The Cost of Child Care in Pennsylvania

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The Cost Care in Pennsylvania

Access to affordable, high-quality child care has been an ongoing priority for Pennsylvania's Office of Development and Early Learning (OCDEL). The Office has supported such access through the establishment of quality standards, provision of professional development, incentivizing improvements through grants, and administering the Child Care Works (CCW) subsidy program to support children from low-income families. For subsidies and grants to effectively promote access to high-quality care, they must be sufficient to match the costs of delivering care at a high-quality level. The aim of the research study is to inform discussions about state funding of child care by estimating the cost of providing services for providers of different types and varying quality levels across the commonwealth.

Several studies over the past twenty years have estimated the cost of early childhood education (ECE), most of which have focused on pre-kindergarten classrooms. Using national data on provider expenses, a 2005 study estimated the weekly cost of full-time preschool to be $248 per child. A 2007 study of Head Start programs found the weekly cost of providing the program, assuming a 10-hour day, exceeded $385 per child (Besharov et al., 2007; *Cost of Providing Quality*, 2005). Researchers examining preschool expenses in New Jersey found costs in the lowest-quality programs were $237 per child with costs increasing at higher quality levels (Belfield & Schwartz, 2007). In Massachusetts, researchers also found a direct relationship between preschool quality and cost, with "higher quality" programs having 27% higher costs than "less than good" quality programs, as assessed using the Early Childhood Environment Rating Scale (Marshall et al., 2001).

Several recent research reports have specifically studied ECE costs in Pennsylvania. A 2017 report by Research for Action (RFA) examined financial data from four providers and interviewed two other providers. The report estimated the weekly cost of care for preschool-aged children at $193 per child, with infant and toddler care being higher and school-age children costing less, respectively (Moran et al., 2017). In 2019, the Center for American Progress reported results from a study of Philadelphia child care

providers utilizing a U.S. Department of Health and Human Services estimation tool. The results found weekly costs of $288 per child (Workman & Jessen-Howard, 2019). A 2019 report by three collaborating organizations used financial data from 22 Philadelphia providers to estimate child care expenses (Public Health Management Corporation, 2019). They found weekly costs of less than $135 per child were not uncommon for the for-profit providers, while non-profit provider costs averaged nearly $230 per child. They also reported an association between cost and quality, as measured by the Keystone STARS level of the providers. The analysis by spending category showed that personnel costs ranged from 55% to 71% of total program costs.

The purpose of this study is to estimate the economic cost of child care in Pennsylvania using detailed site-level resource data from a larger, representative sample of providers, and to explore the relationship between cost and key provider characteristics including quality, type, and location. By estimating economic costs, the study will move beyond expenses paid in a given time period to more fully explicate and estimate the costs of all resources used to provide child care in Pennsylvania.

Study Design

The ingredients method was utilized to calculate the economic cost of providing child care. Developed by economists to assess the cost-effectiveness of education interventions, the process entails collecting detailed data on the resources used to deliver an intervention or educational program, and then applying market prices to those resources (Carnoy & Levin, 1975; Levin, 1975). The types of resources incorporated into an ingredient analysis typically include personnel, facilities, equipment, consumable supplies, and other services (Levin et al., 2018).

A key advantage of the ingredients method is the ability to capture all resources, regardless of when or how they were acquired. Prior studies have relied predominantly on cash flow data, which have provided accurate representations of income statement expenses paid by providers in a given year. Such an approach, however, does not necessarily reflect the value of resources delivered to the children served. For example,

the purchase of a large durable asset (e.g. a playground) could appear on an income sheet as a sizeable expense in the year of purchase, but not be included in the program cost for the remainder of the assets useful life. One owner/operator could receive a salary, which is an expense on an income statement, while another owner/operator elects to retain the profit from operations, resulting in different cost estimates for an identical service. Under the ingredients method, the resources used to deliver child care are the elements of interest. Two owner/operators with similar characteristics will have equal costs and a playground, for example, will have an annual cost regardless of how or when the invoice bill was debited. Donated building space and volunteer time are also resources costed under the ingredients method, which is an essential feature of this analysis given the documented need for additional child care capacity in the commonwealth.

The ingredients method has been used in research on child-focused policies and programs since the 1970's, with most of the applications occurring in the realm of K-12 education (e.g., Bowden et al., 2015; Hollands et al., 2013; Klapp et al., 2017). In reviewing previous studies and reports, no early childhood research relevant to this study was discovered to employ the ingredients method; however, two recent ECE studies utilized research designs that shared some of the key concepts. One study explored the cost associated with the provision of South Carolina's Early Reading Development and Education Program, a prekindergarten reading initiative. Researchers gathered detailed ingredient information, but with a goal of understanding the financial impact of the reading program on existing providers, they costed the program utilizing funding outlays (Karoly & Gomez, 2019). Another ECE study followed the ingredients method goal of estimating not only paid expenditures, but also in-kind costs. In St. Paul, Minnesota, researchers estimated per-child costs using aggregate cash expenditures and adding the cost of volunteer time and donated facility space to derive a total (Karoly & Schwartz, 2011).

Past studies of education improvements have revealed difficulties in scaling up interventions to the broader population of children. One source of the challenge is a difference between the implementation conditions in the experimental stage, and in the

scaling up stage. Extra support in the form of long unpaid hours by individuals passionate about a program contribute to its early success, but are not present when the program is launched across a state. Similarly, a given child care program may be entrepreneurial and find a more affordable avenue to deliver resources of a high value. Examples include partnering with a religious institution with open space during the week, or by recruiting a recently retired teacher to volunteer in the program. This resourcefulness, however, is not necessarily replicable at scale. Omitting the costs of donated or shared resources would then understate the costs a new provider would expect to encounter. To best understand the necessary costs faced by child care providers, the ingredients method offers a more complete understanding of the industry.

Study Sample

In Fall 2019, the research team visited child care programs and documented all resources they were utilizing to deliver child care. Visits lasted between two and four hours, depending largely on the size of the program. Researchers used a 22-page protocol to interview key program personnel, such as directors, regional supervisors, and owner/operators, to describe resources in detail. On a tour of each facility, photographs were taken of physical resources and audio recordings were generated for the descriptions of certain items. After the site visits were completed, each item in the photographs and those resources identified during the interview were entered into a database.

The study sample included 30 licensed child care providers. Sample characteristics were strategically selected to permit analysis across several program features that researchers considered to be plausible covariates with cost. Program features included provider type (family child care home, group child care home, or child care center), Keystone STARS level, participation in the CCW subsidy program, and rurality. Due to a significant majority of STARS 2, 3, and 4 providers participating in CCW, little variation could have been observed. The profile design considered CCW participation for STARS 1 providers only. Thirty profiles were formed from each combination of values for these program features. For example, "Profile 24" was a

STARS 3 non-rural group child care home, and "Profile 15" was a STARS 4 rural child care center.

Though the region in which the programs were located was not designed into these profiles due to sample size limitations, the sample was selected to ensure all regions of the state were included in the study. The 30 programs were located across 22 of the commonwealth's 67 counties and represented all geographic regions. Sample characteristics are summarized in Table 1.

Table 1: Characteristics of Providers Participating in the Cost of Care Study

	Number of Participants	Percent of Total Sample (%)
Provider Type		
Center Child Care	10	33.3
Group Home or Small Center	10	33.3
Family Home Child Care	10	33.3
Locale*		
Urban	8	26.7
Suburban	7	23.3
Small Town	8	26.7
Rural	7	23.3
STARS Level		
STARS 1 (CCW Non-participant)	6	20.0
STARS 1 (CCW Participant)	6	20.0
STARS 2	6	20.0
STARS 3	6	20.0
STARS 4	6	20.0

Note: *Source: The Center For Rural Pennsylvania

Sample recruitment and selection utilized a multi-prong approach. Some participants volunteered upon learning about the study through professional networks. When more than one program from a given profile volunteered, the provider increasing the geographic diversity of the sample was selected. Several profiles had no volunteers. In such instances, the research team contacted programs by telephone and e-mail with an invitation to participate. Study participants were offered a $300 gift card after completion of the site visit process.

Applying the Ingredients Method

After ingredients were identified during site visits, the research team identified the price of each resource. A total of 1,114 different ingredients were identified during data collection. Different types of ingredients require different methods of pricing that are reflective of the markets of interest. Since the primary purpose of the study was to estimate the cost of child care across the state, the research team sought to cost each ingredient using a state-representative price. For service and food prices, suppliers in regions of the state with median prices were utilized. Durable asset and consumable supply prices were obtained from national retailers, as providers reported making most of their purchases from such vendors (e.g. Lakeshore, Kaplan, Amazon, Target, Walmart). When prices for comparable resources were available from multiple suppliers, they were averaged. When prices at multiple points in time were available, the most recent were used, and adjusted into 2019 USD using the Consumer Price Index.

All durable materials and equipment were assigned an expected life span based on information collected during the site visit. Providers were asked how often durable materials and equipment were replaced; if unknown, providers were asked how long they expected the asset to remain in working use. The price of ingredients with lifespan greater than one year was adjusted by a discount rate to account for the opportunity cost of investing in one resource instead of another. For example, by purchasing an asset that has a long life, costs are accrued that cannot be reallocated to help grow the business or organization. The equation below provides the method of calculating annual cost using the discount rate (set to r = 3.5%) and expected years of use (Levin, 1975).

$$annual\ cost = \frac{base\ cost * r * (1+r)^{yrs}}{(1+r)^{yrs} - 1}$$

Applying the discount rate is a common economic practice that adjusts for the cost of lost opportunity to increase value through business investments. The result of incorporating a discount rate is the cost of purchasing an asset is increased proportional to its years of use. Durable assets were straight-line depreciated over their estimated useful life. For example, a crib mattress was priced at $67.50 and expected to last five

years. Applying the discount rate using the formula above, the price of the mattress is $14.95, annually.

Following the ingredients method approach, all personnel time was included in the cost, regardless of whether the time was paid or unpaid. Volunteers were matched to a Bureau of Labor Statistics (BLS) occupation based upon their role and qualifications, in the same fashion as paid employees. Hours worked "off-the-clock" by otherwise paid employees were similarly costed. For most roles, one personnel price was applied to all hours worked. The one exception was in the costing of owner/operators in family and group child care home programs. Owner/operators reported working several hours outside of child care time per day in the management of their business. Such administrative time was priced separately from the hours children were in care, using BLS rates for a self-employed small business owner.

Personnel price estimates were obtained from the BLS (U.S. BLS, 2019). Staff from more than 40 different occupations were working for the programs that participated in the study. Among staff, the most frequently appearing roles, were Childcare Worker, Preschool Teacher, and Education Administrator - Preschool and Childcare. Personnel from each program in the study were matched to one of the BLS classifications based upon their role in the program and their educational background. For example, a classroom teacher with high school diploma was priced at $12.53 per hour, which includes $11.20 salary with 12% additional cost for payroll taxes and minimum paid sick leave (Karoly & Gomez, 2019). Volunteers contributing unskilled labor for supervision only were priced at $7.25 per hour.

Facility resources included ingredients such as utilities, classroom space, and the property surrounding the structure. The cost of indoor space was estimated using the square footage associated with running the child care and an education industry-average per-area price for the region (Abramson, 2015). Utility costs were estimated using the same measured area of indoor child care space. The utility price per-square foot for Middle Atlantic states is based on costs published by the U.S. Energy Information Administration (U.S. EIA, 2015). Outdoor space was priced using per-area estimates from a recent publication jointly authored by academic and federal

government researchers on land prices in Pennsylvania using data from the Federal Housing Finance Agency (Davis, Larson, Oliner, & Shui, 2019).

After determining the price of the ingredients, the costs per-week were summed for each program and divided by a measure of full-time equivalency to estimate the weekly child care cost per-child. The total number of children was calculated as the sum of care hours for all enrolled children divided by ten to produce a count of full-time equivalent (FTE) children (i.e. the denominator). Ten hours of child care was considered one full-time equivalent, as this was representative of the number of hours children in full-time care attended the participating sites. The cost per-FTE was expressed for a weekly time frame to match the time period used by the study participants in discussing their tuition rates during interviews.

Interpreting Economic Costs

The methodology used in the study produces findings that represent economic costs. Such costs often parallel out-of-pocket expenditures; however, are not the same measure. Because two providers may pay different prices for something with the same economic value, the goal of using the ingredients method is to understand the economic value of resources that are being used to provide child care. The child-centric findings represent the expected cost to replicate the service if all expenses were paid at statewide-representative market price. The expected cost is not necessarily the amount of funds required because there may be different avenues to offer the same value at a lower price. For example, a provider may receive donations of equipment or volunteer time. A provider may operate out of a public school or a religious institution and pay less in facility costs than for-profit operations. Effective business management can often discover efficiencies to reduce expenditures without impacting value. Among child care providers, one type of business efficiency often promoted is shared professional services among a consortium. The research methodology used in this study does not discount costs because of donations or efficiencies. Neither does the methodology increase costs above market value because of inefficiencies or a decision to pay a premium price. For example, if a provider carries high-interest debt, the economic value

of goods purchased is priced the same even though they must spend additional funds to service the debt. A provider may choose to purchase expensive classroom furniture, but in this study, all furniture with the same functional use is priced identically. While other studies of child care financing can offer useful information about cash flow, this study offers a different and yet important perspective about the value of resources used to proffer child care.

Findings

The median cost of child care is Pennsylvania was $290 per child per week among the providers that participated in the study. Across providers, the weekly cost ranged from $148 to $627 per child. A histogram displaying the distribution of weekly per-child costs is shown in Figure 1, followed by a discussion of the component resource types and the factors associated with variation in costs.

Figure 1. Distribution of weekly per-child costs across participant providers.
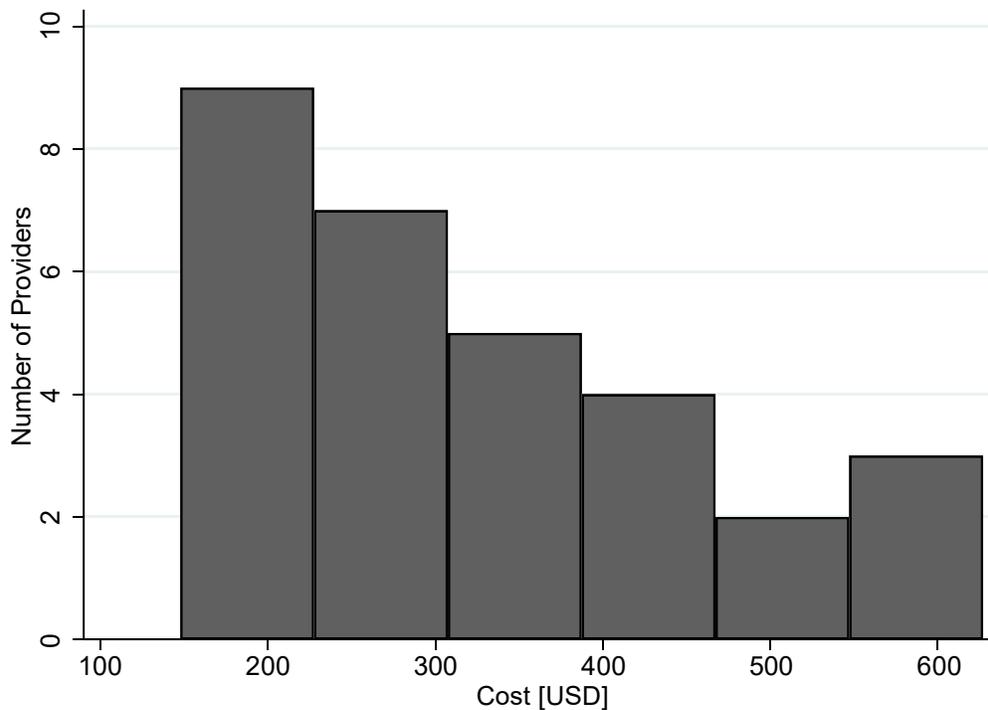
Resource Type

Figure 2 displays the median percentage share of costs by resource type. Included in the "Other" category are ingredients such as consumable supplies, durable equipment, and services. Personnel costs constituted 80% of total child care costs, at the median, with a significant number of providers exceeding 70%. Two small family home providers, however, had personnel costs below 60%. In each case, the owner/operators had low hourly personnel prices corresponding to their education credentials and relatively large facility spaces dedicated to child care, thus placing a greater share of the total cost on facilities.

Personnel costs representing the largest share of total costs is consistent with prior research efforts, although the 80% mark is the highest to date and can likely be attributed to unpaid labor; particularly for home-based providers working in excess of 60 hours per week. Additionally, staff were costed at the market wage based on their qualifications, while in expenditure-based studies their wage rate may have been less.

Figure 2. Median shares of total cost by resource category as a percentage.
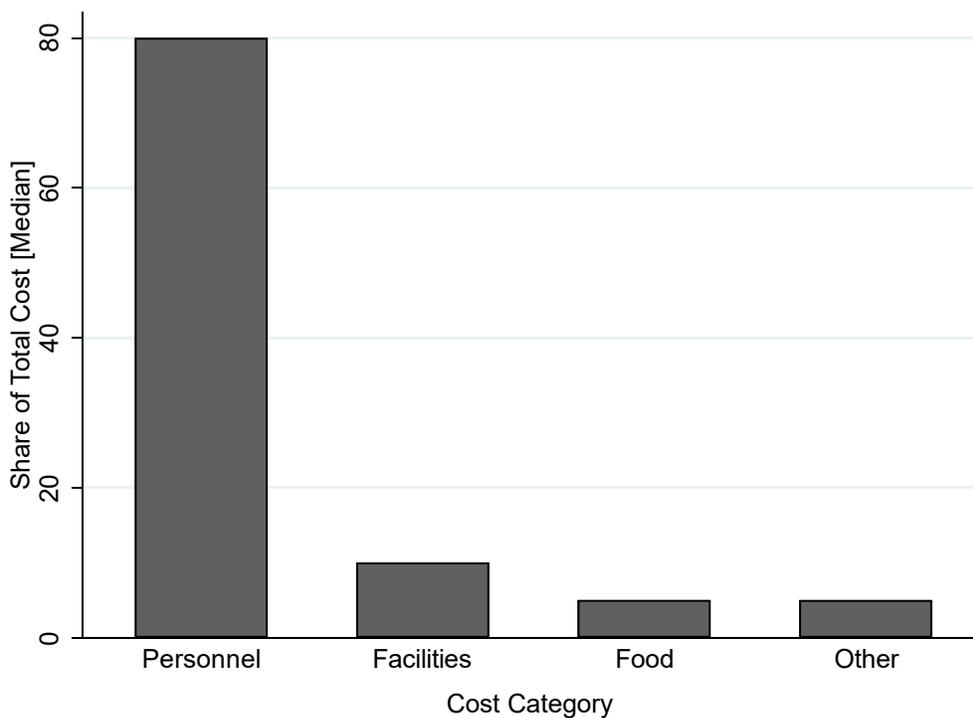
Facility costs accounted for 10% of total costs, at the median, while a significant majority of providers were between 5% and 15%. At four providers, facility costs exceeded 20% of the total due to large interior child care spaces. Personnel and facilities (e.g. square footage) are both resources that have minimum per-child ratios established in regulation. With the two categories representing 90% of total costs, the importance of managing these resources is well supported. Providers emphasized during site visits that operating at full capacity and staying "at ratio" for children to staff were the keys to remaining financially solvent. Using facility space donated by a religious institution or a public school was one avenue providers accessed a valuable resource at a cash expense less than market pricing. Recruiting volunteers and hiring assistant staff with limited experience to partner with more seasoned employees were strategies used to manage the share of costs associated with personnel.

Food, with a median cost share of 5%, was the third-largest cost category. There was great variability across sites in the provision of food. Some providers offered neither snacks nor meals, while others provided each child with up to three cooked meals per day. Weekly food costs ranged from $0 to $30 per-child.

Other costs combined represented only 5% of total costs, at the median. Variation in this category was large, with some programs having nearly 15% of costs in the category. One program had much larger durable equipment costs, due to the specialized material needs for the curriculum. Another provider had high training costs in order to support attendance at a community college and meet training requirements. Placing a $2,000 order for annual classroom supplies or replacing a $1,200 stroller can be challenging for providers when revenues only match expenses. However, the cost of such resources, is relatively small compared to personnel costs. Of the 30 providers in the study, 20 could purchase new replacements for all durable equipment assets for less than the annual personnel cost of a single assistant teacher.

Data collected for the study can also be used to estimate the one-time cost of purchasing the equipment needed for a new child care business. Six participating providers had recently opened and so were included in this start-up estimation. Among those providers, the median equipment purchase price per full-time child was $1,147.

Dividing a $1,147 startup equipment purchase price over the first year of operation would equate to an additional $22.06 per week.

Geography

While the methods of this study were designed to establish a state-representative cost estimate, variation in cost across the state was also of interest. Data available from the study supported county-level cost estimation via local price adjustment. County-level personnel prices were compared to the state-representative rates using the Comparable Wage Index (Taylor, 2018), with a price multiplier established for each county. Similarly, county-level real estate rate multipliers were generated using index data from Zillow Group, Inc. (2019). These multipliers were then applied to the state-representative cost estimate to create county-level child care costs.

Figure 3. County differences in cost of child care.

< $250	$265 - $280	$295 - $310	
$250 - $265	$280 - $295	>$310	
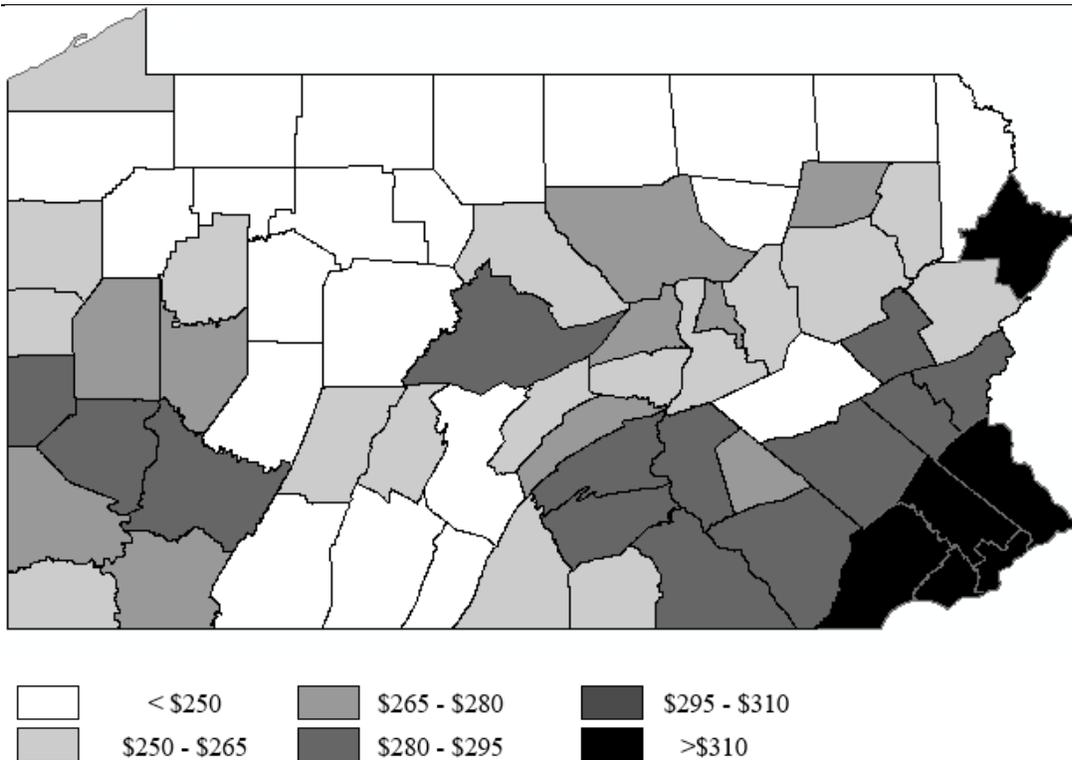
The cost of child care is estimated to vary greatly between counties due to differences in local prices. The same set of ingredients costing $290 per child per week at state-median prices would cost $231 in the lowest-price county and $327 in the county with the highest prices. Urban and suburban counties, particularly in the southeastern, had the highest estimated costs compared to rural counties.

Care Level

To examine the cost of infant care, a subsample was utilized consisting of six child care centers with enrollments over 30 and also offering infant care. Among the six centers, infant cost of care was 30% higher than care for children in other care levels, at the median. Four of the six centers had infant cost differences ranging between 30% and 34%, while the remaining two did not show a difference. Infant costs were higher due to the inability to spread personnel costs over a larger pool of children. Across the six providers, the number of infants per staff member matched the required ratio of 4:1. The infant ratio is lower than the ratios in other care levels, where state regulation allows for higher numbers of children per staff member. Costs in other categories (i.e. food, facilities) were comparable across care levels. Findings supports the assertions that infant costs are generally greater. A 2017 study by RFA reported the cost of infant care to be 43% greater than toddlers care, 2.35 times greater than preschool age care, and 2.74 times greater than school-age care (Moran et al., 2017).

In this study, the magnitude of the cost difference between age groups was moderated by differences in staff qualifications. Because the child care centers chosen for the study utilized staff with less formal education in the infant rooms, the per-hour price of the personnel was lower, and partially offset the large number of staff-hours required per infant. At the two centers that did not have higher costs for infant care, a significant number of staff at other care levels held bachelor's degrees. As a result, the market labor rates doubled their infant care counterparts, who attained a high school diploma. Though the data available for cross-age group analysis were limited to centers, lessons from the analysis may nonetheless be informative for other provider types. Cost differences between age groups are driven almost entirely by differences in staff-hours

and qualifications. For family child care home providers, caring for an infant would reduce the number of children being served at any given time from six to four. However, CCW subsidy payments and private pay tuition rates are established based on the age of the child; not the ages of other children cared for in the same cohort. This suggests the need to load the marginal cost onto the infant or infants being served.

Variation in Cost of Care

   The sample of child care providers was purposefully constructed to gather detailed information adequate to estimate the state-wide economic cost. The sample reflects combinations of various attributes related to cost of care. Provider attributes incorporated in the sample design included type, state quality rating (i.e. Keystone STARS), participation in the CCW subsidy program, and rurality. There are likely other attributes contributing to variation in cost but were unavailable for the sample design. The sample size and composition support inferences for state-wide cost; it is appropriate to interpret the median per child cost of care based on this collection of site-specific analyses. To clarify, inferences about differences in costs between subgroups should be made with caution. Interpreting cost differences between subgroups as necessarily reflective of the provider population would be inappropriate. For example, individual site data should be viewed as single case studies that represent specific scenarios with unknown generalizability. Similarly, differences in cost estimates between small subgroups cannot support conclusions about the true magnitude of cost difference at scale. Examination of subgroup cost differences are still useful, however, for exploration of plausible reasons why variation exists. In this way, there are opportunities to learn about *cost drivers* that may explain differences statewide.

   The range of per-child cost across providers in the study was large. Five providers had weekly costs of under $200 per child. Among the providers with the lowest costs, a significant majority of classroom staff had a high school diploma or an associate's degree. At the other end of the cost spectrum, five providers had weekly costs of over $500 per child. These providers employed classroom staff with Pennsylvania Instructional I certificates or a master's degrees in ECE. In some cases,

the credentialed staff had retired and were serving as full-time volunteers. In other cases, they accepted significantly lower wages than their credentials would have garnered in a public-school setting. Knowledge of the value of credentialed staff in the broader labor market raised concerns for providers. During interviews with the research team, several providers shared their reluctance to hire candidates with teaching credentials as they anticipated a short term of employment. In lieu of continuing a career in the child care industry, providers expected credentialed candidates to apply for public school positions, which are associated with increase pay at more than double the current child care rate.

To examine potential cost drivers, disaggregated weekly per-child costs were calculated and summarized in Table 3. The subgroup data suggests smaller providers, such as family and group child care homes, trend toward higher cost and greater variation. While the percentage share of personnel costs was lower for smaller providers, the median weekly per-child personnel cost in dollars was higher; thus resulting in total per-child costs that were higher. It is unclear if the disordinal interaction of share and cost of personnel for small and large providers is representative statewide.

Table 3: Weekly per-child cost by provider attribute.

	Cost of Care			Share of Cost at Median			
	Min	Median	Max	Pers	Fac	Food	Other
Overall	$148	$290	$627	79.7%	10.1%	4.3%	7.5%
Provider type							
Family Home	$197	$319	$538	69.0%	14.9%	3.7%	11.1%
Group/Sm Center	$200	$330	$627	80.2%	8.3%	5.4%	7.5%
Center	$148	$231	$575	80.7%	9.7%	4.3%	6.0%
Keystone STARS level							
STAR 1 CCW	$209	$238	$421	79.7%	10.8%	4.2%	7.2%
STAR 1 Non-CCW	$198	$256	$442	76.8%	11.9%	2.7%	8.0%
STAR 2	$200	$268	$372	78.4%	11.0%	4.8%	7.0%
STAR 3	$197	$439	$627	77.1%	11.0%	3.4%	8.1%
STAR 4	$148	$389	$575	79.3%	9.0%	3.7%	9.9%
Locale*							
Rural Area	$148	$301	$605	76.5%	12.3%	4.7%	8.1%
Metro Area	$197	$280	$627	80.4%	8.4%	3.5%	7.3%

Note: Small sample size of subgroups limit inferences about actual cost differences by provider attribute. Results are intended only to inform exploration of plausible cost drivers; *Results by locale are presented using statewide price data and not local adjustments for facility and personnel.

Facility and personnel median costs per child were lower at child care centers, as they reported operating closer to ratios established in regulation. Furthermore, child care centers were more likely to partner assistant classroom staff with degreed/ credentialed lead staff members. The result is a lower average hourly wage than in home-based providers where an owner/operator, with an associate's degree for example, could not employ a lower-wage partner to reduce the average cost per child. Additionally, child care centers were less likely to have lead staff working extended unpaid hours. Several family and group child care home providers reported work weeks of greater than 60 hours, with a large portion of the time spent on lesson planning and managing business affairs. Similar responsibilities are undertaken at child care centers, but the associated cost is divided by a larger number of children, giving economies of size.

As with provider type, variation in cost was observed between and within STAR level. STAR 3 and 4 providers generally had higher costs compared to STAR 1 and 2 providers. As such, half of the STARS 3 and 4 providers had per-child costs greater than the maximum cost of STAR 1 and 2 providers in the study. Unlike differences by provider type, there were no notable differences between STAR level and the percentage share of costs by category (i.e. personnel costs, facility costs, food costs). Differences in funds spent by resource category correspond to differences in total costs across the STAR levels. Higher STAR attainment generally correlates to higher costs in personnel and facilities, although the percentage share of the two cost categories was similar to lower STAR attainment. Specifically, more indoor and outdoor space was available for use, and personnel, on average, had higher qualifications at STAR 3 and 4 providers. Variances in costs by participation in CCW were examined for STAR 1 providers only, revealing little difference. Greater variability was present in per-child costs for those not participating in CCW, with more providers further from the median.

Finally, a comparison of rural and small-town providers to those in suburban and urban communities was conducted. Small differences were observed in the share of cost by ingredient category. Rural providers were likely to have more indoor and outdoor child care space, resulting in a slightly greater share of costs coming in the

facilities category. Non-rural providers had a larger median share of costs in personnel, in part because staff with better qualifications were more common in urban and suburban providers, leading to a greater share of costs in personnel. Difference in cost between locales was minimal using state-representative price data. However, the median cost estimates for resources and personnel were then adjusted to reflect geographic variation as displayed in Figure 3 (although not presented in Table 3). Findings reveal a large difference between the local per-child cost between providers in metropolitan and rural areas. Since personnel costs account for approximately 80% of total cost of child care, much of the estimated cost difference results from variation in wages across the commonwealth.

Discussion

The principle finding of the study is an estimated weekly cost of child care of $290 per child. The estimated weekly cost is compared to other in-state studies in Figure 4. The estimate is generally higher than in prior studies. An earlier study of Philadelphia child care providers estimated the weekly cost to be $288 per child (Workman & Jessen-Howard, 2019). The estimate was consistent with the $290 median, found using state-representative pricing, but 10% less after adjusting for Philadelphia-specific rates. The Philadelphia study, along with others estimating lower costs, utilized financial statements of expenditures to estimate cost. The higher estimate in this study was therefore not unexpected, as the ingredients method allows for the capture of resources regardless if they were not paid in the current period. Despite the systematic nature of data collection in this study design, some resources may have gone unmentioned or unobserved during site visits, meaning the actual per-child cost is likely somewhat higher than the $290 estimate.

The findings from the study provide evidence of the costs faced by child care providers and inspire further important research questions. The cost of providing early childhood education is high, and efforts to increase minimum wage and advance the qualifications of early learning staff will serve to further increase costs. Research and

practices helping providers implement zero-expense solutions could be beneficial to sustaining operations without increasing the price borne by families. Identifying best practices of CCW subsidy base rates setting would also be beneficial.

Figure 4. Weekly per-child cost estimates from this study and other recent studies.
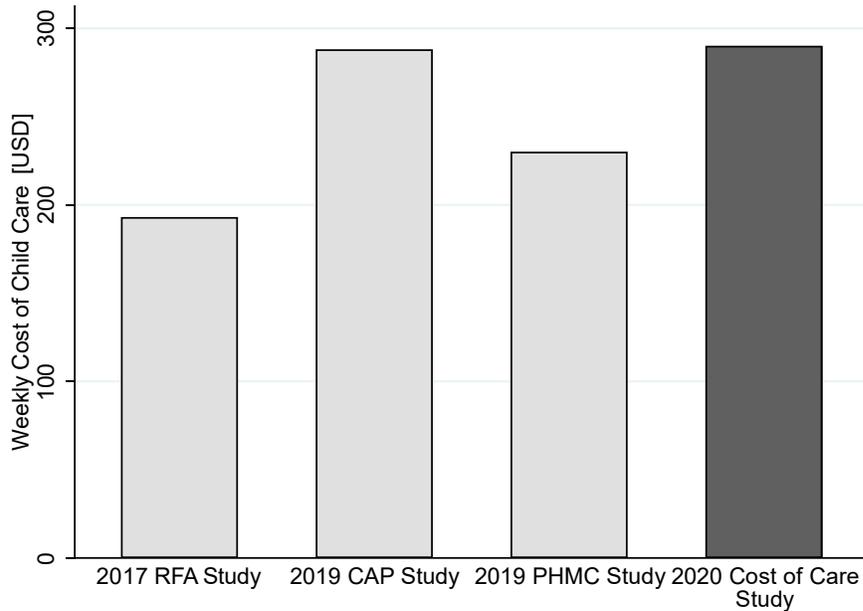
According to information provided by research participants, providers may base a significant portion of their financial decisions on the CCW subsidy base rates, also known as Maximum Child Care Allowance (MCCA) rates. Providers often use MCCA rates to determine the tuition they charge to private pay families; which in turn, can dictate a majority of revenue collected by a provider. The revenue available to a provider thus influences the resources, or cost categories (staff salaries, facility costs, food costs, etc.), they can afford to operate the program. Statewide, market rate survey data confirms counties with low MCCA rates tend to have lower tuition rates, regardless of the costs providers are actually facing. If the purpose of adjusting MCCA rates is to ensure CCW children have relatively the same access to care as children in private pay families, an unintended consequence may be the artificial lowering of private pay rates to where providers are operating on the slimmest of margins. Anecdotal evidence suggests market tuition rates and base subsidy rates operate in a feedback loop.

Reconsidering MCCA rates to adjust for local costs may provide a more efficient and equitable rate structure compared to flat percentage-based increases across all counties. Further research on the topic is warranted.

Possible economies of size in early childhood education also merit more investigation. The small sample size in the study limits the generalizations that should be drawn for subgroup comparisons. However, the difference between costs in large child care centers and those in home-based providers was statistically significant. A large-scale study of economies of size could provide evidence of some cost-optimal size at varying quality levels. Also related to size economies are the MCCA rates in sparsely populated regions. Areas with few children may not be able to offer child care services at scale. To the extent that this increases the average per-child cost, MCCA adjustments based on population density may be necessary to increase access to care in rural regions that are currently underserved.

Based on the results of this study, it is recommended OCDEL reassess the MCCA rate structure for the Child Care Works program and explore viable alternatives. Recent publications have highlighted a need for more child care providers in Pennsylvania. An insufficient supply of child care could be the result of potential providers believing they cannot bring in sufficient revenue to cover the costs of operation. There is a gap between the estimated economic cost of child care in Pennsylvania and the amount of MCCA payments, with MCCA rates covering only approximately half of the true cost of care. Reviewing and adjusting MCCA rates could promote the entry of new providers and expansion at existing providers to increase the capacity of child care in the state.

The percent of cost covered by MCCA rates varies across the state, with some counties having only 40% coverage while others as high as 66%. Like the possible relationship between the overall level of subsidy rates and capacity in the state, local child care shortages may be related to county-specific subsidy rates that are lower relative to cost. By using local input prices, specifically the price of personnel and facilities, MCCA rates could become aligned more closely with the costs faced by providers in each community.

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