

# Using Quality Rating and Improvement System Data to Model the Cost of Quality Child Care in Georgia

## The Georgia Department of Early Care and Learning Examined Six Years of Provider Rating Data to Better Understand Child Care Service Costs

Child care providers serving children who receive subsidies are reimbursed by the Georgia Department of Early Care and Learning (DECAL) using federal Child Care and Development Block Grant funds. Reimbursements are based on a provider's quality rating under DECAL's tiered quality rating and improvement system, Quality Rated (QR). QR assigns 1, 2, or 3 stars to providers who meet or exceed the minimum state requirements, and the tiered reimbursement schedule pays higher per-child rate bonuses to providers with higher star ratings. A child care cost estimation model can improve the equity with which these funds are distributed but only if the model assumptions accurately represent the existing pool of providers at each quality rating level. Assigning costs to the quality of teachers' interactions with children is difficult, if not impossible. But certain structural components that encourage and support high-quality interactions are easier to translate into cost drivers. These components include smaller class sizes; lower adult-child ratios; better educated, trained, and compensated teachers; and greater investment in administration, support services, facilities, and classroom spaces.

In 2022, DECAL developed a Cost Model Strategic Plan to identify the appropriate data sets and select the correct assumptions for modeling the cost of quality child care. This paper examines provider-level data from QR ratings issued between January 2017 and May 2023 and addresses the following questions:

- *What data does the cost model need?*
- *What data do we have?*
- *What is the data telling us?*

### **Question #1: What Data Does the Cost Model Need?**

The assumptions in DECAL's child care cost model are contained within a collection of data tables. Each table addresses one or more variables and is formatted to allow the user to vary assumptions along key dimensions. Figure 1 contains a list of the data tables in DECAL's cost model and the dimensions along which assumptions are currently allowed to vary. Potential data sources for informing these tables were reviewed as part of the 2022 Cost Model Strategic Plan. DECAL identified Quality Rated as the best data source for class size (Table C.2), adult-child ratio (Table C.3), classroom staffing (Table C.4), and the education credentials and annual training hours of teaching staff and center directors (Tables C.5–C.7) based on the availability of these measurements within QR, and because each measurement can be linked to a specific rating issued to a provider. Ratings are awarded to providers every three years, so this link allows for

more than one QR rating to be included for each provider over the period between 2017 and 2023.

**Figure 1: List of Data Tables in the Child Care Cost Model and the Dimensions for Varying Assumptions**

| Data Table | Description                                       | Time of Day/Year | GA Pre-K | Age | Provider Type | Quality Level | CAPS Intensity | Facility Size | Market Rate Zone |
|------------|---|------------------|----------|-----|---------------|---------------|----------------|---------------|------------------|
| C.1        | Dosage (Days/Hours)                               | X                | X        |     |               |               |                |               |                  |
| C.2        | (Maximum) Class Size                              | X                | X        | X   | x             | X             |                |               |                  |
| C.3        | Staff:Child Ratio                                 | X                | X        | X   | X             | X             |                |               |                  |
| C.4        | Lead vs. Asst Teacher Staffing                    | X                | X        | X   | X             | X             |                |               |                  |
| C.5        | Teaching Staff Credentials and Churn              |                  | X        |     | X             | X             | X              |               |                  |
| C.6        | Center Director Credentials                       |                  |          |     |               | X             |                |               |                  |
| C.7        | PD Training Hours, Participation, Fees and Travel |                  |          |     | X             | X             |                |               |                  |
| C.8        | Operating Schedule and Number of Classrooms       | X                |          | X   | X             |               |                | X             |                  |
| C.9        | Staffing Model                                    |                  |          |     | X             | X             |                | X             |                  |
| C.10       | Teaching Staff Wages by Credential Level          |                  | X        |     | X             | X             | X              |               | X                |
| C.11       | Center Director Wages by Credential Level         |                  |          |     | X             | X             | X              |               | X                |
| C.12       | Other (Non-Teachng Staff) Wages                   |                  |          |     | X             | X             | X              |               | X                |
| C.13       | Employee Benefits and Substitute Wages            |                  | X        |     | X             | X             | X              |               |                  |
| C.14       | Food Costs  | X                |          |     | X             |               | X              |               |                  |
| C.15       | Transportation Costs                              | X                |          | X   | X             |               |                | X             |                  |
| C.16       | "Other" Operating Costs                           |                  |          |     | X             |               | X              | X             |                  |
| C.17       | Facility (Occupancy) Costs                        |                  |          |     | X             | X             |                | X             | X                |
| C.18       | "Other" Site Level Costs                          |                  |          |     | X             |               | X              | X             | X                |
| C.19       | Child Assessment Costs                            | X                | X        | X   | X             | X             |                |               |                  |
| C.20       | Classroom Furnishings and Materials               |                  |          | X   |               |               | X              |               |                  |
| C.21       | Other Durable Equipment                           |                  |          |     | X             |               | X              | X             |                  |

*Note: Georgia's Pre-K Program (GA Pre-K) is the state's free, lottery-funded educational program to prepare four year olds for kindergarten. Childcare and Parent Services (CAPS) is the state's child care subsidy program. The state divides its geographic regions into three Market Rate Zones. The list of Georgia counties by Market Rate Zone can be found at <https://caps.decal.ga.gov/assets/downloads/CAPS/AppendixC-CAPS%20Reimbursement%20Rates.pdf>.*

## Question #2: What Data Do We Have?

We know from previous research that the overall QR star-rating level highly correlates with process quality as measured by Environment Rating Scale (ERS) scores.<sup>1</sup> The same research found a much weaker relationship between the rating level and structural quality scores. However, this determination was based only on the point scores and not on the underlying structural indicators, or measurements, that are more relevant to cost modeling. Our examination of the QR measurement data collected for ratings issued between 2017 and 2023 shows that these structural indicators can vary significantly as a function of the QR star-rating level.<sup>2</sup> The following figures summarize distributions in the QR data for class size, career level, and annual training hours by star rating. We show the 50th, 75th, and 90th percentile statistics because we believe that future discussions about cost modeling assumptions will focus on this data range. In the Appendix we provide an expanded set of statistics, including the 10th and 25th percentiles and tests for significance in the difference between mean values. Except where otherwise indicated

<sup>1</sup> Early, D. M., Maxwell, K. L., Orfali, N. S., & Li, W. (2017). *Quality Rated Validation Study Report #1: What Makes Up a Quality Rated Star Rating? An In-Depth Look at the Criteria, Standards, and Components*. Chapel Hill, NC: Child Trends. <https://www.decal.ga.gov/documents/attachments/QRValidationReport1.pdf>

<sup>2</sup> The data considered in the analysis encompasses only ratings that included a live ERS observation. Pandemic-related Temporary Alternate Rating Option (TARO) ratings are excluded.

as specific to licensed family home providers, the following statistics apply to licensed child care centers.

Class size is one of the most important cost drivers in the cost-per-child calculation, and its summary statistics are shown in Figure 2. State licensing class-size maximum limits are listed below for various age groups and provider types, followed by the QR thresholds for awarding 2, 4, or 6 points, respectively, based on adult-child ratios:

- **Infants.** Maximum class size of 12 with a 1:6 ratio of adults to children; point thresholds for adult-child ratios are 1:6, 1:5, 1:4
- **One Year Olds.** Maximum of 16 with a 1:8 ratio; point thresholds are 1:7, 1:6, 1:4
- **Two Year Olds.** Maximum of 20 with a 1:10 ratio; point thresholds are 1:9, 1:8, 1:6
- **Three Year Olds.** Maximum of 30 with a 1:15 ratio; point thresholds are 1:14, 1:13, 1:8
- **Four Year Olds (Non-Georgia's Pre-K).** Maximum of 36 with a 1:18 ratio; point thresholds are 1:17, 1:15, 1:11
- **Four Year Olds (Georgia's Pre-K classrooms).** Maximum of 22 with a 1:11 ratio. The point threshold of 1:11 is automatically met because 1:11 is the highest ratio allowed.
- **Five Year Olds.** Maximum of 40 with a 1:20 ratio; point thresholds are 1:19, 1:16, 1:13
- **School Age.** Maximum of 50 with a 1:25 ratio; point thresholds are 1:20, 1:18, 1:15
- **Family Home Providers.** Maximum of six unrelated children<sup>3</sup>. There are no point thresholds for this category; but at least three children under 13 years of age must be enrolled to be rated in QR.

For licensed centers, the distribution of class size in Figure 2 generally does not follow the expectations set by the QR point score thresholds. For example, the median size (i.e., 50th percentile) for infant classrooms among both 1-star and 2-star providers is only eight (8) children, which at a 1:4 adult-child ratio would receive the maximum points available. Previous cost model initial estimates developed in 2021 assumed a class size of 12, 10, and 8 children with two adults for 1-star, 2-star, and 3-star providers, respectively, mirroring the point-score thresholds above.

The class size metric used in Figure 2 is derived from hourly attendance and staffing data reported in QR and is based on a peak ratio representing the highest number of children reported in the classroom over the course of the day and the lowest number of teachers reported present at that attendance level. The effective class size calculation uses the peak ratio and assumes two classroom teachers in all licensed center classrooms, and one teacher in all licensed family homes. Additional class size metrics are shown in the Appendix. The difference in the average effective class size and peak ratio by quality rating level at licensed centers is statistically significant in many cases. See the Appendix for details.

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<sup>3</sup> FCCLH Rules and Regulations include an exception that a provider may care for two additional children for two designated one-hour periods daily, if they are at least three years old, upon approval by DECAL. Taken from: Rules and Regulations for Family Child Care Learning Homes, Chapter 290-2-3-.07(15) Staffing and Supervision (2023). [www.dec.state.ga.us/documents/attachments/FCCLHRulesAndRegulations.pdf](http://www.dec.state.ga.us/documents/attachments/FCCLHRulesAndRegulations.pdf).

Unlike licensed centers, family homes participating in QR appear much more likely to fill their licensed capacity and to follow the agency’s expectations. The cost estimation model initial estimates developed in 2021 assumed six children at family homes for all quality levels, which the data in Figure 2 support.

**Figure 2: 50th, 75th, and 90th Percentile Statistics for Class Size by Age Group and QR Level**

| CLASS SIZE  |                                     | 50th Percentile |        |        | 75th Percentile |        |        | 90th Percentile |        |        |
|---|-------------------------------------|-----------------|--------|--------|-----------------|--------|--------|-----------------|--------|--------|
|   |                                     | 1 Star          | 2 Star | 3 Star | 1 Star          | 2 Star | 3 Star | 1 Star          | 2 Star | 3 Star |
| Effective Class Size (based on Peak Ratio and 2 Adults) | Infants                             | 8               | 8      | 7      | 10              | 10     | 9      | 12              | 12     | 11     |
|   | Ones                                | 12              | 10     | 9      | 14              | 12     | 12     | 16              | 16     | 16     |
|   | Twos                                | 14              | 12     | 12     | 18              | 16     | 15     | 20              | 18     | 18     |
|   | Threes                              | 18              | 16     | 15     | 24              | 20     | 18     | 28              | 26     | 26     |
|   | Fours                               | 20              | 19     | 19     | 22              | 21     | 22     | 28              | 24     | 22     |
|   | Fives                               | 22              | 19     | 19     | 22              | 22     | 20     | 30              | 36     | 26     |
|   | School age                          | 28              | 24     | 22     | 34              | 30     | 30     | 42              | 36     | 34     |
| Family Home   | Effective Class Size (with 1 Adult) | 6               | 5      | 5      | 6               | 6      | 6      | 6               | 6      | 6      |

Education credentials among teaching staff are another important driver in the cost-per-child calculation, and its summary statistics are shown in Figure 3 for teachers, center directors, and family home providers. A previous analysis found that staff wages at licensed centers increased with credential level but found no similar trends by star-rating level when controlling for staff position and credential level.<sup>4</sup> We hypothesized that the QR data would reveal a positive relationship between credentials and star-rating levels to substantiate the cost of quality. In Figure 3, career levels roughly correspond to the following credential levels used in the cost model:<sup>5</sup>

- **Career Levels 1-3.** No credential
- **Levels 4-6.** Child Development Associate (CDA) credential, Technical Certificate of Credit (TCC), Technical Diploma of Credit (TCD) or equivalent
- **Level 7.** Associate’s degree in Early Child Education or Child Development (ECE/CD) or equivalent
- **Levels 8-12.** Bachelor’s (BA) degree or higher in ECE/CD or equivalent

Under the current QR scoring rubric, points may be awarded for having teachers with a career level of 3 or higher, 4 or higher, and 5 or higher. For directors and family home providers, the point thresholds are 4 or higher, 7 or higher, and 8 or higher. A certain percentage of staff must meet each threshold for the points to apply. In Figure 3, the median career level by classroom for lead

<sup>4</sup> Georgia Department of Early Care and Learning. (2024). *Wages for Lead Teachers Vary by Education and Subsidy Participation, But Not Provider Quality*; Georgia Department of Early Care and Learning. (2024). *Wages for Assistant Teachers and Center Directors Vary by Education and Subsidy Participation, But Not by Provider Quality*; Georgia Department of Early Care and Learning. (2024). *A Wage and Staffing Model for Non-Teaching Roles at Georgia Child Care Centers: Expectation Versus Reality*. Research was based on data collected for the Short-Term Assistance Benefit for Licensed Entities (STABLE) program in the second half of 2022. The analysis examined teaching staff hourly wages by education credential (Tables C.10 & C.11), and non-teaching staff wages and staffing levels (Tables C.9 & C.12). The reports are available at <https://www.dec.state.ga.us/BftS/CostofCare.aspx>.

<sup>5</sup> A detailed explanation of career levels is available at <https://gapds.dec.state.ga.us/documents/CareerLevels.pdf>.

teachers and assistant teachers is derived from all teachers assigned to each classroom in the QR data, and the QR data identify all career levels from 1 to 12 for lead teacher and assistant teacher education credentials. However, for center directors and family home providers, the QR data identify only whether their career level is between 1 and 3; between 4 and 6; at 7; or between 8 and 12. Figure 3 reports these ranges accordingly.

**Figure 3: 50th, 75th, and 90th Percentile Statistics for Career Level by Teaching Position and QR Level**

| CAREER LEVEL  |                                   | 50th Percentile |        |        | 75th Percentile |        |        | 90th Percentile |        |        |
|---------------|-----------------------------------|-----------------|--------|--------|-----------------|--------|--------|-----------------|--------|--------|
|               |                                   | 1 Star          | 2 Star | 3 Star | 1 Star          | 2 Star | 3 Star | 1 Star          | 2 Star | 3 Star |
| Lead Teacher  | Median Career Level by Classroom  | 4               | 4      | 6      | 6               | 8      | 8      | 9               | 9      | 9      |
| Asst. Teacher | Median Career Level by Classroom  | 1               | 2      | 4      | 4               | 4      | 5      | 5               | 6      | 7      |
| Director      | Center Director Career Level      | 1-3             | 1-3    | 1-3    | 1-3             | 4-6    | 7      | 7               | 8-12   | 8-12   |
| Home          | Family Home Provider Career Level | 1-3             | 1-3    | 1-3    | 1-3             | 1-3    | 4-6    | 4-6             | 7      | 7      |

Figure 3 shows that most teachers have a CDA or associate's degree but not higher, whereas most directors and family home providers have less than a CDA or equivalent. Additional career level statistics are shown in the Appendix, including tests for statistical significance in the difference between means.

Currently, there is no annual training cost assumed in Georgia's cost model because most training is provided through DECAL free-of-charge. Nonetheless, annual training is considered a component of quality child care and is worth examining in the QR data. Licensing rules require a minimum of 10 hours annually for center directors, family home providers, and lead and assistant teachers. QR points are awarded for exceeding this minimum by 4, 6, and 8 hours, with a certain percentage of staff required to meet the threshold to earn those points. Figure 4 shows summary statistics from the QR data for annual training hours. The median number of training hours per classroom is based on all teachers assigned to a classroom.

**Figure 4: 50th, 75th, and 90th Percentile Statistics for Training Hours by Teaching Position and QR Level**

| TRAINING HOURS |                                     | 50th Percentile |        |        | 75th Percentile |        |        | 90th Percentile |        |        |
|----------------|-------------------------------------|-----------------|--------|--------|-----------------|--------|--------|-----------------|--------|--------|
|                |                                     | 1 Star          | 2 Star | 3 Star | 1 Star          | 2 Star | 3 Star | 1 Star          | 2 Star | 3 Star |
| Teachers       | Median Training Hours by Classroom  | 12              | 18     | 20     | 19              | 23     | 26     | 28              | 33     | 36     |
| Center         | Center Director Training Hours      | 15              | 20     | 22     | 21              | 27     | 31     | 40              | 45     | 45     |
| Home           | Family Home Provider Training Hours | 12              | 18     | 20     | 18              | 22     | 28     | 24              | 31     | 45     |

Figure 4 shows that most staff have taken at least 18 hours of annual training and qualify for the maximum number of points awarded by QR. Additional training hour statistics are shown in the Appendix, including tests for significance in the difference between means.

### **Question #3: What Is the Data Telling Us?**

The statistics in Figures 2-4 suggest the following implications to modeling the cost of child care quality among the existing pool of Georgia's providers:

1. Class size at licensed centers typically falls well below licensed capacity for both higher- and lower-rated providers, and smaller class size assumptions will increase cost-per-child estimates. Among family homes, class size is much more likely to match licensed capacity.
2. Adult-child ratios are lower at licensed centers with higher star-rating levels compared to those with lower star-rating levels but not by as much as anticipated based on the QR scoring rubric. A smaller difference in ratios will reduce the difference in cost estimates between higher- and lower-rated providers.
3. Career levels increase as star-rating levels rise but not by as much as anticipated based on the QR scoring rubric. If higher wages are associated with higher credentials, as found in a previous analysis, then a smaller difference in career levels will reduce the difference in cost estimates between higher- and lower-rated providers.
4. Training hours typically exceed licensing requirements and increase as star-rating levels rise. If a cost per training hour is assumed in the cost model, then higher annual training levels will lead to higher costs than otherwise anticipated.

Finally, the distributions observed in data suggest that existing QR scoring thresholds—and the weight applied to these scores in determining an overall QR score and rating—may be inadequate for differentiating providers based on their costs. If a quality rating and improvement system is to be used in conjunction with a cost estimation model to justify higher child care subsidy payment rates or bonuses for providers rated at higher quality, then this paper highlights an opportunity for DECAL to revisit its design of QR and build better alignment between cost drivers, raw QR scores, and star ratings.

# APPENDIX: An Expanded Summary of QR Statistics

Figure 5 contains an expanded summary of class size metrics and statistics including Student's T-Tests. Green-shaded cells in the lower right-hand table indicate a statistically significant difference in the mean peak ratio between successive star ratings (i.e., each star-rating level compared with the next lowest star-rating level), at a 95% confidence level. Figures 5-11 include data from ratings issued between January 2017 and May 2023 and only include ratings involving a live ERS observation. Temporary Alternate Rating Option (TARO) ratings used during the pandemic are excluded from the analysis.

**Figure 5: Expanded Class Size Metrics and Statistics, Including T-Tests, by Age Group Classroom**

| CLASS SIZE  |                                     | 10th Percentile                    |        |        |        | 25th Percentile                             |        |        |        | 50th Percentile |        |        |        | 75th Percentile  |        |        |        | 90th Percentile |        |        |        |
|---|-------------------------------------|------------------------------------|--------|--------|--------|---|--------|--------|--------|-----------------|--------|--------|--------|------------------|--------|--------|--------|-----------------|--------|--------|--------|
|   |                                     | 0 Star                             | 1 Star | 2 Star | 3 Star | 0 Star                                      | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star           | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star |
| Average Students (from Monthly QR Query)                            | Infants                             | 2                                  | 2      | 2      | 2      | 3   | 3      | 3      | 3      | 4               | 4      | 4      | 4      | 5                | 5      | 5      | 6      | 8               | 7      | 7      | 7      |
|   | Ones                                | 3                                  | 3      | 3      | 3      | 4   | 4      | 4      | 4      | 6               | 5      | 5      | 5      | 7                | 7      | 7      | 7      | 11              | 9      | 8      | 9      |
|   | Twos                                | 3                                  | 4      | 4      | 4      | 5   | 5      | 5      | 5      | 6               | 7      | 7      | 7      | 8                | 9      | 9      | 9      | 9               | 11     | 11     | 11     |
|   | Threes                              | 4                                  | 4      | 4      | 5      | 6   | 6      | 6      | 7      | 7               | 8      | 8      | 10     | 10               | 10     | 11     | 12     | 12              | 13     | 14     | 14     |
|   | Fours                               | 5                                  | 5      | 6      | 7      | 9   | 7      | 8      | 9      | 10              | 10     | 10     | 11     | 12               | 12     | 12     | 13     | 14              | 14     | 14     | 15     |
|   | Fives                               | 4                                  | 4      | 6      | 8      | 5   | 7      | 8      | 10     | 6               | 11     | 10     | 10     | 9                | 12     | 11     | 11     | 11              | 14     | 12     | 11     |
|   | School age                          | 4                                  | 4      | 4      | 4      | 5   | 5      | 6      | 5      | 7               | 9      | 9      | 9      | 11               | 14     | 12     | 14     | 15              | 25     | 20     | 22     |
| Max Students (based on Hourly Attendance Data)                      | Infants                             | 3                                  | 3      | 3      | 3      | 4   | 4      | 4      | 5      | 5               | 6      | 6      | 6      | 7                | 8      | 8      | 8      | 11              | 11     | 9      | 10     |
|   | Ones                                | 4                                  | 5      | 4      | 5      | 6   | 6      | 6      | 6      | 8               | 8      | 8      | 8      | 10               | 10     | 10     | 10     | 15              | 13     | 12     | 13     |
|   | Twos                                | 5                                  | 6      | 6      | 6      | 7   | 8      | 8      | 8      | 9               | 10     | 10     | 10     | 11               | 13     | 13     | 13     | 13              | 16     | 16     | 16     |
|   | Threes                              | 7                                  | 7      | 7      | 8      | 9   | 9      | 9      | 11     | 11              | 12     | 13     | 14     | 15               | 15     | 16     | 16     | 19              | 18     | 18     | 18     |
|   | Fours                               | 6                                  | 2      | 7      | 9      | 11  | 10     | 13     | 14     | 17              | 16     | 18     | 18     | 20               | 20     | 20     | 20     | 22              | 22     | 22     | 22     |
|   | Fives                               | 4                                  | 4      | 0      | 13     | 8   | 10     | 10     | 18     | 10              | 17     | 17     | 19     | 14               | 22     | 19     | 19     | 16              | 22     | 22     | 20     |
|   | School age                          | 7                                  | 8      | 8      | 7      | 10  | 13     | 11     | 14     | 15              | 18     | 15     | 18     | 18               | 25     | 24     | 26     | 21              | 33     | 37     | 36     |
| Peak Ratio (Max Students ÷ Min Teachers at Time(s) of Max Students) | Infants                             | 1:3                                | 1:3    | 1:3    | 1:3    | 1:4   | 1:4    | 1:3    | 1:3    | 1:5             | 1:4    | 1:4    | 1:4    | 1:6              | 1:5    | 1:5    | 1:5    | 1:6             | 1:6    | 1:6    | 1:6    |
|   | Ones                                | 1:4                                | 1:4    | 1:3    | 1:3    | 1:5   | 1:5    | 1:4    | 1:4    | 1:7             | 1:6    | 1:5    | 1:5    | 1:8              | 1:7    | 1:6    | 1:6    | 1:9             | 1:8    | 1:8    | 1:8    |
|   | Twos                                | 1:5                                | 1:4    | 1:4    | 1:4    | 1:6   | 1:6    | 1:5    | 1:4    | 1:7             | 1:7    | 1:6    | 1:6    | 1:9              | 1:9    | 1:8    | 1:8    | 1:10            | 1:10   | 1:9    | 1:9    |
|   | Threes                              | 1:5                                | 1:6    | 1:5    | 1:5    | 1:8   | 1:7    | 1:6    | 1:7    | 1:10            | 1:9    | 1:8    | 1:8    | 1:12             | 1:12   | 1:10   | 1:9    | 1:14            | 1:14   | 1:13   | 1:13   |
|   | Fours                               | 1:6                                | 1:6    | 1:6    | 1:7    | 1:9   | 1:8    | 1:8    | 1:8    | 1:10            | 1:10   | 1:10   | 1:10   | 1:12             | 1:11   | 1:11   | 1:11   | 1:18            | 1:14   | 1:12   | 1:11   |
|   | Fives                               | 1:6                                | 1:5    | 1:7    | 1:8    | 1:6   | 1:10   | 1:8    | 1:9    | 1:8             | 1:11   | 1:10   | 1:10   | 1:8              | 1:11   | 1:11   | 1:10   | 1:9             | 1:15   | 1:18   | 1:13   |
|   | School age                          | 1:7                                | 1:6    | 1:7    | 1:6    | 1:9   | 1:10   | 1:9    | 1:8    | 1:12            | 1:14   | 1:12   | 1:11   | 1:15             | 1:17   | 1:15   | 1:15   | 1:18            | 1:21   | 1:18   | 1:17   |
| Effective Class Size (based on Peak Ratio and 2 Adults)             | Infants                             | 5                                  | 5      | 5      | 5      | 7   | 7      | 6      | 6      | 9               | 8      | 8      | 7      | 11               | 10     | 10     | 9      | 12              | 12     | 12     | 11     |
|   | Ones                                | 8                                  | 7      | 6      | 6      | 10  | 9      | 8      | 7      | 13              | 12     | 10     | 9      | 16               | 14     | 12     | 12     | 18              | 16     | 16     | 16     |
|   | Twos                                | 10                                 | 8      | 7      | 7      | 12  | 11     | 10     | 8      | 14              | 14     | 12     | 12     | 18               | 18     | 16     | 15     | 20              | 20     | 18     | 18     |
|   | Threes                              | 10                                 | 11     | 10     | 10     | 17  | 14     | 13     | 13     | 20              | 18     | 16     | 15     | 24               | 24     | 20     | 18     | 28              | 28     | 26     | 26     |
|   | Fours (excl. GA's Pre-K Providers)  | 12                                 | 10     | 10     | 10     | 14  | 14     | 13     | 13     | 21              | 18     | 16     | 17     | 24               | 24     | 20     | 21     | 30              | 30     | 25     | 25     |
|   | Fours                               | 12                                 | 12     | 12     | 13     | 17  | 16     | 16     | 16     | 20              | 20     | 19     | 19     | 24               | 22     | 21     | 22     | 36              | 28     | 24     | 22     |
|   | Fives                               | 11                                 | 10     | 13     | 15     | 13  | 20     | 16     | 18     | 15              | 22     | 19     | 19     | 16               | 22     | 22     | 20     | 17              | 30     | 36     | 26     |
|   | School age                          | 14                                 | 11     | 14     | 12     | 18  | 20     | 19     | 16     | 24              | 28     | 24     | 22     | 30               | 34     | 30     | 30     | 36              | 42     | 36     | 34     |
|   |                                     |                                    |        |        |        |   |        |        |        |                 |        |        |        |                  |        |        |        |                 |        |        |        |
|   |                                     | CLASSROOM COUNTS                   |        |        |        | PEAK (HIGHEST DOCUMENTED) CHILD-ADULT RATIO |        |        |        |                 |        |        |        |                  |        |        |        |                 |        |        |        |
|   |                                     | 0 Star                             | 1 Star | 2 Star | 3 Star | MEAN VALUES                                 |        |        |        | STD DEVIATIONS  |        |        |        | T-TEST AT 95% CI |        |        |        |                 |        |        |        |
|   |                                     | 0 Star                             | 1 Star | 2 Star | 3 Star | 0 Star                                      | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star           | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star |
|   |                                     | Infants                            | 65     | 590    | 854    | 212   | 4.4    | 4.3    | 3.9    | 3.8             | 1.37   | 1.31   | 1.25   | 1.20             | 0.0    | -0.35  | -5.42  | -1.85           |        |        |        |
|   |                                     | Ones                               | 74     | 575    | 1012   | 269   | 6.4    | 5.8    | 5.2    | 5.0             | 2.20   | 1.76   | 1.76   | 1.73             | 0.0    | -2.18  | -6.83  | -2.14           |        |        |        |
|   |                                     | Twos                               | 59     | 554    | 935    | 264   | 7.4    | 7.1    | 6.4    | 6.0             | 2.03   | 2.18   | 2.51   | 2.19             | 0.0    | -0.91  | -5.95  | -2.80           |        |        |        |
|   |                                     | Threes                             | 83     | 667    | 1250   | 386   | 11.1   | 9.5    | 8.5    | 8.4             | 11.72  | 3.31   | 3.30   | 3.29             | 0.0    | -1.23  | -5.94  | -0.75           |        |        |        |
|   |                                     | Fours (excl. GA's Pre-K Providers) | 18     | 161    | 232    | 56  | 10.3   | 9.6    | 8.5    | 8.7             | 3.84   | 3.99   | 3.18   | 2.99             | 0.0    | -0.72  | -2.91  | 0.41            |        |        |        |
|   |                                     | Fours                              | 57     | 661    | 1211   | 368   | 11.0   | 9.8    | 9.4    | 9.6             | 4.25   | 3.30   | 2.97   | 2.76             | 0.0    | -1.92  | -2.78  | 0.80            |        |        |        |
|   |                                     | Fives                              | 7      | 33     | 27     | 8   | 7.2    | 10.8   | 10.5   | 10.1            | 1.47   | 4.06   | 4.38   | 3.36             | 0.0    | 4.01   | -0.21  | -0.29           |        |        |        |
|   |                                     | School age                         | 40     | 140    | 355    | 77  | 12.7   | 13.5   | 12.9   | 11.3            | 4.41   | 5.61   | 8.35   | 4.55             | 0.0    | 0.85   | -0.92  | -2.31           |        |        |        |
|   |                                     | 403                                | 3381   | 5876   | 1640   |   |        |        |        |                 |        |        |        |                  |        |        |        |                 |        |        |        |
|   |                                     | 10th Percentile                    |        |        |        | 25th Percentile                             |        |        |        | 50th Percentile |        |        |        | 75th Percentile  |        |        |        | 90th Percentile |        |        |        |
|   |                                     | 0 Star                             | 1 Star | 2 Star | 3 Star | 0 Star                                      | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star           | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star |
| Family Home Provider  | Average Students                    | 3                                  | 2      | 2      | 2      | 3   | 3      | 3      | 3      | 4               | 4      | 4      | 4      | 4                | 5      | 5      | 4      | 6               | 5      | 5      | 5      |
|   | Max Students                        | 4                                  | 3      | 3      | 3      | 4   | 4      | 4      | 4      | 6               | 6      | 5      | 5      | 6                | 6      | 6      | 6      | 7               | 7      | 7      | 6      |
|   | Peak Ratio                          | 1:3                                | 1:3    | 1:3    | 1:3    | 1:4   | 1:4    | 1:4    | 1:3    | 1:6             | 1:6    | 1:5    | 1:5    | 1:6              | 1:6    | 1:6    | 1:6    | 1:7             | 1:6    | 1:6    | 1:6    |
|   | Effective Class Size (with 1 Adult) | 3                                  | 3      | 3      | 3      | 4   | 4      | 4      | 3      | 6               | 6      | 5      | 5      | 6                | 6      | 6      | 6      | 7               | 6      | 6      | 6      |
|   |                                     | CLASSROOM COUNTS                   |        |        |        | PEAK (HIGHEST DOCUMENTED) CHILD-ADULT RATIO |        |        |        |                 |        |        |        |                  |        |        |        |                 |        |        |        |
|   |                                     | 0 Star                             | 1 Star | 2 Star | 3 Star | MEAN VALUES                                 |        |        |        | STD DEVIATIONS  |        |        |        | T-TEST AT 95% CI |        |        |        |                 |        |        |        |
|   |                                     | 0 Star                             | 1 Star | 2 Star | 3 Star | 0 Star                                      | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star           | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star |
|   |                                     | Family Home Provider               | 26     | 106    | 258    | 173   | 5.1    | 4.9    | 4.7    | 4.5             | 1.52   | 1.61   | 1.52   | 1.53             | 0.0    | -0.42  | -1.34  | -1.46           |        |        |        |

In Figure 5, “average students” is a simple average of hourly attendance data generated by a monthly query of QR data provided to DECAL’s research team. The observed values for average

students are notably low. The adult-child ratios recorded in QR for determining its Standard 5 structural quality score (not shown in Figure 5), based on the ratio maintained for 75% or more of the classroom hours or program day, are also notably low.<sup>6</sup> Further examination of ratios by time of day (morning, midday, and afternoon-evening) suggests that the calculation of a simple average—or a ratio maintained for 75% of a program day—may be underreporting the adult-child ratios providers are actually targeting.

The analysis of hourly attendance and staffing data led to the determination that a more appropriate metric could be based on the maximum number of children reported present at one time over the course of the day and the minimum number of teachers reported present at that attendance level. This “peak ratio” reflects the limit to which providers plan their rosters of classroom staff and age-group sizes, whether by fault or by design, and could be the characteristic one might expect to vary most as a function of quality.

**Figure 6: Teacher Count Metrics and Statistics by Age Group Classroom**

|   |                                    | 10th Percentile |        |        |        | 25th Percentile |        |        |        | 50th Percentile |        |        |        | 75th Percentile |        |        |        | 90th Percentile |        |        |        |
|---|------------------------------------|-----------------|--------|--------|--------|-----------------|--------|--------|--------|-----------------|--------|--------|--------|-----------------|--------|--------|--------|-----------------|--------|--------|--------|
| NUMBER OF TEACHERS                                    |                                    | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star |
| Min Number of Teachers at Peak Attendance             | Infants                            | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 2      | 2      | 2               | 2      | 2      | 2      | 2               | 2      | 2      | 3      |
|   | Ones                               | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 2      | 2      | 2               | 2      | 2      | 2      | 2               | 2      | 2      | 2      |
|   | Twos                               | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 2      | 2      | 2               | 2      | 2      | 2      | 2               | 2      | 2      | 2      |
|   | Threes                             | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 2      | 2      | 2               | 2      | 2      | 2      | 2               | 2      | 2      | 2      |
|   | Fours                              | 1               | 1      | 1      | 1      | 1               | 1      | 2      | 2      | 2               | 2      | 2      | 2      | 2               | 2      | 2      | 2      | 2               | 2      | 2      | 2      |
|   | Fives                              | 1               | 0      | 0      | 1      | 1               | 1      | 1      | 2      | 2               | 1      | 2      | 2      | 2               | 2      | 2      | 2      | 2               | 2      | 2      | 2      |
|   | School age                         | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 2      | 1               | 2      | 2      | 2      | 2               | 3      | 3      | 3      |
| Max Number of Teachers at Peak Attendance             | Infants                            | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 2      | 1               | 2      | 2      | 2      | 2               | 2      | 2      | 2      | 3               | 2      | 3      | 3      |
|   | Ones                               | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 2      | 1               | 2      | 2      | 2      | 2               | 2      | 2      | 2      | 2               | 2      | 3      | 3      |
|   | Twos                               | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 2      | 1               | 2      | 2      | 2      | 2               | 2      | 2      | 2      | 2               | 2      | 3      | 3      |
|   | Threes                             | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 2      | 1               | 1      | 2      | 2      | 2               | 2      | 2      | 2      | 2               | 2      | 2      | 3      |
|   | Fours                              | 1               | 1      | 1      | 1      | 1               | 1      | 2      | 2      | 2               | 2      | 2      | 2      | 2               | 2      | 2      | 2      | 2               | 2      | 2      | 2      |
|   | Fives                              | 1               | 1      | 0      | 1      | 1               | 1      | 1      | 2      | 2               | 2      | 2      | 2      | 2               | 2      | 2      | 2      | 2               | 2      | 2      | 2      |
|   | School age                         | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 2      | 1               | 2      | 2      | 2      | 2               | 3      | 3      | 3      |
| Average Number of Classroom Adults                    | Infants                            | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 2      | 1               | 2      | 2      | 2      | 2               | 2      | 2      | 2      |
|   | Ones                               | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 2      | 2               | 2      | 2      | 2      | 2               | 2      | 2      | 2      |
|   | Twos                               | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 2      | 1               | 2      | 2      | 2      | 2               | 2      | 2      | 2      |
|   | Threes                             | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 2      | 1               | 1      | 2      | 2      | 2               | 2      | 2      | 2      |
|   | Fours                              | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 2      | 2               | 2      | 2      | 2      |
|   | Fives                              | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 2               | 1      | 1      | 1      | 2               | 1      | 2      | 1      |
|   | School age                         | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 2      | 2      | 2      | 2               | 2      | 3      | 2      |
| Average Number of Lead Teachers (from Classrooms Tab) | Infants                            | 0               | 0      | 0      | 0      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 2               | 1      | 1      | 2      |
|   | Ones                               | 0               | 0      | 0      | 0      | 1               | 0      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 2      |
|   | Twos                               | 0               | 0      | 0      | 0      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 2      | 2      |
|   | Threes                             | 0               | 0      | 0      | 0      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      |
|   | Fours (excl. GA's Pre-K Providers) | 0               | 1      | 1      | 1      | 0               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      |
|   | Fives                              | 0               | 0      | 0      | 1      | 0               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      |
|   | School age                         | 0               | 0      | 0      | 0      | 0               | 0      | 1      | 0      | 0               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      |
|   |                                    | 10th Percentile |        |        |        | 25th Percentile |        |        |        | 50th Percentile |        |        |        | 75th Percentile |        |        |        | 90th Percentile |        |        |        |
|   |                                    | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star |
| Family Home Provider                                  | Min Teachers at Peak Attendance    | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 2      | 1      |
|   | Max Teachers at Peak Attendance    | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 2      | 2      | 2      |
|   | Average Number of Adults           | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 2      | 2      |
|   | Average Number of Lead Teachers    | 1               | 1      | 0      | 0      | 1               | 1      | 0      | 0      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      | 1               | 1      | 1      | 1      |

Figure 6 summarizes statistics for various metrics expressing the number of teachers in the classroom. The average number of classroom adults and the average number of lead teachers are metrics provided in a monthly query of QR data provided to the DECAL research team, while the number of teachers at peak attendance is derived from hourly attendance and staffing data recorded in QR but not included in the monthly DECAL research team query. The data in Figure 6

<sup>6</sup> This data are self-reported. Quality Rated Child Care Program Manual, Version 2.7.5 (2019). Available at [https://qualityrated.dec.al.gov/Content/Documents/PM\\_ProgramManual.pdf](https://qualityrated.dec.al.gov/Content/Documents/PM_ProgramManual.pdf).



suggest that, for cost modeling purposes, it is appropriate to assume no more than two teachers, a lead teacher, and an assistant teacher per classroom at licensed centers; and one teacher per classroom at licensed family homes. Red-shaded cells indicate cases at licensed centers where the maximum number of teachers at peak attendance varies from the minimum number of teachers at peak attendance, or when the average number of classroom adults varies from the minimum number of teachers at peak attendance.

Figures 7-11 provide an expanded summary of statistics for career levels and training hours. Green-shaded cells indicate a statistically significant difference in the mean values between successive star ratings (i.e., each star-rating level compared with the next lowest star-rating level) at a 95% confidence level.

**Figure 7: Lead Teacher Career Level Statistics and T-Tests by Age Group Classroom**

| CAREER LEVEL                           |   | 10th Percentile |        |        |        | 25th Percentile           |        |        |        | 50th Percentile |        |        |        | 75th Percentile  |        |        |        | 90th Percentile |        |        |        |
|--|---|-----------------|--------|--------|--------|---------------------------|--------|--------|--------|-----------------|--------|--------|--------|------------------|--------|--------|--------|-----------------|--------|--------|--------|
|  |   | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star                    | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star           | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star |
| Lead Teacher<br>Median<br>Career Level | Infants                                   | 0               | 0      | 0      | 0      | 0                         | 0      | 1      | 3      | 1               | 3      | 3      | 4      | 4                | 4      | 5      | 6      | 4               | 5      | 6      | 8      |
|  | Ones                                      | 0               | 0      | 0      | 1      | 0                         | 0      | 1      | 3      | 1               | 1      | 3      | 4      | 4                | 4      | 5      | 5      | 6               | 6      | 6      | 7      |
|  | Twos                                      | 0               | 0      | 0      | 1      | 0                         | 0      | 1      | 3      | 1               | 3      | 4      | 4      | 4                | 4      | 5      | 6      | 5               | 6      | 7      | 8      |
|  | Threes                                    | 0               | 0      | 0      | 2      | 0                         | 1      | 2      | 4      | 2               | 3      | 4      | 6      | 4                | 4      | 7      | 8      | 4               | 6      | 8      | 8      |
|  | <i>Fours (excl. GA's Pre-K Providers)</i> | 1               | 0      | 0      | 2      | 1                         | 1      | 3      | 5      | 2               | 4      | 6      | 6      | 3                | 7      | 8      | 8      | 4               | 8      | 9      | 8      |
|  | Fours                                     | 1               | 2      | 4      | 6      | 4                         | 6      | 8      | 8      | 9               | 8      | 9      | 9      | 9                | 9      | 9      | 9      | 10              | 10     | 10     | 10     |
|  | Fives                                     | 2               | 5      | 8      | 2      | 4                         | 7      | 8      | 8      | 7               | 8      | 9      | 9      | 11               | 9      | 9      | 10     | 11              | 10     | 10     | 10     |
|  | School age                                | 0               | 0      | 0      | 0      | 0                         | 0      | 0      | 1      | 1               | 2      | 3      | 3      | 2                | 4      | 4      | 4      | 4               | 8      | 7      | 7      |
|  | Median Career Level by Classroom          | 0               | 0      | 0      | 1      | 0                         | 1      | 2      | 4      | 2               | 4      | 4      | 6      | 4                | 6      | 8      | 8      | 9               | 9      | 9      | 9      |
|  | Median Career Level by Provider           | 0               | 0      | 0      | 1      | 0                         | 1      | 2      | 4      | 1               | 3      | 4      | 5      | 4                | 5      | 6      | 7      | 6               | 7      | 8      | 8      |
|  |   | COUNTS          |        |        |        | LEAD TEACHER CAREER LEVEL |        |        |        |                 |        |        |        |                  |        |        |        |                 |        |        |        |
|  |   | 0 Star          | 1 Star | 2 Star | 3 Star | MEAN VALUES               |        |        |        | STD DEVIATIONS  |        |        |        | T-TEST AT 95% CI |        |        |        |                 |        |        |        |
|  |   | 177             | 1964   | 4204   | 1331   | 0 Star                    | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star           | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star |
|  |   | 50              | 459    | 868    | 261    | 3.0                       | 3.7    | 4.6    | 5.5    | 3.23            | 3.15   | 3.10   | 2.89   | 0.0              | 2.85   | 10.21  | 10.09  |                 |        |        |        |
|  |   |                 |        |        |        | 2.4                       | 3.0    | 4.0    | 5.2    | 2.58            | 2.48   | 2.62   | 2.57   | 0.0              | 1.72   | 6.77   | 6.35   |                 |        |        |        |

**Figure 8: Assistant Teacher Career Level Statistics and T-Tests by Age Group Classroom**

| CAREER LEVEL                            |   | 10th Percentile |        |        |        | 25th Percentile                |        |        |        | 50th Percentile |        |        |        | 75th Percentile  |        |        |        | 90th Percentile |        |        |        |
|---|---|-----------------|--------|--------|--------|--------------------------------|--------|--------|--------|-----------------|--------|--------|--------|------------------|--------|--------|--------|-----------------|--------|--------|--------|
|   |   | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star                         | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star           | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star |
| Asst. Teacher<br>Median<br>Career Level | Infants                                   | 0               | 0      | 0      | 0      | 0                              | 0      | 0      | 1      | 0               | 1      | 1      | 1      | 1                | 1      | 2      | 4      | 1               | 3      | 4      | 5      |
|   | Ones                                      | 0               | 0      | 0      | 0      | 0                              | 0      | 0      | 1      | 1               | 1      | 1      | 1      | 3                | 1      | 2      | 4      | 4               | 2      | 4      | 6      |
|   | Twos                                      | 0               | 0      | 0      | 0      | 0                              | 0      | 0      | 1      | 0               | 0      | 1      | 2      | 0                | 1      | 2      | 4      | 1               | 4      | 4      | 5      |
|   | Threes                                    | 0               | 0      | 0      | 0      | 0                              | 0      | 1      | 1      | 1               | 1      | 2      | 4      | 2                | 3      | 4      | 5      | 4               | 4      | 6      | 6      |
|   | <i>Fours (excl. GA's Pre-K Providers)</i> | 0               | 0      | 0      | 1      | 0                              | 0      | 1      | 1      | 0               | 1      | 3      | 3      | 1                | 4      | 4      | 6      | 1               | 6      | 6      | 7      |
|   | Fours                                     | 0               | 1      | 2      | 3      | 3                              | 4      | 4      | 4      | 4               | 4      | 4      | 4      | 6                | 5      | 5      | 6      | 6               | 6      | 6      | 7      |
|   | Fives                                     | 1               | 1      | 1      | 6      | 1                              | 4      | 4      | 6      | 3               | 4      | 5      | 6      | 4                | 4      | 7      | 6      | 6               | 5      | 8      | 7      |
|   | School age                                | 0               | 0      | 0      | 0      | 0                              | 0      | 0      | 1      | 4               | 1      | 1      | 2      | 4                | 4      | 4      | 4      | 4               | 5      | 4      | 4      |
|   | Median Career Level by Classroom          | 0               | 0      | 0      | 0      | 0                              | 0      | 1      | 1      | 1               | 1      | 2      | 4      | 4                | 4      | 4      | 5      | 5               | 5      | 6      | 7      |
|   | Median Career Level by Provider           | 0               | 0      | 0      | 0      | 0                              | 0      | 1      | 1      | 0               | 1      | 1      | 3      | 2                | 3      | 4      | 4      | 4               | 4      | 5      | 6      |
|   |   | COUNTS          |        |        |        | ASSISTANT TEACHER CAREER LEVEL |        |        |        |                 |        |        |        |                  |        |        |        |                 |        |        |        |
|   |   | 0 Star          | 1 Star | 2 Star | 3 Star | MEAN VALUES                    |        |        |        | STD DEVIATIONS  |        |        |        | T-TEST AT 95% CI |        |        |        |                 |        |        |        |
|   |   | 116             | 1184   | 2856   | 1072   | 0 Star                         | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star           | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star |
|   |   | 29              | 281    | 626    | 222    | 1.9                            | 2.0    | 2.5    | 3.2    | 2.20            | 2.15   | 2.22   | 2.27   | 0.0              | 0.27   | 7.15   | 8.62   |                 |        |        |        |
|   |   |                 |        |        |        | 1.3                            | 1.5    | 2.2    | 2.8    | 1.73            | 1.85   | 2.03   | 2.05   | 0.0              | 0.76   | 4.71   | 3.96   |                 |        |        |        |

**Figure 9: Expanded Center Director and Family Home Provider Career Level Statistics and T-Tests**

| CAREER LEVEL          |                              | 10th Percentile |        |        |        | 25th Percentile |        |        |        | 50th Percentile |        |        |        | 75th Percentile  |        |        |        | 90th Percentile |        |        |        |
|-----------------------|------------------------------|-----------------|--------|--------|--------|-----------------|--------|--------|--------|-----------------|--------|--------|--------|------------------|--------|--------|--------|-----------------|--------|--------|--------|
|                       |                              | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star           | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star |
| Director Career Level | Center Director Career Level | 1-3             | 1-3    | 1-3    | 1-3    | 1-3             | 1-3    | 1-3    | 1-3    | 1-3             | 1-3    | 1-3    | 1-3    | 1-3              | 1-3    | 4-6    | 7      | 7               | 7      | 8-12   | 8-12   |
|                       | CENTER DIRECTOR CAREER LEVEL |                 |        |        |        |                 |        |        |        |                 |        |        |        |                  |        |        |        |                 |        |        |        |
|                       | PROVIDER COUNTS              |                 |        |        |        |                 |        |        |        |                 |        |        |        |                  |        |        |        |                 |        |        |        |
|                       | All Centers                  | 81              | 569    | 956    | 275    | MEAN VALUES     |        |        |        | STD DEVIATIONS  |        |        |        | T-TEST AT 95% CI |        |        |        | 0.0             | 0.38   | 5.14   | 3.10   |

  

| CAREER LEVEL               |                                   | 10th Percentile |        |        |        | 25th Percentile |        |        |        | 50th Percentile |        |        |        | 75th Percentile  |        |        |        | 90th Percentile |        |        |        |
|----------------------------|-----------------------------------|-----------------|--------|--------|--------|-----------------|--------|--------|--------|-----------------|--------|--------|--------|------------------|--------|--------|--------|-----------------|--------|--------|--------|
|                            |                                   | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star           | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star |
| Home Provider Career Level | Family Home Provider Career Level | 1-3             | 1-3    | 1-3    | 1-3    | 1-3             | 1-3    | 1-3    | 1-3    | 1-3             | 1-3    | 1-3    | 1-3    | 1-3              | 1-3    | 1-3    | 4-6    | 7               | 7      |        |        |
|                            | FAMILY HOME PROVIDER CAREER LEVEL |                 |        |        |        |                 |        |        |        |                 |        |        |        |                  |        |        |        |                 |        |        |        |
|                            | PROVIDER COUNTS                   |                 |        |        |        |                 |        |        |        |                 |        |        |        |                  |        |        |        |                 |        |        |        |
|                            | All Family Homes                  | 26              | 105    | 258    | 172    | MEAN VALUES     |        |        |        | STD DEVIATIONS  |        |        |        | T-TEST AT 95% CI |        |        |        | 0.0             | 3.29   | 1.84   | 1.50   |

**Figure 10: Expanded Teacher Annual Training Hour Statistics and T-Tests**

| TRAINING HOURS                 |                                    | 10th Percentile |        |        |        | 25th Percentile |        |        |        | 50th Percentile |        |        |        | 75th Percentile |        |        |        | 90th Percentile |        |        |        |
|--------------------------------|------------------------------------|-----------------|--------|--------|--------|-----------------|--------|--------|--------|-----------------|--------|--------|--------|-----------------|--------|--------|--------|-----------------|--------|--------|--------|
|                                |                                    | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star |
| Teachers Median Training Hours | Infants                            | 0               | 0      | 4      | 6      | 1               | 2      | 11     | 16     | 12              | 10     | 18     | 20     | 15              | 18     | 21     | 25     | 18              | 26     | 28     | 32     |
|                                | Ones                               | 0               | 0      | 4      | 8      | 0               | 3      | 11     | 16     | 6               | 10     | 18     | 20     | 16              | 18     | 22     | 25     | 20              | 25     | 29     | 34     |
|                                | Twos                               | 0               | 0      | 4      | 8      | 2               | 4      | 12     | 18     | 9               | 11     | 18     | 20     | 18              | 18     | 22     | 26     | 19              | 25     | 31     | 40     |
|                                | Threes                             | 0               | 0      | 4      | 8      | 0               | 3      | 11     | 14     | 10              | 12     | 18     | 20     | 18              | 19     | 22     | 25     | 20              | 26     | 30     | 32     |
|                                | Fours                              | 0               | 2      | 9      | 14     | 8               | 10     | 16     | 19     | 16              | 17     | 21     | 24     | 23              | 24     | 28     | 31     | 31              | 34     | 37     | 43     |
|                                | Fours (excl. GA's Pre-K Providers) | 0               | 0      | 5      | 14     | 4               | 3      | 12     | 17     | 10              | 12     | 19     | 21     | 14              | 19     | 23     | 28     | 25              | 26     | 33     | 37     |
|                                | Fives                              | 4               | 2      | 9      | 10     | 8               | 8      | 13     | 13     | 10              | 13     | 19     | 18     | 12              | 20     | 25     | 25     | 14              | 25     | 32     | 28     |
|                                | School age                         | 0               | 0      | 0      | 5      | 0               | 0      | 4      | 10     | 6               | 8      | 16     | 18     | 16              | 17     | 21     | 19     | 25              | 22     | 28     | 25     |
|                                | Median Training Hours by Classroom | 0               | 0      | 4      | 8      | 0               | 4      | 12     | 17     | 10              | 12     | 18     | 20     | 17              | 19     | 23     | 26     | 23              | 28     | 33     | 36     |
|                                | Median Training Hours by Provider  | 0               | 0      | 4      | 8      | 0               | 4      | 11     | 16     | 6               | 12     | 18     | 20     | 14              | 18     | 21     | 24     | 19              | 22     | 26     | 30     |
|                                | TEACHER ANNUAL TRAINING HOURS      |                 |        |        |        |                 |        |        |        |                 |        |        |        |                 |        |        |        |                 |        |        |        |
|                                | CLASSROOM COUNTS                   |                 |        |        |        |                 |        |        |        |                 |        |        |        |                 |        |        |        |                 |        |        |        |

  

|                                    |  | MEAN VALUES |        |        |        | STD DEVIATIONS |        |        |        | T-TEST AT 95% CI |        |        |        |
|------------------------------------|--|-------------|--------|--------|--------|----------------|--------|--------|--------|------------------|--------|--------|--------|
|                                    |  | 0 Star      | 1 Star | 2 Star | 3 Star | 0 Star         | 1 Star | 2 Star | 3 Star | 0 Star           | 1 Star | 2 Star | 3 Star |
| Median Training Hours by Classroom |  | 11.5        | 16.6   | 22.4   | 27.2   | 13.63          | 32.91  | 38.40  | 46.15  | 0.0              | 4.76   | 6.87   | 3.68   |
| Median Training Hours by Provider  |  | 8.1         | 12.2   | 17.5   | 21.5   | 9.00           | 13.50  | 14.14  | 16.81  | 0.0              | 3.07   | 7.04   | 3.73   |

**Figure 11: Expanded Center Director and Family Home Provider Training Hour Statistics and T-Tests**

| TRAINING HOURS                 |                                       | 0 Star | 1 Star | 2 Star | 3 Star | 0 Star      | 1 Star | 2 Star | 3 Star | 0 Star         | 1 Star | 2 Star | 3 Star | 0 Star           | 1 Star | 2 Star | 3 Star | 0 Star | 1 Star | 2 Star | 3 Star |
|--------------------------------|---------------------------------------|--------|--------|--------|--------|-------------|--------|--------|--------|----------------|--------|--------|--------|------------------|--------|--------|--------|--------|--------|--------|--------|
| Center Director Training Hours | Center Director Training Hours        | 0      | 0      | 4      | 10     | 1           | 5      | 14     | 18     | 8              | 15     | 20     | 22     | 18               | 21     | 27     | 31     | 28     | 40     | 45     | 45     |
|                                | CENTER DIRECTOR ANNUAL TRAINING HOURS |        |        |        |        |             |        |        |        |                |        |        |        |                  |        |        |        |        |        |        |        |
|                                | PROVIDER COUNTS                       |        |        |        |        |             |        |        |        |                |        |        |        |                  |        |        |        |        |        |        |        |
|                                | All Centers                           | 66     | 508    | 981    | 295    | MEAN VALUES |        |        |        | STD DEVIATIONS |        |        |        | T-TEST AT 95% CI |        |        |        | 0.0    | 3.73   | 4.77   | 0.36   |

  

|                              |  | 10th Percentile |        |        |        | 25th Percentile |        |        |        | 50th Percentile |        |        |        | 75th Percentile  |        |        |        | 90th Percentile |        |        |        |
|------------------------------|--|-----------------|--------|--------|--------|-----------------|--------|--------|--------|-----------------|--------|--------|--------|------------------|--------|--------|--------|-----------------|--------|--------|--------|
|                              |  | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star | 0 Star           | 1 Star | 2 Star | 3 Star | 0 Star          | 1 Star | 2 Star | 3 Star |
| Home Provider Training Hours | Family Home Provider Training Hours        | 0               | 0      | 2      | 6      | 0               | 5      | 12     | 14     | 4               | 12     | 18     | 20     | 16               | 18     | 22     | 28     | 19              | 24     | 31     | 45     |
|                              | FAMILY HOME PROVIDER ANNUAL TRAINING HOURS |                 |        |        |        |                 |        |        |        |                 |        |        |        |                  |        |        |        |                 |        |        |        |
|                              | PROVIDER COUNTS                            |                 |        |        |        |                 |        |        |        |                 |        |        |        |                  |        |        |        |                 |        |        |        |
|                              | All Family Homes                           | 37              | 287    | 490    | 98     | MEAN VALUES     |        |        |        | STD DEVIATIONS  |        |        |        | T-TEST AT 95% CI |        |        |        | 0.0             | 4.36   | 0.98   | 3.51   |