamental aspect of research. Replicability is important because there are times when model results need only small refinements, and when protocols and assumptions are clearly laid out, these changes are more efficiently made. It will also assist with making updates as required by the Administration for Children and Families every three years when using the model for child care subsidy rate setting.[5]

Additionally, replicability increases transparency, which increases trust in the results. The ability to replicate protocols can also be important when a city and/or state is looking to align approaches and assumptions made between local and state models. For example, the state of Washington, and the city of Seattle hired the same vendor to complete both models, supporting alignment in assumptions and methods between the two models.

While it is challenging to say specifically how many of the models reviewed could be replicated based on the information included in their reports, only one model clearly stated that they developed a tailored training for the client which could be viewed by staff and other researchers. Additionally, the survey I administered indicated that four (of 13) state leaders felt they had enough information to replicate their model, with three stating "probably not", one stating they did not, one being unsure, and four not responding. Sufficient staff training is not only critical for replicability, it also ensures staff feel comfortable making adjustments, and speaking about and using the model with colleagues and partners.

[5] Administration for Children and Families (2024). Improving Child Care Access, Affordability, and Stability in the Child Care and Development Fund (CCDF).

Transparency

One goal in outlining these parameters is to promote alignment across model approaches, as well as inform leaders looking to commission models about the essential elements that should be included in their model. Cost modeling in early care and education is an emerging practice, with a growing knowledge and practice base.

Each model's assumptions must be uniquely tailored to the local and state context, which is why parameters should be clearly outlined within the formal write-up, for example, a final report or technical manual. This will make it easier for the state or community to make necessary updates, for example, accounting for inflation, revised licensing or QRIS guidelines. Our research demonstrated considerable variances in the transparency of data within these model reports, with some including raw data and collection tools in the appendices, and others providing only summary data. Transparency in modeling includes the inclusion of clear data tables and parameter definitions, outlining the choice points that were made, and the rationale for these decisions, but also nuanced research approaches, such as when modelers used weighting in their analysis.

Data collection tools such as surveys, focus groups, and interview protocols were rarely published, and instead aggregate information was most often provided. It would be helpful to include these data collection protocols in the appendices of published documents or a separate technical document. However, this is often not done because it can make the report unwieldy, as well as due to concerns over intellectual property.

This brief has highlighted the tensions underlying the differences in the ways cost models are developed as well as what is included within final reports, and whether final reports are even published and accessible to the public. It is important to note, however, that the choice around report format, scenarios, participant inclusivity, and transparency, is often made by the respective community and/or state. Often, modelers may make recommendations but are not the decision makers given the nature of contract work and policy contexts.

Recommendations

Recommendations informed by this analysis include:

1). Final reports should clearly define parameters and assumptions in order to promote as much transparency as possible. For example, models should clearly state the licensing ratios used instead of simply stating licensing metrics were used. Some models, such as Oregon, published a Technical Manual, which was a companion resource accompanying their summary report. This approach provides a resource with consumable information for the general public, as well as greater research details for those who would like them and is an excellent example of how this can be completed for multiple audiences.

2). A set of common definitions for cost modeling parameters should be created for the field. Cost modelers were asked through our survey about how helpful they felt guiding standards for the field of Cost Modeling would be. Of the 13 responses collected, most indicated a desire for guiding "considerations" as opposed to standards. Modelers spoke of the need for greater transparency, but also a desire to balance this with confidentiality and the flexibility necessary to respond to each context. There was a general belief that "standards" or "considerations" would improve data quality and replicability. These can serve as guideposts to support a common language and alignment across cost modeling practitioners, while also allowing for the flexibility required in different contexts. Clarity in terminology can further support the profession of cost modeling as well as local and state leaders in using their models to advance policy goals. Similar standards have been developed for the field of K-12 education (see Standards for the Economic Evaluation of Educational and Social Programs) and these can serve as a framework to inform the development of standards for the early care and educator sector.

In Brief

Recommendations

- Promote increased transparency within models by clearly publishing assumptions and model details within reports.
- Develop a set of standards or guidelines to support greater consistency across modeling parameters.
- Establish clear and agreed-upon definitions. This research highlighted there were several terms used for cost modeling. For example, cost study, cost model, fiscal analysis, expense and revenue model, cost estimation model, to name a few.

Ensure modeled scenarios are clearly outlined within reports with information about the ways assumptions were adjusted for each scenario.

3). Approaches to cost modeling and final report analysis should consider the ways community—or city-level cost models can be coordinated with state-level models and/or the degree to which separate models are necessary depending on goals. Using aligned approaches presents benefits such as promoting consistency to allow a true comparison of costs, reducing inconsistencies to promote accuracy, and promoting efficiency and comparability.

This is the third of four Research Briefs that summarize a review of 25 states' cost modeling approaches.

Overview Brief – An Analysis of Cost Models

Research Brief #1 – How Greater Transparency Can Further Support Equity

Research Brief #2 – Scope, Structure, and Data Collection Methods

Research Brief #3 – Parameters and Details Provided Within Reports

Research Brief #4 – The Impact of Cost Models

This research was conducted by Allison Comport while serving as a visiting Predoctoral Fellow with CELFE in 2024. To learn more about this Research Brief series and to view the other briefs in this series, please visit celfe.org.