



# Making Quality Ends Meet

UAMS examines 2014 Arkansas early childhood program operation costs

## Executive Summary

The quality of care and education children receive before age five is more influential than any other time. Children's experiences in these early years determine how well a child will form positive relationships, develop intellectually, and perform in school. Increasing investments in early care and education will benefit Arkansas long-term. The National Institute for Early Education Research (NIEER) projected savings to all states who invest in full-time high quality preschool for all children under 200% Federal Poverty Level. According to NIEER calculations, within 20 years, Arkansas would save \$25 million annually, just based on less grade retention and lower special education costs. That savings is predicted after the state absorbs the cost of providing pre-K for the 40% of 4 year olds in poverty that

aren't already receiving ABC. <sup>1</sup> This estimate is conservative. It does not include the potential for ongoing federal funding, and it does not consider additional benefits, such as less incarceration and less use of public assistance.

The Arkansas Division of Child Care and Early Childhood Education (DCCECE) seeks to increase the quality of care provided throughout the state without harming the financial well-being of child care businesses. On their behalf, independent evaluators at the University of Arkansas for Medical Sciences (UAMS) prepared a series of cost models to identify impacts of potential regulatory and policy changes. The key findings underscore the need for greater financial support for Arkansas Better Chance (ABC) state pre-K and community-based child care businesses serving infants and toddlers:

1. While good infant-toddler care is an excellent long-term investment for the state, infant/toddler care is the most expensive for Arkansas child care businesses to provide. Businesses cannot afford to increase quality or decrease capacity to serve more infant-toddlers without outside funding.
2. Voucher rates can be adjusted so that programs will be able to afford to provide higher quality care to families in poverty. Voucher rates can also be adjusted to promote movement through Better Beginnings levels to promote the highest quality.
3. ABC preschool funding is inadequate, especially for ABC programs that operate in a community child care setting rather than in a school district.
4. Most families who care for others' children within the home will not be able to afford to improve the quality of care unless they accept a large number of children who receive voucher reimbursements.

The cost models equip decision makers with a more nuanced understanding of the impact of policy and budget changes on individual programs.

## Background

In 2013-2014, the Arkansas Division of Child Care and Early Childhood Education (DCCECE) took big steps to improve the quality of child care for children with high needs. These steps included

1. Initiating new requirements for programs that receive child care voucher reimbursements. To receive reimbursements, programs must participate in Better Beginnings, the state's quality rating and improvement system for child care.
2. Implementing a tiered system for voucher reimbursement rates. Programs that are accredited at higher levels of Better Beginnings receive incrementally higher rates to provide care for children from poor families.
3. Proposing research-based regulations for state child care licensure. Regulations proposed to the Arkansas legislature include lower child-teacher ratios and education requirements for child care directors.
4. Reviewing adequacy of budget formulae and policies used for ABC programs.

---

<sup>1</sup> Barnett, W.S. (2013). Expanding access to quality pre-k is sound public policy. New Brunswick, NJ: National Institute for Early Education Research.

Completion of these steps reflects DCCECE's attention to educational and medical research from the past two decades. Arkansas is one of only six states that still allow a single adult to care for six infants. Changing acceptable ratios and making sure that caregivers are attentive to babies' physical, intellectual, and emotional needs will help children grow up stronger. Long-term benefits of high quality nurturing care include fewer learning and behavior problems, better health, and better academic readiness. Model preschool programs have followed participants into adulthood and documented less teen pregnancy, less smoking, less delinquency, less use of special education, less reliance on public assistance, and greater individual lifetime earnings than control groups.<sup>2</sup>

However, DCCECE is sensitive to financial impacts on Arkansas child care businesses. To test effects of regulatory changes, a research team from the UAMS produced a series of cost models specific to Arkansas. DCCECE has used these models to inform decisions in the past year.

## Cost Model Development

The UAMS team adapted a cost model developed by Louise Stoney and Anne Mitchell at the Alliance for Early Childhood Finance to fit Arkansas' regulatory and economic landscape. The team discussed formula adjustments with Stoney and Mitchell and then populated a base model for Arkansas with data gathered from the following sources:

- State Occupational Employment and Wage Estimates from the Bureau of Labor Statistics
- Arkansas Better Chance operational guidelines
- Division of Child Care and Early Childhood Education data
- Child Care Resource & Referral staff
- Arkansas Advocates for Children and Families
- ASU Early Childhood Services

In a series of focus groups and phone interviews, UAMS vetted the base model with directors and specialists involved in each of the following child care settings: rural centers, urban centers, family child care homes, ABC programs operating in a school district, and ABC programs operating in community settings. The first section of each interview collected data about program size; operation times; and demographics including the number of children and ages served in each classroom, months and hours of operation, tuition source (ABC, private, voucher), and income mix of children. During the second section of the interview, UAMS asked directors to report expenses and revenue in the past year for categories shown in Tables 1 & 2. Expenses that did not fit into these categories were grouped in the miscellaneous category. Interviews with ABC programs included a third section to determine items and amounts each organization used for the required budget match.

---

<sup>2</sup> Nores, M., Belfield, C., Barnett, W., & Schweinhart, L. (2005). Updating the economic impacts of the High/Scope Perry preschool program. *Educational Evaluation and Policy Analysis*, 27(3), 245. Campbell, F. A., Ramey, C. T., Pungello, E., Sparling, J., & Miller-Johnson, S. (2002). Early childhood education: Young adult outcomes from the Abecedarian project. *Applied Developmental Science*, 6(1), 42-57. Ramey, C. T., Campbell, F. A., Burchinal, M., Skinner, M. L., Gardner, D. M., & Ramey, S. L. (2000). Persistent effects of early childhood education on high-risk children and their mothers. *Applied Developmental Science*, 4(1), 2-2. Reynolds, A. J., Temple, J. A., Robertson, D. L., & Mann, E. A. (2001). Long-term effects of an early childhood intervention on educational achievement and juvenile arrest: A 15-year follow-up of low-income children in public schools. *Jama*, 285(18), 2339-2346.

**Table 1: Expenses**

<b>Personnel Costs</b>	<b>Non-Personnel</b>	
Wages/Salary	Rent /Lease	Education Supplies
Mandatory benefits	Utilities	Education Equipment
Social Security	Building Insurance	Office Supplies
Medicare	Maintenance/Repair/Cleaning	Office Equipment
Unemployment	Telephone & Internet	Business Insurance
Workers Compensation	Audit	Payroll/Contract services
Health Insurance	Fees/Permits	Credit card processing fees
Reserve Fund	Food & Food Prep	Advertising
	Kitchen Supplies	Postage
	Consultants/Training	Miscellaneous
	Transportation	

**Table 2. Revenue**

Private pay tuition
CCAP payment rates (child care subsidies for at-risk families)
USDA Child and Adult Care Food Program (CACFP)

UAMS used directors’ feedback to generate new models for specific child care settings. Then the research team tested increases in subsidy rates at various levels of quality and changes in licensing regulations.

## Results

The models show that non-personnel costs—such as rent, utilities, insurance, and educational supplies—increase some when child care centers provide a safer environment that stimulates learning. However, the greatest cost driver in child care is personnel. In higher quality centers, there are more teachers and fewer children, which also means there are fewer children to charge tuition. Also, higher quality centers employ staff with better qualifications, which drives up hourly rates and costs for benefits. Retirement and health care plans are typically not provided at lower levels of quality but are needed to retain better qualified teachers.

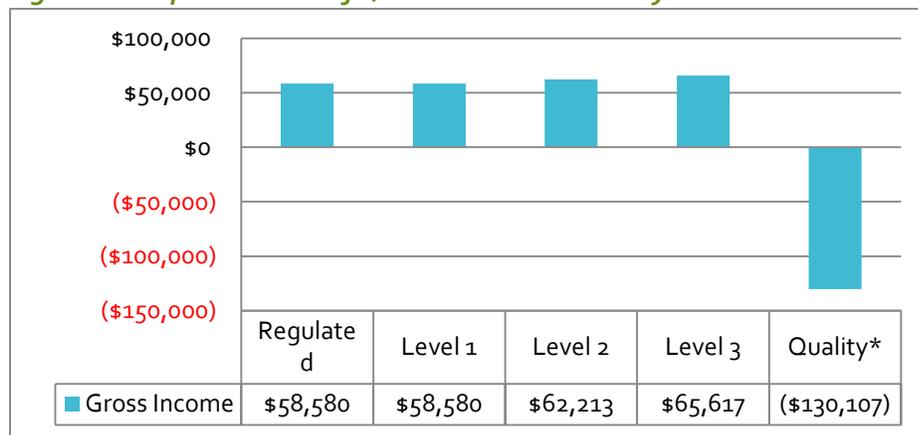
Using cost modeling, we can test cost to operate a typical Arkansas child care center at different quality levels. A typical Arkansas center has five rooms total: a 0-12 month room, a 1-year room, a 2-year room, a 3-year room, and a 4-year room. The program is open eight hours per day, 250 days per year.

**Table 3. Teacher-Child Ratio Comparison**

	Arkansas Regulated Ratio	Nationally Recommended Ratio	ABC Program Ratio
Infant	1:6	1:4	1:4
1 Year	1:9	1:4	1:4
2 Year	1:9	1:5	1:7
3 Year	1:12	1:5	1:7
4 Year	1:15	1:10	1:10

If this center only meets the standards of minimum licensing, its revenue will be \$58,580. However, if the center implements research-based standards for better child outcomes, including lower recommended teacher-child ratios shown in Table 3, it will lose \$130,107 (see Figure 1).

**Figure 1. Sample Center Profit/Loss at Various Quality Levels\***

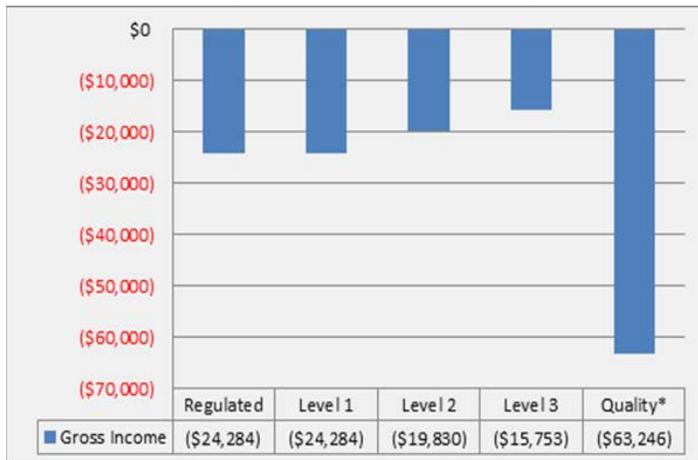


\* Program has a 0-12 month room, a 1-year room, a 2-year room, a 3-year room, and a 4-year room. The program is open eight hours per day, 250 days per year and uses Arkansas Better Chance recommended ratios from Table 3

Accepting preschoolers into the program offsets the cost of providing infant-toddler care. Figure 2 shows the unfeasibility of operating infant-toddler care at any level of care without a preschool room.

Arkansas should not exclude ages younger than four when funding early childhood education. Research in brain science, education, and social sciences has proven that the quality of infant care affects lifelong health more than care at any other age. Special consideration of the high cost of infant-toddler care was taken into account when studying voucher reimbursement rates and is discussed in the next section.

**Figure 2. Sample Infant-Toddler Urban Program Profit/Loss at Various Quality Levels\***



\*Program has a 0-12 month room, a 12-24 months room, and a 24-36 months room. The program is open eight hours per day, 250 days/year.

## Voucher Reimbursement Rates Tied to Level of Quality

States with the most participation in child care rating and improvement systems tend to have tiered reimbursement systems—that is, they pay incrementally higher voucher reimbursements to programs that serve children with higher quality care. In July 2014, DCCECE adopted this kind of system to encourage programs to participate in Better Beginnings and to target public funding to the most vulnerable children. Before implementation, UAMS used the cost models to test a set of DCCECE proposed rates. Goals for the rates were to

1. Incentivize upward movement from one Better Beginnings level to another.
2. Increase capacity to serve infants and toddlers from impoverished families.
3. Provide equitable rates and profit increases to programs in urban and rural areas.

We tested rates that DCCECE originally considered, identified as “proposed” rates in Table 4, and some unintended consequences emerged. First, they would not provide equitable increases for urban and rural programs. Whereas urban programs would increase profit margins significantly, with a very sharp increase for Level 2 programs, rural programs profit would decline between Level 1 to Level 2. Second, DCCECE plans to adopt higher Better Beginnings levels. Should CCDF funding remain flat, there would be no room in the budget to build in incentive rates for those levels.

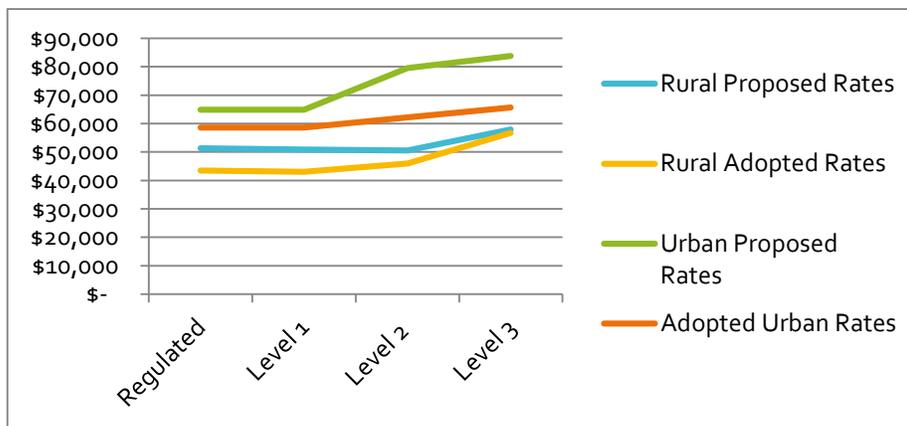
“Adopted” rates in Table 4 are those that UAMS provided as an alternative and were subsequently implemented by DCCECE.

**Table 4. Proposed and Adopted Base and Incentive Rates**

	RURAL PROPOSED	RURAL ADOPTED	URBAN PROPOSED	URBAN ADOPTED
<b>BASE RATE</b>	\$18.00	\$17.50	\$24.00	\$23.50
<b>LEVEL 2</b>	7%	8%	7%	5%
<b>LEVEL 3</b>	17%	15%	17%	15%
<b>INFANT</b>	19%	21%	19%	21%
<b>TODDLER</b>	11%	13%	11%	13%

Using the cost models UAMS pinpointed rates that would provide steady, equitable increases from one level of quality to another and rise at similar trajectories for urban and rural businesses. By changing the base rate by just \$.50 and by adjusting the multipliers for infant-toddler care and levels of care, we were able to incrementally increase profit for each level of care. (See Figure 3.)

**Figure 3. Comparison of Program Profit Trends using Different Subsidy Rates\***

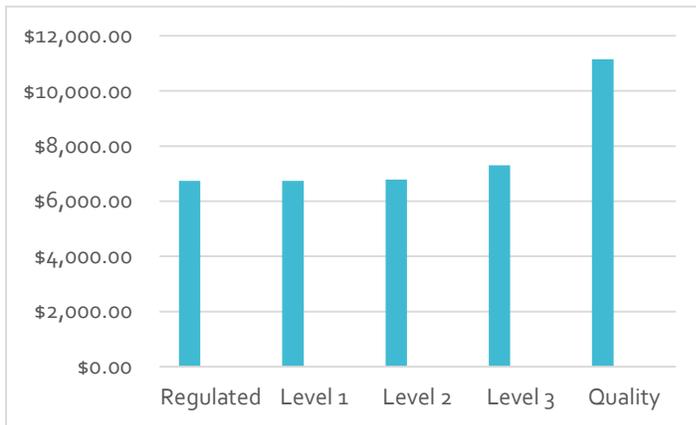


\*Based on a rural center an infant room, a 2-year-old room, a 3-year-old room, and 4-year-old room. The program is open 8 hours per day, 250 days per year.

The adopted rates leave room for DCCECE to add higher rates for additional levels at a later date. Meanwhile, budget can be used for technical assistance and professional development for programs in lower levels.

Besides making sure that Level 3 subsidy rates were associated with the highest profit, we also wanted to ensure that rates incentivize care for infants and toddlers. The cost of moving up from one quality level to another is greatest in younger classrooms. Personnel costs of operating infant-toddler rooms are so expensive that providers cannot afford to high quality infant care, which ultimately means reducing staff-child ratios, without financial assistance.

**Figure 4. Annual Cost per Infant-Toddler at Various Quality Levels**



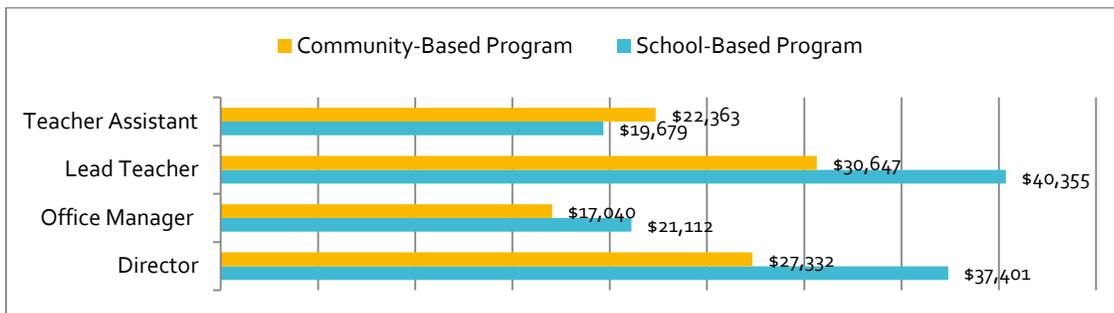
We estimate the cost of serving one infant-toddler year round ABC-level care with a 1:5 infant-teacher ratio is \$11,150 (Figure 4). Early Head Start infant care, with a 1:4 infant-teacher ratio, will run even higher. According to annual reports available online, Arkansas Early Head Start programs annual per-child costs from \$11,006 (Black River) to \$13,615 (Jefferson County).

### ABC Programs: Community- and School-Based Differences

The ABC budget was last adjusted in 2008. Since then, funding for ABC programs has remained flat, and ABC directors report trouble meeting standards. To investigate these complaints, UAMS created cost models specific to ABC state pre-K. The research team found that there are significant differences between ABC programs operating out of a school district and ABC programs operating in community settings.

School-based ABC programs report higher personnel costs. As shown in Figure 5, directors in community-based programs report salaries that are 73% of those in school-based settings. Similarly, lead teachers in community-based programs are reported to earn 76% of the salaries of teachers in school-based settings. Further, directors in school-based programs reported making contributions to their employees’ retirement and healthcare plans at greater rates than those in community-based settings. None of the community-based settings reported contributing to retirement and only 25% reported making any contribution to healthcare plans.

**Figure 5. ABC Personnel Cost Comparison: School- and Community-Based Programs**



Cost models using actual costs for school-based and community-based programs show providers in both settings operate at a negative profit margin (see Figure 6). Community-based programs report higher non-personnel costs but compensate by providing employees less salary and fewer benefits. Programs operating in school districts have less flexibility in terms of employee compensation and benefits, expenses which are covered, in part, by fewer non-personnel costs.

**Figure 6. ABC Expenses, Revenue, and Profit Margins in School- and Community-Based Programs**

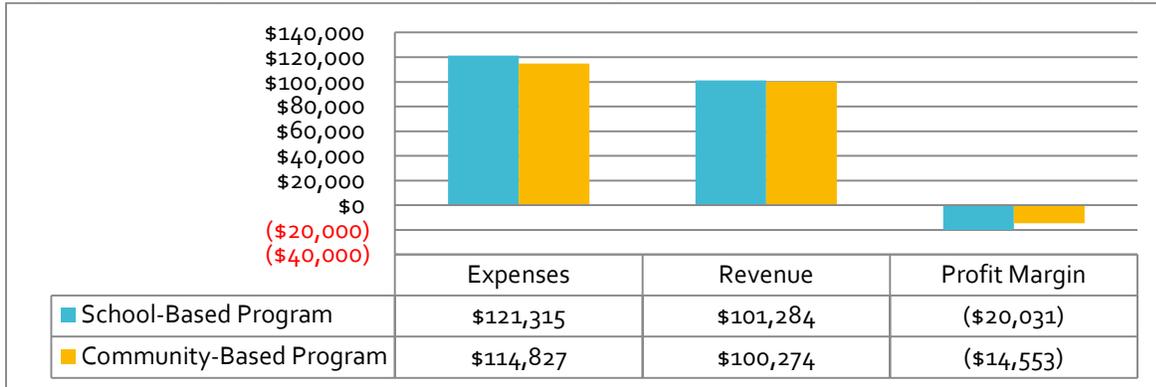


Table 5 shows that school-based programs report a much higher percentage (71%) of in-kind contributions to meet match requirements than community-based programs (52%).

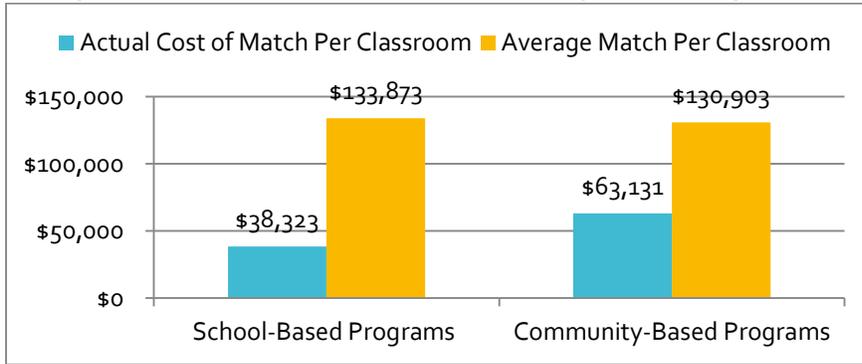
**Table 5. ABC Match Comparison: School- and Community-Based Programs**

Match Items	School-Based Programs	Community-Based Programs
<b>Non-Personnel Expenses</b>		
<b>Annual Costs per Classroom</b>		
Rent/Mortgage	\$0*	\$3462
Building Utilities	\$1,170	\$1817
Building Insurance	\$400	\$1089
Building Maintenance/Cleaning	\$425	\$815
<b>Annual Costs per Child</b>		
Food & Food Prep	\$359	\$480
Kitchen Supplies	\$0*	\$283
Educational Supplies & Equipment	\$210	\$113
Office Supplies & Equipment	\$8	\$19
Insurance (liability, accident, etc.)	\$0*	\$31.50
Payroll/Contract services	\$0*	\$8
Credit/debit card processing fees	\$0*	\$0.67
Advertising	\$0*	\$9
Misc. (incl. parent involvement & screening)	\$32	\$40
Consultants/Training (incl. certifications)	\$35	\$63.50
Transportation	\$6	\$243
<b>Annual Operating Costs</b>		
Telephone/Internet	\$2133	\$1224
Audit	\$0*	\$3566
Fees/Permit	\$50	\$315
<b>Personnel Expenses</b>		
Director Salary	\$21145	\$25030
<b>In-Kind Match Amounts</b>		
Nutrition reimbursement	100%=\$15871	100%=\$14896
Cost of therapy/specialized instruction	\$550/child=\$3630	\$550/child=\$660
Professional development	\$1650/teacher=\$3300	\$1650/teacher=\$3300
Developmental screening	\$50/child=\$1000	\$50/child=\$1000
Transportation	\$979/child=\$19580	\$979/child=\$19580
<b>ACTUAL COST PER CLASSROOM**</b>	<b>\$38,323</b>	<b>\$63,131</b>
<b>AVERAGE MATCH PER CLASSROOM</b>	<b>\$133,873</b>	<b>\$130,903</b>
<b>PERCENT IN-KIND MATCH</b>	<b>71%</b>	<b>52%</b>

\*All programs report no cost; \*\*Calculated with 20 children per class

For both settings, the cost of ABC per child exceeds the \$4,860 that programs receive per student (school-based programs per child cost=\$6250; community-based programs per child cost=\$5741). While the cost per student with match (40%) is \$6804 per student, and both types of programs do not exceed that amount, it is clear that a school-based program match is more likely to be in-kind and not represent an actual expense to the provider, while a community-based program match is more likely to be at an actual cost (see Figure 7). To make up these differences, programs in community-based programs are paying less in salary and fringe to their educators as discussed above. While not directly measured with these cost analyses, these differences are likely related to increased teacher turnover and less consistency of care in community-based settings.

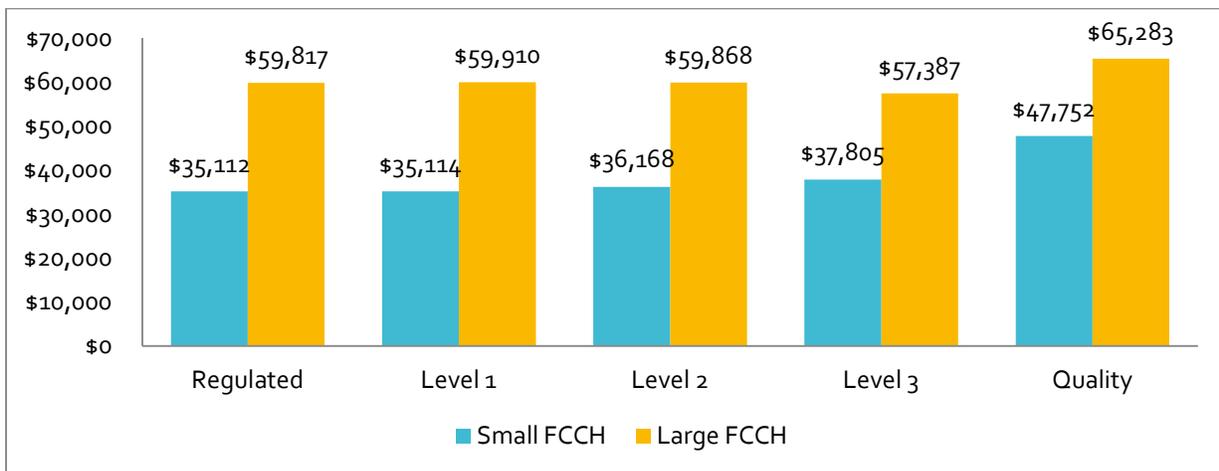
**Figure 7. Matches in School- and Community-Based Programs**



### Family Child Care Homes

Licensing data for family child care homes (FCCH) are difficult to interpret as the vast majority of programs are licensed for the maximum number of children in care based on the number of adults in the program and not the age distributions of the children. We used personal communication with FCCH training and technical assistance providers and operators of small and large FCCHs. A small FCCH serves eight children on average, and the number of children under the age of two years is limited to one. The majority of large FCCH programs with more than one caregiver operate with the maximum number of children in care (16 children), and the number of children under age two is limited to four. Quality incentives are estimated at 20% of program enrollment as they are available only for children receiving voucher payments. Figure 8 shows distinct differences in revenue of large and small programs.

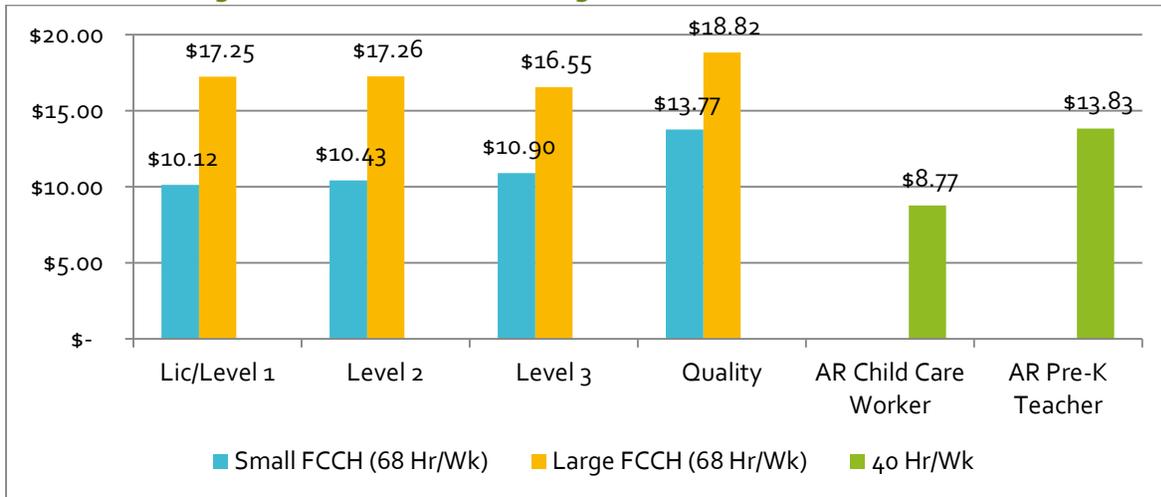
**Figure 8. Gross Annual Revenue with Quality Incentives for Family Child Care Providers at 85% Enrollment**



Unlike center-based programs, FCCH expenses are related primarily in non-personnel categories. Larger programs at higher levels of quality will return less profit as they hire additional caregivers with higher levels of education and training which increases personnel expenses. Without additional support to offset the cost of higher quality caregivers, larger FCCH programs will have a disincentive to move into higher levels of Better Beginnings.

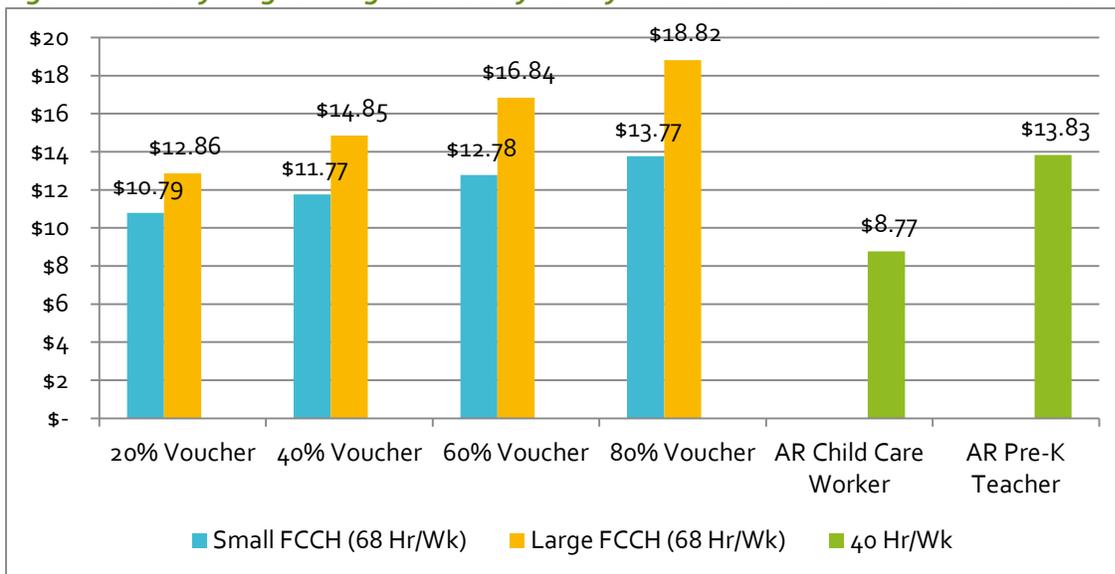
Owners of FCCH report an average of 68 hours/week with one week of vacation per year. Averaging the profit of small family child care business over the hours worked results in an hourly wage of \$10-\$11 (Figure 9).

**Figure 9. Hourly Wages for Family Child Care Providers at 85% Full Enrollment Compared to Minimum Wage and Child Care Worker Wage**



Arkansas's FCCH providers providing the highest quality care would have very little economic incentive to participate in Better Beginnings with requirements for higher levels of education for the owner and other adults providing care. However, given our current Better Beginnings incentive structure, with higher numbers of voucher eligible children in care, at least business owners could recuperate the cost of higher quality staff (Figure 10).

**Figure 10. Hourly Wages in Highest Quality Family Child Care Homes with Voucher Enrollment**



Results of the Arkansas cost model support previous research in family child care finances. Helburn, Morris, & Modigliani state:

If a goal of public policy is to produce better quality family child care, then results of this study suggest the need for some important public policy shifts that take into consideration the realities of the family child care market: (1) providers with large-group home earn a reasonable income providing child care; (2) from the provider's perspective, family child care is a reasonable work choice for mothers with their own small children and with little post-secondary education, although this choice for mothers often results in lower quality services for children; and (3) providers have very little economic incentive to invest in training and quality improvement; although these investments are crucial to children's development and well-being.<sup>3</sup>

Results suggest FCCH providers will be amenable to assistance that reduces the number of hours they work, for instance through technical assistance that helps streamline administrative and preparation processes or through shared services models, wherein providers pool resources to access business products and services at reduced prices.

## Conclusion

These cost models demonstrate the challenge of making ends meet in Arkansas child care programs. If Arkansas does not adjust funding for ABC, programs will need to make cuts to educational supplies and equipment, professional development, building maintenance, and teacher raises. If this trend continues, the quality of our programs and positive outcomes for children will decline.

Results of cost modeling show that the increased cost of operating with fewer children per adult can be offset by accepting child care vouchers at the rates adopted in 2014. Additional educational requirements for directors combined with technical assistance in good business practices should also help increase profits. For instance, programs that only meet minimal child care standards fail to collect about 15% of revenue where quality programs with more educated directors have a loss closer to 3%.

Stakeholders can use this tool to conduct further tests of changes to business models, public funding, or regulations in Arkansas provided they understand that circumstances vary across programs, and models may not account for all factors related to business success. Summaries of cost models can be used to educate DCCECE staff, contractors, childcare advocates, families, and lawmakers regarding strengths and needs in the early childhood field.

---

<sup>3</sup> Helburn, S. W., Morris, J. R., & Modigliani, K. (2002). Family child care finances and their effect on quality and incentives. *Early Childhood Research Quarterly*, 17(4), 512-538.

## Cost Model Spreadsheets

Click on the icons in the right column to access Excel files for each type of care.

<p><b>ABC programs in community settings</b></p>	 <a href="#">ABC Community.xlsx</a>
<p><b>ABC programs operating in school districts</b></p>	 <a href="#">ABC District.xlsx</a>
<p><b>Regulated and Better Beginnings centers in rural areas with new voucher reimbursement incentive rates proposed by UAMS (adopted by DCCECE July 2014)</b></p>	 <a href="#">Rural Proposed.xlsx</a>
<p><b>Regulated and Better Beginnings centers in rural areas with County Cap Rates</b></p>	 <a href="#">Rural.xlsx</a>
<p><b>Regulated and Better Beginnings centers in urban areas with new voucher incentive rates proposed by UAMS (adopted by DCCECE July 2014)</b></p>	 <a href="#">Regulated Center Urban Proposed.xlsx</a>
<p><b>Regulated and Better Beginnings centers in urban areas with County Cap Rates</b></p>	 <a href="#">Regulated Center Urban.xlsx</a>
<p><b>Regulated and Better Beginnings family child care homes</b></p>	 <a href="#">FCC Homes.xlsx</a>
<p><b>Current minimum licensing compared with proposed minimum licensing</b></p>	 <a href="#">AR Cost Model_ML and ML+.xlsx</a>

**UAMS**



Lorraine McKelvey, Ph.D. & Melanie Chapin-Critz  
 Prepared July 2014 for Arkansas Department of Human Services  
 Division of Child Care and Early Childhood Education  
 700 Main Street, Little Rock, AR 72201

