Massachusetts Family Child Care Today:
A Report of the Findings from The Massachusetts Cost and Quality Study

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Table of Contents

Significance and Overview of Study

Over the last 30 years there has been an enormous increase in the rate at which mothers with young children enter the labor force. By 1996, two-thirds of the nation's preschoolers had mothers who were employed (Kids Count, 1998). As a result, early child care has become an important family and societal resource. While there is a fair amount of research examining issues related to child care, much of this research has focused on center care, particularly center care for preschool-aged children (c.f. Clarke-Stewart, 1991).

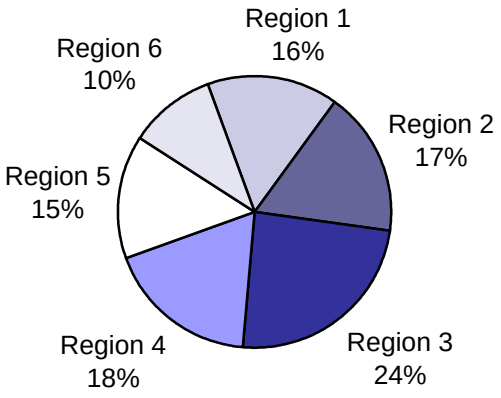
Many children, however, are not cared for in child care centers. Instead, they are cared for by relatives, friends or neighbors, or in a family child care setting. In 1999, 14% of children under 5 with employed parents were in family child care (Sonenstein, Gates, Schmidt, Bolshun, 2002). While the proportion of young children in family child care has declined as the availability of center-based care has increased (Casper 1996), family child care continues to be an important source of early child care, especially for infants and toddlers (NICHD 1997). In addition, with the enactment of the Personal Responsibility and Work Opportunity Reconciliation Act in 1996, some states and communities are seeking to increase the availability of child care for low-income families by increasing the numbers of family child care providers.

Over the past decade, researchers and advocates have begun to examine family child care homes in greater detail. The present report adds to the field by providing current information on workforce issues, the quality of early care and education in family child care homes, and the costs associated with licensed family child care homes, based on a random sample of 203 licensed family child care homes in Massachusetts. This report does not include unregulated or unlicensed home-based care.

Study Design and Methods

Study Design. We drew a random sample of licensed family child care homes (FCCHs) from the Massachusetts Office for Child Care Services (OCCS) licensing lists for the six OCCS regions. FCCHs were drawn from across the state, proportional to the region's share of the OCCS-licensed homes. Figure 1 shows the proportion of the final sample in each of the six OCCS

Figure 1: Sample Distribution by OCCS Region



regions: Region 1 (Western Massachusetts), Region 2 (Central Massachusetts), Region 3 (Northeastern Massachusetts), Region 4 (MetroWest), Region 5 (Southeastern Massachusetts) and Region 6 (the Boston area).

Fifty-seven percent of the selected homes, or 203 licensed family child care homes, agreed to participate in the study. This is comparable to, or higher than, the response rates for other studies of family child care providers. This report includes data from all 203 licensed family child care homes from all regions of the state, and serving a variety of children and their families. All data were collected in 2000-2001.

To measure the quality of care, specially-trained data collectors observed family child care homes for three to four hours, starting in the morning, and working with providers to select a day that was convenient for the providers and that was typical of the usual care environment for that provider (i.e., not on a day when a field trip was planned, nor when the children or the regular provider was sick). Other data collectors interviewed providers to gather information on their education and training, motivations, working conditions, enrollment, income and expenses.

Summary of Results

Family child care is an important source of early care and education for America's families; nationally, 14% of children under 5 were cared for in family child care homes in 1999. This report contributes to the growing body of information about family child care, with a focus on workforce issues, the quality of care and the costs associated with providing family child care. In this study of 203 licensed Massachusetts providers, we found:

Workforce Issues for Family Child Care Providers

- The majority of licensed providers (51%) contributed half or more of their household's income.
- The vast majority of licensed providers did this kind of work because they liked children. They reported that the most rewarding aspects of their jobs were doing work they considered important and that had an impact on people's lives.
- The most stressful aspects of licensed providers' work were the fact that their earnings were unpredictable and they often had to juggle conflicting tasks or duties.
- Providers spent an average of 52 hours a week directly caring for children, plus an additional 10 hours a week, on average, on tasks related to their family child care business (such as doing laundry, food shopping, and record-keeping).
- After deducting out-of-pocket expenses, and the costs of using their own homes for their business, providers earned an average of $7.32 per hour for their labor.
- More than one in ten licensed providers did not have health insurance coverage of any kind.
- One quarter of licensed providers expected to stop caring for children within the next three years. Most of the providers expected that their next job would not be in early child care and education.
- Providers said they would be more likely to continue as licensed providers if they received retirement savings, better pay, health benefits and greater respect for the work they do. Support services, such as respite care or local resources, were important to about a third of the providers, but not as important as increased financial rewards.
- About half of the licensed family child care providers in this study belonged to a local professional or business group. These professional groups were important sources of training for providers.

Quality of Early Care and Education in Family Child Care Homes

- Providers' goals were similar to the indicators of quality that were used in this study, and included: Safety & Basic Care; Warmth & Sensitivity of Relationships; Stimulation; and Meeting the Needs of Parents & Providers.

- The quality of Massachusetts family child care homes is comparable to that found in other areas of the country – scoring better than the homes in the Study of Children in Family Child Care and Relative Care (Galinsky, Howes, Kontos & Shinn 1994), but not as well as homes in other studies.
- While Massachusetts is comparable to other states, there is room for improvement in the quality of the experiences offered to young children in Massachusetts family child care homes, as there was in the full-day centers in our earlier report, and in child care settings around the country.
- The majority of licensed family child care homes in this study met or exceeded the established Good benchmark on Parents' and Providers' Needs[1]: parents and providers communicated well with each other, and the provider was able to balance her responsibilities as a provider with other requirements on her time and attention.
- While keeping children safe and healthy was one of the most important goals for licensed providers, 43% of providers failed to meet the Minimal benchmark in Basic Care – they did not wash their hands after diapering or toileting of children, did not ensure that children washed their hands for meals or after using the bathroom, did not keep the kitchen area and toys disinfected, and did not adequately childproof their home from common hazards. These areas are ones that can be readily improved at little or no expense.
- Providers were more likely to meet the Good benchmark on two other items on the Basic Care scale: providing age-appropriate nap/rest times and practices, and positive arrival/leaving routines (greeting the children individually on arrival, and communicating with parents at arriving/leaving).
- The majority of family child care providers had warm and sensitive relationships with the children in their care. Providers were likely to meet the Good benchmark for two items on the FDCRS Social Development scale – the warmth and affection in their relationship with the children, and the use of non-physical forms of discipline. However, family child care providers were less likely to provide the cultural awareness that at least half of providers believed is a very important goal for children.
- Forty percent of licensed family child care homes met or exceeded the Good Benchmark on Language & Reasoning Development; this is comparable to full-day centers, 35% of whom met or exceeded the Good Benchmark in this area. However, in both settings, the majority of providers did not provide the kind of stimulation that has been found to be important to children's later success in school.
- Family child care homes serving low income children were less likely than other homes to meet the Good benchmarks with respect to Space and Furnishings, Language-Reasoning, Learning Activities and Social Development.

Characteristics Related to the Quality of Licensed Family Child Care Homes

- Massachusetts has relatively strict limits on group size. In that context, we did not find that variations in group size were related to the quality of care in licensed family child care homes.

[1] The benchmarks used in this study are part of the Family Day Care Rating Scale (FDCRS), a widely-used measure of the quality of family child care homes. See the body of the report for more detailed information and references.

- Provider education was the most significant predictor of variations in quality. Once we considered provider education, years of provider experience did not add anything more to our understanding of variations in quality.
- When we examined specific types of training and education, we found that providers with a CDA, college courses in early childhood education, or an A.A. degree or higher in any field, were more likely to provider higher quality care than providers without such education or training. Forty-five percent (45%) of providers met this standard of education/training.
- In addition, licensed providers who believed that children learned best through experiences rather than listening to teachers, and that children's curiosity should be fostered, rather than absolute obedience to authority, tended to provide a more stimulating, language-rich environment for the children, and to receive higher global quality scores.

The Cost of Early Care and Education in Licensed Family Child Care Homes

- The largest portion of revenues (an average of 70% across all homes) came in the form of parent fees. Other sources of revenue included payments from family child care systems (for systems providers), reimbursement from the Child and Adult Care Food Program (CACFP) program, and other subsidies.
- Subsidies and payments from family child care systems played a significant role among providers serving low-income families, whereas parent fees were the most dominant source of revenue among other providers.
- On average, child care in licensed family child care homes in Massachusetts cost $3.78 per child care hour.
- Labor costs accounted for about 60% of total costs; a small fraction of labor costs was associated with paid assistants, the rest was the provider's labor.
- Non-labor costs included occupancy costs, food and other out-of-pocket expenditures.
- When considering the full costs of licensed family child care, we examined costs borne by third parties, such as donations or administrative fees associated with subsidies. These costs had only a slight impact on the total cost of family child care in Massachusetts.

The Relation between Quality and Cost

- The quality of licensed family child care was significantly related to the cost of family child care; the relationship could not be explained away by confounding factors such as differing operating characteristics, the income of families served, or provider education.
- We estimated that it would cost an additional 0.7% (less than 1 percent) of current costs to operate all licensed family child care homes in Massachusetts if they were required to meet or exceed the "minimal" quality benchmark, based on our model that controls for market characteristics, provider characteristics and other factors.
- It would cost an additional 3.7% to operate all licensed family child care homes in Massachusetts if they were required to meet or exceed the "minimal-to-good" threshold, and it would cost an additional 13.5% to operate all licensed family child

care homes in Massachusetts if they were required to meet or exceed the “good” threshold.

- The cost models do not tell us how to get to a system where most providers meet these standards. However, the quality models indicated that higher general education for providers, or CDA credentials and college-level courses in early care and education, plus providers’ beliefs in children’s capacity to learn from experience and through exploration, were associated with higher quality early care and education in family child care homes.

Conclusion

Taken together, these results suggest that policies and programs that encourage continuing education or training for providers – at the level of a CDA credential, college courses in early childhood education, or an A.A. degree or higher in a related or unrelated field – combined with policies that support the entry of trained or educated providers into the market, would be likely to raise the quality of licensed family child care homes. However, the workforce issues raised in this study, combined with the finding that higher quality family child care homes cost more to operate than lower quality homes, require that any policy designed to address quality issues must also address affordability issues and the working conditions of licensed family child care providers.

The Family Child Care Workforce in Massachusetts

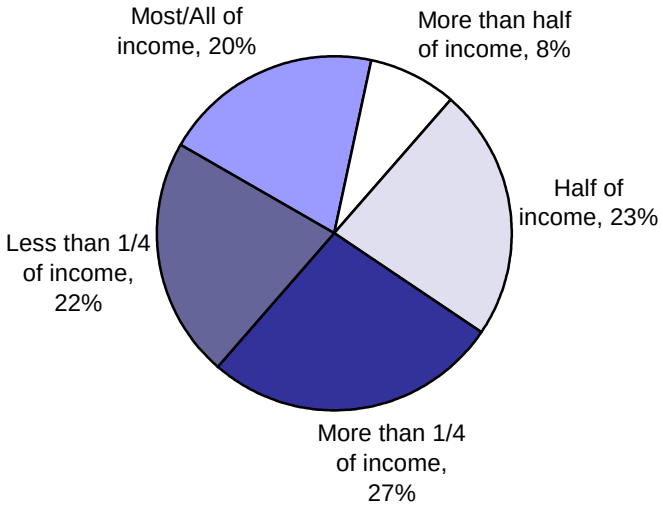
Regulated family child care homes have much in common with other forms of self-employment and other home-based businesses. Family child care providers are generally responsible for all aspects of the business, including finances, planning and service delivery. Providers also often operate with little, if any, external support. In addition, providers have both a business relationship and a caring relationship with the families whose children are in their care, making it more difficult to set and collect fees (Center for the Child Care Workforce 1999). Finally, the major expense for a family child care home, the provider's labor, is often a hidden or undervalued expense (Modigliani 1994).

Who Are The Family Child Care Providers?

While both women and men can become licensed family child care providers, national data indicates that most providers are women, and all of the providers who participated in this study were women. The majority of providers were in their 30's and 40's; 22% were 50 years old or over and 6% were under the age of 30. About three-quarters of the providers were white, 11% were Latina or Hispanic, 8% were Black or African American, 1% were Asian or Asian American, and about 3% were from other race/ethnic groups.

The income that providers earned from their family child care business provided important support for their households (see Figure 2). One in five provided most or all of the household income, and another 31% provided half or more of the household income.

Figure 2: FCCH Earnings as Percent of Household Income



Working Conditions for Providers

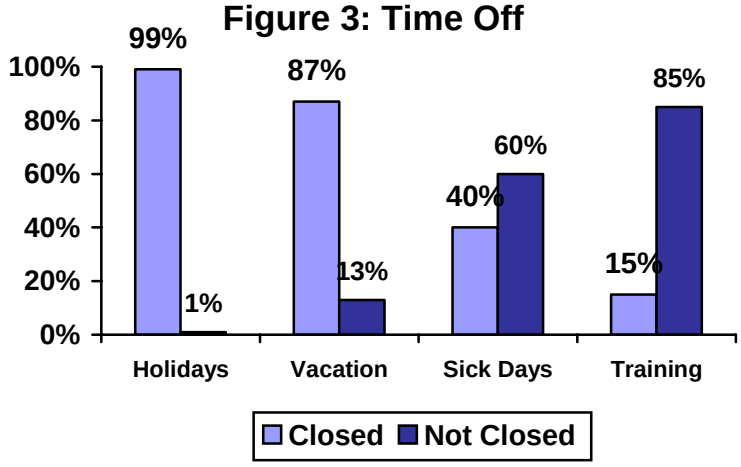
The average family child care home cares for a total of seven children (not necessarily attending at the same time). However, homes varied considerably; 20% of homes cared for 1 to 4 children, and another 36% of homes cared for 5 to 6 children over the course of the week. Most family child care homes were open five days a week, with only 12% open part-week, and 4% open more than five days a week. Providers spent

an average of 52 hours a week directly caring for children, plus an additional 10 hours a week, on average, on tasks related to their family child care business (such as doing laundry, food shopping, and record-keeping).

Time Off, Health Insurance and Retirement Benefits. Most family child care homes were closed at least five days out of the year for holidays or vacation days. However, 60% of providers did not take time off for illness, and only 15% of providers closed so that they could attend training events (see Figure 3).

While 11% of Massachusetts family child care providers reported that they did not have health insurance of any kind, and 1% only had health insurance for their dependents, 88% had health insurance for themselves and their dependents. Among the providers who have health insurance coverage, 17% pay for their own insurance, 5% are covered by Medicaid and 72% are covered under their husband's health insurance.

Figure 3: Time Off



About three-quarters of providers reported that they contribute to social security for themselves, and about a third have set aside other savings for retirement. Of those who have started saving for retirement, about half set aside $2,000 or less in the year 2000.

Job Experiences. Providers were asked to rate different characteristics of their jobs, and to report the extent to which these characteristics were rewarding or stressful (see Tables 1 and 2). The most rewarding aspect of their jobs was the opportunity to do work that was important and had an impact on the lives of others. Providers were less likely to find the challenges and autonomy of the job to be highly rewarding.

About three-quarters of providers reported that their earnings were unpredictable and could go down unexpectedly – this was the most stressful aspect of their jobs. A similar proportion of providers reported that they had to juggle conflicting tasks or duties, and, for most providers, this was somewhat or very stressful. More than half reported that they had too much to do and couldn't get everything done in the time available -- most found this somewhat or very stressful. Only 5% of providers felt that they did not have the skills they needed to do their jobs.

Motivation to Become a Provider

Providers were given a list of twenty reasons other providers have given for becoming

providers, and were asked how important each of these reasons was for them (see Table 3). The most important reasons, endorsed by the greatest number of providers, were: "because you like children," "to be home with your own children," and "because you're good at caring for children." These women have become family child care providers because it combines something they enjoy and at which they are competent, with the opportunity to manage their parenting responsibilities in the way they want.

At the same time, working as a family child care provider meets economic goals; 62% of women said that adding to family income was a very important reason for becoming a provider, even though only 14% believe being a family child care provider pays well. For some women, becoming a provider was also an exploration of new career directions or a response to frustrations on other jobs, fears of insecure employment, or to problems finding employment in the U.S. But for most women, the choice of this particular type of income-generating activity seems to be driven by an interest in this type of work, the belief that they are competent caregivers, and the desire to find work that allows them to be home with their children as well.

Table 1: Rewards of Being a Family Child Care Provider

		If true, how rewarding is it for you?		
Job Characteristics	***True***	***Not rewarding***	***Somewhat rewarding***	***Very rewarding***
You are doing work you consider important	99%	1%	6%	93%
Your work has an impact on other people's lives	98%	1%	12%	87%
Your job involves helping others	99%	1%	16%	83%
Your work contributes to the good of the community	99%	-	19%	81%
Your job fits your skills	96%	-	23%	77%
Your job is necessary for the good of others	96%	1%	25%	74%
Your work is challenging	99%	1%	26%	73%
You are able to work on your own	96%	-	27%	73%
You are able to make decisions about your work on your own	95%	2%	29%	70%
You can learn new things on your job	94%	1%	33%	66%
You get a sense of accomplishment or competence from doing your job	74%	1%	38%	62%
You have the freedom to decide how to do your work	99%	2%	39%	60%
You have a variety of tasks	97%	3%	45%	52%

Table 2: Stressful Job Characteristics

Job Characteristics	*True*	*If true, how stressful is it for you?*		
		Not stressful	*Somewhat stressful*	*Very stressful*
Your earnings are unpredictable, and can go down unexpectedly	74%	10%	49%	41%
You have to juggle conflicting tasks or duties	77%	16%	61%	22%
You have too much to do	60%	12%	73%	15%
You can not get everything done in the time available	53%	12%	64%	24%
The job takes too much out of you	52%	6%	77%	17%
You have deadlines to meet	50%	27%	63%	10%
There are no opportunities for advancement, or to get ahead, on your job	45%	49%	36%	16%
You work under time pressure	31%	32%	52%	16%
You have to do things against your better judgment	23%	14%	62%	24%
You do not have the skills you need to do your job	5%	50%	39%	11%

Table 3: Reasons Respondents Became Family Child Care Providers

Reasons	*Rank*	*Not Important*	*Somewhat Important*	*Important*	*Very Important*
Intrinsic Characteristics of the Job:					
Because you like children	1	0	0	11%	89%
Because you're good at caring for children	2	1%	1%	20%	79%
Because child care is important work	5	3%	3%	21%	74%
To be able to work with children	6	3%	4%	22%	70%
To be your own boss	8	14%	12%	18%	55%
To be able to raise children the way you think they should be raised	9	16%	16%	22%	47%
To use your education in child development	11	29%	14%	24%	33%
Family Reasons:					
To be home with your own children	3	13%	2%	6%	79%
To be able to work at home	4	4%	4%	18%	74%
To help out your daughter, son, sister, or other relative	13	74%	5%	7%	15%
To work part time	15	74%	8%	8%	10%
To see your grandchild/niece/ nephew grow up	18	84%	5%	5%	6%
Economic Reasons:					
To add to family income	7	7%	7%	24%	62%
To have a secure job	10	21%	15%	24%	41%
To explore a new career direction	12	40%	17%	21%	22%
Because it pays well	14	37%	23%	27%	14%
To have a job in the U.S.	16	83%	4%	5%	9%
Because you were frustrated with your other jobs	17	80%	9%	5%	6%
To learn English	19	93%	2%	1%	4%
Because this was the only job you could find	20	94%	4%	2%	1%

Expected Retention Rates

Most (84%) of the providers who were actively caring for children at the time of the study expected to continue to do so through the following 12 months. While one fifth of the providers did not know how much longer they would continue to provide family child care, one quarter of the providers expected to stop within the next three years. Another quarter expected to stop within the next nine years, while a similar number expected to continue for 15 or more years. Because the study only included providers who had been active for at least nine months, these data do not include providers who were in business for less than nine months.

Providers were asked what they would do next, if they were to stop providing family child care (see Table 4). While one quarter of providers would stay in the field of early care and education, one fifth would seek employment in the public schools and one quarter would take a job or return to school in another field.

Table 4: If you were not a provider, what would you do next?	
Work in a child care center or preschool	9%
Open your own child care center or preschool	11%
Do something else with young children, but not child care	7%
Take a position in a school	21%
Take a job outside of the child care and education field	18%
Stay at home full time	10%
Go back to school in a field related to child care	5%
Go back to school in a field unrelated to child care	5%
Return to your home country	1%
Other	12%

When asked whether anything could make them want to continue to offer child care for a longer time, the most likely inducement was retirement savings, followed closely by better pay, health benefits and greater respect for the work they do (see Table 5). Support services, such as respite care or local resources, were important to about a third of the providers, but not as important as increased financial rewards.

Table 5: Factors that are very likely to make providers want to offer child care for a longer time.	
Retirement savings	60%
Better pay	56%
More respect for the work you do	54%
Health benefits	50%
Shorter hours	43%
Respite care, or a trusted substitute to give you time off	37%
More local services and resources to help you run your family business	31%
More contact with other providers	29%

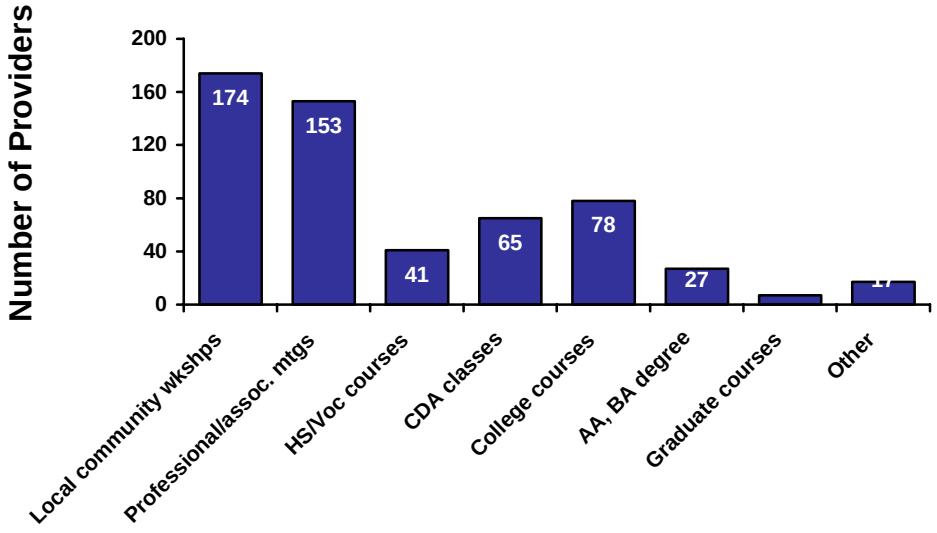
Licensing and Training

The majority of the providers (65%) were licensed after 1990, with 38% licensed after

1995. Only 16% were first licensed before 1985. Most women found out about licensing from friends or family (49%), or from other providers (20%); only 9% found out about licensing from local government programs. Less than a third of providers have a credential other than licensing: 15% do hold a CDA (Child Development Associate), 10% have a public school teaching certificate (active or expired), and 9% hold Family Child Care Accreditation from NAFCC (National Association for Family Child Care).

Almost all of the providers report some training in either child development or early childhood education at some point in time (see Figure 4). Most of the training has been through local community workshops or programs, or workshops at professional or association meetings. However, about a third of the providers have taken CDA classes, and about as many have taken a college course in child development or early childhood education. In addition, about one in six have an Associates degree or higher in child development or early childhood. In the previous 12 months, 41% had received 20 or more hours of child development-related training and an additional 18% of providers had received 20 or more hours of child development-related training and business training.

Figure 4: Training in Child Development/ECE



Professional groups are one of the major sources of training for the Massachusetts providers in this study. About half of the study providers belong to a local provider support group or business association. Providers also belong to family child care networks, state and regional family child care associations, the National Association for Family Child Care, and the National Association for the Education of Young Children, as well as local branches of NAEYC; however, providers who are connected to such groups might have been more willing to participate in this study. Three-quarters of providers receive some form of training through these professional groups.

Summary

The vast majority of licensed providers do this kind of work because they like children. They report that the most rewarding aspects of their jobs are doing work they consider important and that has an impact on people's lives. In addition, the majority of licensed providers contribute half or more of their household's income. Providers spend an average of 52 hours a week directly caring for children, plus an additional 10 hours a week, on average, on tasks related to their family child care business (such as doing laundry, food shopping, and record-keeping). The most stressful aspects of licensed providers' work are the fact that their earnings are unpredictable and that they often have to juggle conflicting tasks or duties.

One quarter of licensed providers expect to stop caring for children within the next three years; most of the providers expect that their next job will not be in early child care and education. Providers said they would be more likely to continue as licensed providers if they received retirement savings, better pay, health benefits and greater respect for the work they do. Support services, such as respite care or local resources, were important to about a third of the providers, but not as important as increased financial rewards.

The Quality of the Early Care and Education Children Receive in Family Child Care Homes

While there is considerable agreement among parents, providers and advocates about the meaning of quality in center-based care for children ages 3-5, there is less agreement about the meaning of quality in family child care homes. Some advocate for quality standards that are analogous to those set for centers; others argue that family child care homes are meant to be more like family care, and less like center care. This discussion is part of a larger debate in the United States about the perceived split between education and care. However, Galinsky and colleagues (1995) point out that these two goals are not mutually exclusive. What matters most to children's preparation for school are a warm and responsive provider/teacher, whether activities and interactions are developmentally-appropriate, that is, fitting the way children learn, and whether the interactions between adult and child, and among children in the setting, promote the development of healthy social skills (c.f., NICHD ECCRN 1998, 2001).

Defining Quality

Traditionally, when we speak of the quality of early care and education, we measure quality either structurally (the number of children in the group, the training of the provider), or as process (the responsiveness of the provider, the stimulation provided to the child). These standards have been based on best-practices in the field and an extensive body of research. However, much of the development of standards has been informed by experiences and research on *center-based* early care and education (the standards developed by the National Association for Family Child Care are an important exception to this). While the existing standards are a useful yardstick, we begin this section on quality by reporting on providers' goals for the children in their care, and then compare their goals to commonly-used measures of quality.

Providers' Goals for Children

In a study of family child care and relative care, Galinsky and colleagues (1994) found that providers and parents shared certain goals for the children. The most important of these goals were safety, communication between providers and parents, cleanliness, and the quality of the relationship between provider and child. In the current study, we also asked providers to evaluate a set of goals that were developed based on prior studies and the input of our Advisory Board and the Data Advisory Group.

Providers' reported that their most important goals for children are to provide a safe physical environment, to make the child feel loved, and to help the child to learn and grow (see Table 6). In addition, providers want to encourage the development of self-esteem and social skills. While there is less agreement on some of the other goals, more than half of the providers value their role in making it possible for parents or

guardians to be employed. In addition, more than half view preparing a child for school and helping a child to appreciate other ethnic and cultural groups as important goals.

Table 6: Providers Goals for Children

As a provider, I want to:	*Very Important*	*Important*	*Somewhat Important*	*Not Important*
Provide a safe physical environment	93%	7%	0	0
Make the child feel loved	92%	7%	1%	0
Help the child to learn and grow	90%	10%	0	0
Encourage the child to like him/herself	86%	12%	2%	0
Help child learn to get along with other children	85%	13%	3%	0
Give the child a home away from home	79%	15%	2%	4%
Provide fun activities	78%	21%	1%	0
Make it possible for the parent or guardian to work	61%	25%	8%	6%
Teach the child about the world	54%	30%	15%	1%
Prepare the child for school	52%	30%	16%	2%
Help the child appreciate other ethnic and cultural groups	51%	26%	18%	5%
Teach the child an appreciation for her/his own culture, religion, or family background	46%	25%	18%	11%
Provide religious instruction	9%	7%	14%	70%

Comparing Providers' Goals to Common Measures of Quality

The providers' goals can be grouped into four general areas: Safety & Basic Care; Warmth & Sensitivity of Relationships; Learning; Stimulation; and the Needs of Parents & Providers. The observational measures of process quality that we used in this study correspond to those general areas. Table 7 summarizes the providers' goals (from Table 6) and the related process quality measures used in this study. Additional details on the process quality measures are provided in Appendix A.

Table 7: Links between Providers' Goals and Process Measures

General Concept	Providers' Goals	Process Measures
Safety & Basic Care	Provide a safe physical environment	Basic Care; Space & Furnishings
Warmth & Sensitivity of Relationships	Make child feel loved; Encourage child to like self; Help children learn to get along with other children	Social Development; Global Caregiving Ratings Scale
Stimulation	Help the child to learn and grow; Provide fun activities; Teach the child about the world; Prepare the child for school	Language-Reasoning; Learning Activities
Needs of Parents & Providers	Make it possible for parent/guardian to work; To be home with own children (Table 3)	Adult Needs

Quality of care is measured in many different ways. Studies have often relied on structural characteristics, such as group size, adult-child ratios and caregiver education

and experience. While structural characteristics, such as group size, tell us something about the quality of children's experiences in family child care homes, process quality tells us more about what actually happens in the care environment – how stimulating an environment it is, how providers and children interact, what the materials and physical space are like, how safe it is. These are the same aspects of the family child care home that providers believe are important for children, as reflected in their goals discussed in the previous section.

The Family Day Care Rating Scale (FDCRS; Harms & Clifford,1989) is a commonly used measure of process quality that provides benchmarks for different levels of quality. Each family child care home was observed by a trained observer, and scored on these benchmarks. The benchmarks are labeled 1 = inadequate care, 3 = minimally adequate care, 5 = good care and 7 = excellent care. The FDCRS consists of six different scales, each of which measures a specific aspect of the family child care home environment. In addition, we observed the extent to which the providers' interactions with the children were responsive to the children's needs, using the Global Caregiving Rating Scale (Arnett, 1989). This scale consists of 26 items that address sensitivity, harshness, detachment and permissiveness; the items are rated on a four-point scale from "not at all characteristic of the caregiver" to "very much characteristic" and are based on the entire observation period.

Safety and Basic Care

Almost every provider said that it was very important that they provide a safe physical environment for the children. The FDCRS includes two scales that address this goal: Space & Furnishings and Basic Care.

Space and Furnishings for Care. The Space and Furnishings scale is a measure of the physical setting. A family child care home that meets Minimal standards is one in which there is enough space and furniture to meet the basic needs of all children, and it is safe and in good repair. The furnishings and space include at least one piece of soft furniture, some of the children's artwork and a carpeted space in the area used for child care. In addition, there is space appropriate for the ages of the children (crawling space for infants, play space for preschoolers); the space is cleared of breakable objects and other "no-no's" so that children can play with few restrictions. There is also safe outdoor space available and it is used at least three times a week, except in bad weather.

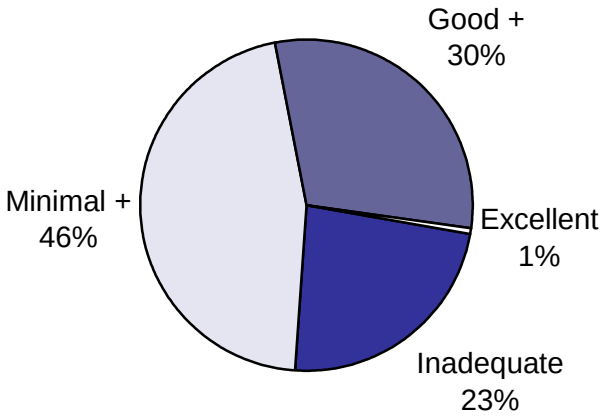
In contrast, in a family child care home that meets the Good benchmark, furniture is made appropriate for the child's size (e.g., adult chairs with cushions used while eating). The furnishings are regularly cleaned (tables washed after eating or art activity), and include more soft furniture and soft stuffed toys. The space is well-arranged (not crowded, traffic patterns don't go through a play area), with two or more clearly-defined play areas appropriate to the ages of the children. In addition, the children are provided with indoor physical activity during bad weather. To meet the Excellent benchmark, family child care homes must meet all of the above, plus there must be some child-sized furniture, displays are at children's eye level and are changed frequently to match their activities and interest. In addition, there are many materials available for children of

different age groups, and additional materials are available to add to or change play areas. Finally, the provider uses the space to plan new and challenging activities each week and also provides opportunities for individual play.

The average score was 4.11 on the Space and Furnishings subscale – between Minimal and Good quality. Only a total of 31% of the family child care homes met or surpassed the Good benchmark (5 or higher) (Figure 5). Close to half the family child care homes only met the standards for minimum quality, and close to a quarter did not meet the Minimal benchmark.

Family child care homes had the most trouble meeting the benchmarks on two items: providing displays of children's artwork or of materials designed for children, and providing daily opportunities for active physical play (either indoor or outdoor).

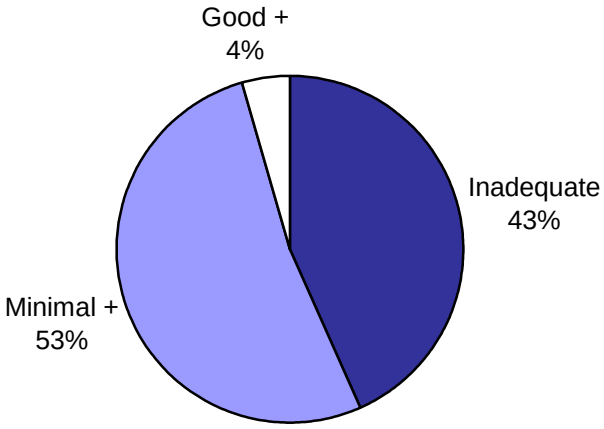
Figure 5: Percent of FCCHs Meeting Space & Furnishings Benchmarks



Basic Care. The Basic Care subscale is a measure of the extent to which the care environment meets the basic physical needs of the children, including meals, naps, diapering/toileting, health and safety. An environment that meets Minimal standards has regular routines and well-balanced meals and snacks; the cooking and eating area is clean, and sanitary food preparation standards are met. The diapering/toileting area meets basic sanitary conditions (e.g. diapering area cleaned after each use; caregiver washes hands after helping child with toileting). The setting is clean and safe, and the provider has basic safety and emergency materials available. A setting that meets the Good benchmark goes beyond these basics: the provider organizes and schedules basic care routines (mealtimes, naps) so that children's basic needs are met. The space and equipment promotes self-help and healthy development. In addition, pleasant interactions between the provider and children occur during routine activities. To meet the Excellent benchmark, the provider must encourage age-appropriate self-help skills across a variety of routines and accommodate the needs of individual children. Health information is provided for parents, and the provider models good health habits and teaches safety to children.

The average score was 3.18 on the Basic Care subscale – just above the Minimal benchmark. Only 4% of the family child care homes met the Good benchmark (a score of 5 or higher), and none met the Excellent benchmark (Figure 6). The majority met the Minimal standards benchmark but did not meet the Good benchmark. While they provided basic safety and care to the children, they did not use these caregiving activities to foster developmental goals, such as self-help skills. Of greater concern, 43% of providers failed to meet even the Minimal benchmark – they did not wash their hands after diapering or toileting of children, did not ensure that children washed their hands for meals or after using the bathroom, did not keep kitchen area and toys disinfected, and did not childproof their home from common hazards.

Figure 6: Percent of FCCHs Meeting Basic Care Benchmarks



While many providers did not meet the Minimal benchmark on 5 out of 7 items on this scale, providers were more likely to meet the Good benchmark on two items: providing age-appropriate nap/rest times and practices, and arrivals/leaving (greeting the children individually on arrival, and communicating with parents at arriving/leaving).

Warmth and Sensitivity of Relationships

Almost every provider said that it was very important to make the child feel loved. More than three-quarters of providers also said it was very important to encourage the child to like him- or herself and to help children learn to get along with other children. About half of providers felt that it was very important to help the child appreciate their own and other ethnic and cultural groups. The FDCRS includes one scale that addresses this goal: Social Development. In addition, the Global Caregiving Ratings Scale assesses the sensitivity and quality of the provider's relationship with the children. These two measures are strongly linked, with a statistical correlation of .76 between the two measures (Theoretically, correlations can range from 0.00 to 1.00. If the measures were identical, the correlation would be 1.00, if they were unrelated the correlation would be 0.00; a correlation of .76 is very close to 1.00). By using both measures we have a stronger picture of the warmth and sensitivity of the relationships between providers and children.

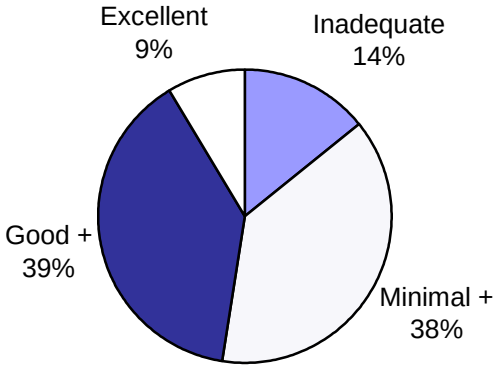
Social Development. The Social Development subscale of the FDCRS is a measure of the quality of interactions between the provider and children, the discipline used in the setting, and the level of cultural awareness evident in the setting. A setting that meets Minimal standards is one in which adult supervision is adequate to keep the children

safe; there are some positive interactions between provider and children, although primarily for routine care. Providers do not use physical punishment or harsh discipline styles.

A setting that meets the Good benchmark goes beyond this—the provider seems relaxed and cheerful with the children and uses physical contact to show affection. The provider uses alternatives to physical punishment and praises children for appropriate behavior. The setting demonstrates cultural awareness through examples of racial variety in materials, and children are not limited to gender-traditional activities. In a setting that meets the Excellent benchmark, the children and provider show respect and kindness for one another, the provider anticipates problems and handles them before they become serious, often helping children solve problems through talking. The use of multicultural and non-traditional role materials is planned by the provider.

The average score was 4.56 on the Social Development subscale – somewhat below the Good benchmark. A total of 48% met or exceeded the Good benchmark (a score of 5 or higher), but only 9% met the Excellent benchmark (Figure 7). Over a third (38%) of the settings met the Minimal standards benchmark for Social Development, but did not meet the Good benchmark; 14% failed to meet even Minimal standards.

Figure 7: Percent of FCCHs Meeting Social Development Benchmarks

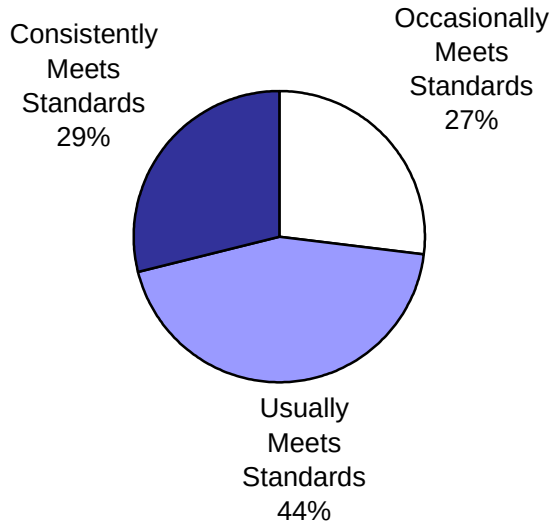


When we examined the three items on the Social Development scale, we found that the average score for emotional tone was 5.77 (above the Good benchmark), the average score for discipline was 4.98, and the average score for cultural awareness was 2.95 – providers tend to meet the Good benchmark for the warmth and affection in their relationship with the children, and for the use of non-physical forms of discipline. However, family child care providers are less likely to provide the cultural awareness that at least half of providers believe is a very important goal for children.

Global Caregiving Rating Scale. The Global Caregiving Rating Scale (Arnett, 1989) rates the caregiver's relationship with the child in terms of overall sensitivity, harshness, detachment and permissiveness. The scale consists of 26 items, rated on a scale from 1=never meets the standard to 4=consistently meets the standard. The total score is the average of the ratings on all 26 items.

None of the providers received a total score of 1 in the Massachusetts sample. However, 27% of the providers had an average score that was lower than a 3; on most items they were rated as only occasionally meeting the standard (see Figure 8).

Figure 8: Percent of FCCHs Meeting Global Caregiving Standards



For example, a provider with a total score below 3 might have been rated as "Is often critical of the children, but there are times when she is not critical;" and "Often does not listen attentively, but there are some moments when she does listen;" and "Usually does not seem to enjoy the children, but there are a few instances of enjoyment;" and "Usually does not supervise the children very closely, but there are times when she does make an effort to keep them in her sight or hearing;" and "Usually does not talk to children on a level appropriate for their developmental level, but in a few instances does talk at a level children understand."

In contrast, 29% of providers received high marks (a total score between 3.5 and 4); these providers were rated as "Never or rarely critical of the children;" "Usually or consistently listen attentively to the children;" "Usually or consistently seem to enjoy the children;" "Usually or consistently supervise the children appropriately;" and "Usually or consistently talk to children on a level they can understand." The remaining 44% of the providers had average scores that fell between 3 and 3.5; they were rated as usually meeting standards, but not consistently meeting a majority of the standards.

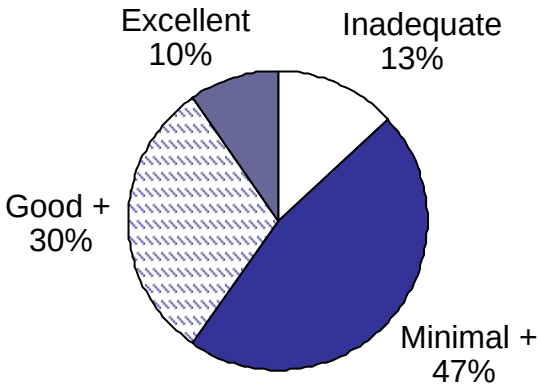
Stimulation

Nine out of ten providers said that it was very important to help the children learn and grow; over three-quarters felt it was very important to provide fun activities for children. About half of the providers felt that it was very important to prepare the child for school and to teach the child about the world. Another 25% - 30% thought it was important to do so. The FDCRS includes two scales that address these goals: Language-Reasoning and Learning Activities.

Language-Reasoning. The Language-Reasoning scale is a measure of the use of language in the setting and the opportunities for learning about language that are provided for children. In a family child care home that meets the Minimal standards benchmark, the provider does some social talking; preschool children, if present, are

generally asked yes/no questions and for younger children, talking is mainly to control behavior. There are at least 8-10 age-appropriate books available for the children, and the provider uses the books at least three times a week (reading, naming pictures) and helps children understand language by naming objects or playing age-appropriate games. The setting also has a few other language-related materials such as puppets, dramatic play props, or toy telephones, and the provider uses one daily activity that encourages children to talk. In addition, children are engaged in a daily activity that promotes reasoning skills, such as learning concepts of size, color, shape.

Figure 9: Percent of FCCHs Meeting Language-Reasoning Benchmarks

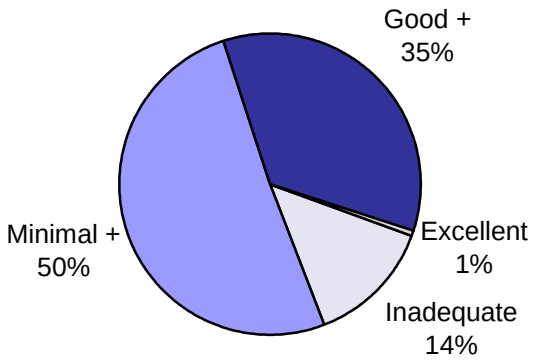


On the other hand, to meet the Good benchmark, a provider engages in a good deal of social talk with children and encourages children to talk and use language by listening, maintaining eye contact, asking questions of toddlers and preschoolers to get children to talk more. There are a greater number of books and other language materials, and the provider engages in daily activities using books. There are multiple activities daily that encourage language and a wide variety of games and materials that stimulate reasoning skills. In a setting that reaches the Excellent benchmark, the provider engages children in informal conversation throughout the day, asking children more complex questions and encouraging language to solve problems. With infants and toddlers, the provider talks to the child during routines, repeats what the child says adding words and ideas as appropriate, and encourages toddlers to use words. The provider adds new language-related materials on a monthly basis, and uses language that helps children increase their understanding of language. To develop reasoning skills, the provider has new activities weekly and uses daily experiences as opportunities for learning.

The average score was 4.57 on the Language-Reasoning subscale of the FDCRS – between Minimal and Good. Forty percent (40%) of the family child care homes in the sample were rated as Good quality or better on Language-Reasoning (Figure 9). However, 60% did not meet the Good Benchmark; 13% of homes did not even meet Minimal standards.

Learning Activities. The Learning Activities subscale is a measure of the types and variety of materials and activities available for the children such as eye-hand coordination materials, art, music and movement, sand & water play, dramatic play, blocks, and use of television. This subscale also is a measure of how the daily activities are scheduled and supervised. A family child care home that meets Minimal standards has some materials available for some portion of the week, and limits TV use to no more than 2 hours daily. There is a daily routine that allows for play activities as well as basic care routines and there is attention to safety and cleanliness. A setting rated as Good provides a greater range of materials and activities, and different activities occur a few times a week. Television use is limited to children's programs, but alternative activities are available at the same time. The schedule allows for a variety of play activities, as well as daily special activities. The provider interacts frequently with children and supervises according to individual needs. In a setting rated as Excellent, materials are organized for independent use by children and are rotated to maintain children's interest, and different activities occur on a daily basis. The television is either not used or the provider makes it an educational experience by asking questions or adding information. The provider uses routine activities as learning experiences, looks for opportunities to extend children's learning, and organizes activities in such a way as to avoid conflict between children.

Figure 10: Percent of FCCHs Meeting Learning Activities Benchmarks



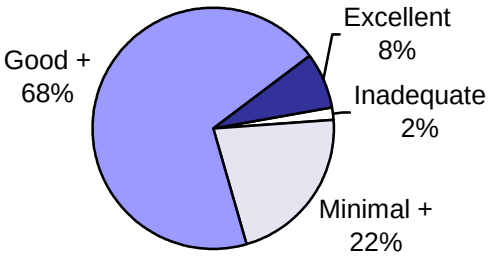
The average score on the Learning Activities subscale was 4.41 – between Minimal and Good quality. A little over a third (36%) of the providers had a score of Good or better, and 50% were rated between Minimal and Good (Figure 10). Fourteen percent were rated as Inadequate.

Needs of Parents & Providers

Over half of the providers felt that it was very important to make it possible for the parent or guardian to work. In addition, one of the most important reasons providers gave for becoming providers was to be able to earn an income and still be home with their own children. One of the FDCRS scales, Adult Needs, provides a measure of the extent to which the family child care home meets the needs of both parents and providers. The Adult Needs scale is a measure of the quality of the relationship between providers and parents, the provider's balance between personal and caregiving responsibilities, and opportunities for professional growth.

In a program that meets Minimal standards, the provider tells parents about her child care policies and parents are welcomed to visit the setting. However, the provider has difficulty juggling personal and caregiving responsibilities, and children are often left with a substitute caregiver. The provider has only limited involvement in professional development activities. In a setting that meets the Good benchmark, policies are written and the provider works cooperatively with parents, talking with parents about children's activities at least weekly. Personal and caregiving responsibilities rarely interfere with each other, and the provider regularly participates in professional development activities. To meet the Excellent benchmark providers must talk with parents on a daily basis about children's activities and parents are encouraged to participate in activities. The provider is able to coordinate personal and caregiving responsibilities, using household activities as learning experiences for the children. Finally, the provider must be an active member of an early childhood professional group and participate in professional development programs at least four times a year.

Figure 11: Percent of FCCHs Meeting Adult Needs Benchmark



The average score was 5.55 on the Adult Needs scale – above the Good benchmark. A total of 68% scored between Good and Excellent, and 8% met the Excellent benchmark (Figure 11). Twenty-two percent met the Minimal standards benchmark; while 2% failed to meet Minimal standards.

Summary

Overall, between one-third and one-half of family child care homes are meeting their own goals in most areas. However, many providers are not. It is also important to note the variation across the different aspects of homes. While the vast majority of providers do a good job of meeting the needs of parents and providers, most providers do not meet the Good benchmark for basic care, reflecting minimal standards of safety and health, particularly in food preparation and diapering and toileting. In addition, a majority of providers did not meet the Good benchmarks for stimulation – elements of care that are important to children's development and well-being.

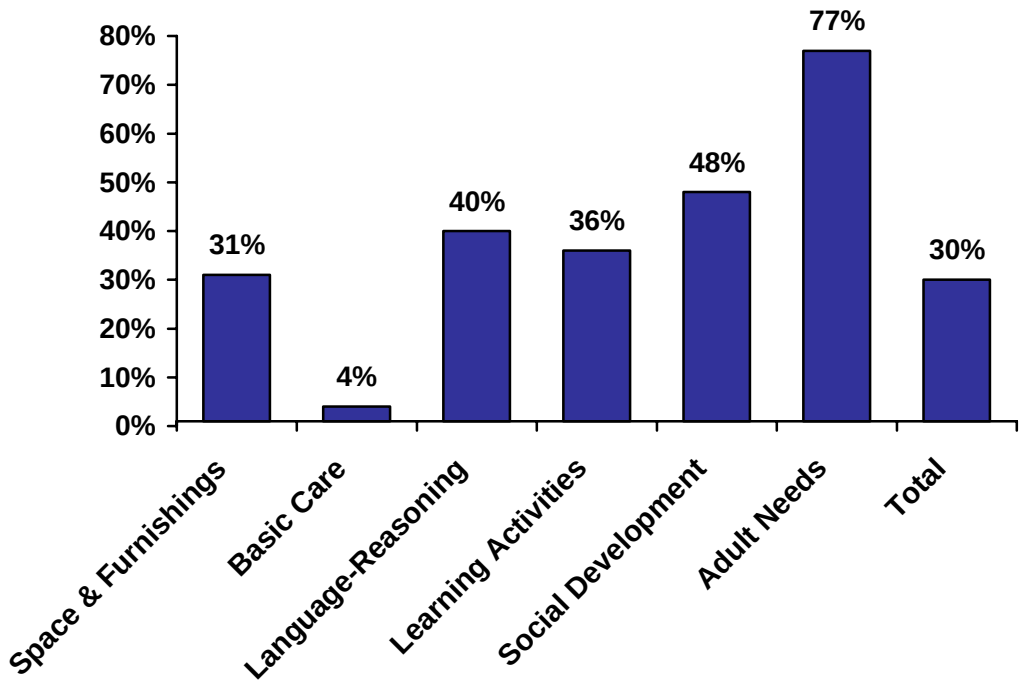
When the scale scores are combined for a total FDCRS score, we find that only 30% of family child care homes meet the Good benchmark overall (see Figure 12). Sixty-one percent of homes met the Minimal standards benchmark, and 9% were rated as less than minimal or inadequate.

While we would wish that more homes met the Good benchmark, Massachusetts compares favorably with the Study of Children in Family Child Care and Relative Care

(Galinsky, Howes, Kontos & Shinn 1994). In a study of child care in three communities in three different states (Texas, North Carolina and California), the researchers found that only 12% of regulated family child care homes met the Good benchmark, 75% met the minimal standards, and 13% were rated as inadequate. However, in a study of 231 regulated family child care homes in Canada, 37% met the Good benchmark on the FDCRS, 55% met the Minimal standards benchmark, and 8% failed to meet minimal standards (Doherty, Lero, Goelman, Tougas & LaGrange 2000).

Other studies reported the average score on the FDCRS. Massachusetts' average score, across all homes and all subscales, was 4.39, between Minimal and Good on the FDCRS scale. In comparison, in a study of 59 family child care homes in Pennsylvania, the mean score on the FDCRS was 4.47 in 1996 (Iutcovich, Fiene, Johnson, Koppel & Langan, nd). In a study of 67 licensed family child care homes in Wisconsin, the mean score on the FDCRS was 4.98 (Weaver 2001). The combined picture from all of these studies is that Massachusetts appears to fall somewhere in the middle in the quality of its family child care homes, as measured by the FDCRS.

Figure 12: Percent FCCHs Meeting Good Benchmarks



Characteristics of Family Child Care Homes That Are Related to Quality

Structure and Process Quality

Many structural aspects of quality can be, and in some cases are, regulated by states. Process characteristics are not easily regulated but help us understand the environments in which children spend their time, and are more directly related to children's development. To the extent that the regulatable structural indicators of quality are related to process quality—to what happens in the family child care home—regulations can improve children's outcomes. To understand how such regulatables are related to process measures, we examined the relationship between several structural variables and observed quality.

We examined three structural characteristics that are often subject to regulation:

- Group size
- Provider experience
- Provider education

Group size. On average, over the course of the morning observation for this study, 4.76 children were present in the family child care home (minimum = 1; maximum = 12.25). A total of 83.8% of homes had six or fewer children, and another 14.6% had 7-10 children at one time. Only 1.6% of homes had a group size greater than 10.

Provider experience. Providers' experience with children other than their own ranges from two years to 55 years, with an average of 18 years of experience.

Provider education. Just under a fifth of the providers (18%) reported that their highest level of education was a high school diploma or GED; 5% of providers had not completed high school. Thirty-two percent of providers reported having some college and 24% had a vocational diploma or a two-year degree. Twenty-one percent of providers had a four-year college degree or more.

The relationship between structural quality and process quality. Table 8 reports the extent to which variations in each of these structural variables is associated with variations in the observed quality of family child care in Massachusetts, among the 168 family child care homes for which we had complete data on both structural and process quality measures. To simplify these analyses, we calculated two composite process quality variables, based on Table 7, above, which described the links between providers' goals and the process measures used in this study. "Stimulation" is the sum of two FDCRS subscales: Learning Activities and Language and Reasoning. "Warmth and Sensitivity of Relationships" is the sum of the FDCRS subscale, Social Development, and the Sensitivity subscale of the Global Caregiving Rating Scale.

These measures are described above, and in Appendix A.

Table 8 reports estimates of the relationship between the structural variables and the process quality variables.

Reading the tables. Because the estimates are standardized, they can be compared to each other, both within each model and across models. The table also reports the significance level (*p*) of each estimate—that is, the probability that this estimate is an artifact of the particular sample of homes that were chosen for this study (and would not be found in a different sample), rather than representing the true relationship among structural variables and process quality in all family child care homes in Massachusetts. [2]Finally, the table reports the R^2 for each model (column); R^2 is the proportion of the variation in the process quality measure that is explained by all of the listed structural quality variables combined.

Table 8: Standardized Estimates of Relationships Between Structural and Process Quality Measures (N = 168)

	Stimulation	Warmth & Sensitivity	FDCRS Total
Group Size	.04	-.01	.11
Provider Yrs of Education	.43**	.45**	.42**
Provider Yrs of Experience	.04	.02	.07
R^2	.19**	.20**	.20**

^ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

Stimulation. First, we examined the relationships between the structural variables and the quality of stimulation provided in the family child care home. As described above, the Stimulation composite is a measure of the amount and variety of activities available to the children, the developmental appropriateness of the environment, the use of language in the setting, and the opportunities for learning about language. Higher scores signify more stimulating homes. As Table 1 shows, homes with more highly educated providers had higher levels of age-appropriate stimulation for the children.

Warmth and Sensitivity. Warmth and Sensitivity describes how providers interact with the children in the family child care home, how warm they are to the children, the amount and types of interactions that occur and the quality of those interactions, and how sensitive provider's are to children's needs. As with Stimulation, provider education was the only structural measure related to Warmth & Sensitivity. In homes where providers had more formal education, the interactions between providers and children were warmer and more frequent, and providers were more sensitive to

[2] For example, an estimate that is significant at the $p < .05$ level has five chances out of 100 of being due to chance. Put another way, that same estimate has 95 chances out of 100 of representing the true value for all Massachusetts family child care homes. In this report, we treat as significant those estimates that have at least 95 chances out of 100 of being valid ($p < .05$); *p* values < .10 are interpreted as marginally significant.

children's needs.

Global Quality. Finally, we examined the relationship between the structural variables and the more general measure of quality—the total score on the FDCRS. The total score on the FDCRS takes into account the physical quality of the setting (physical space, health and safety, materials available for the children), the routines and schedules put in place by the provider, as well as the learning opportunities available for children, and the nature of the interactions between providers and children. As with the other measure of process quality, only provider education was significantly related to the FDCRS Total. Providers with more education provided care that was generally higher quality compared to providers with less education. For example, family child care homes in which the provider has an A.A. degree or more had an average overall FDCRS score of 4.72, close to the Good quality benchmark. On the other hand, family child care homes in which the provider had less than an A.A. degree had average total scores of 4.11. However, it is important to note that many of the providers with an A.A. degree or higher do not have degrees in early childhood education; only 30% of providers who had an A.A. degree or higher had their degree in child development or a related field. In addition, the other providers, with or without an A.A. degree, had some training in early childhood, the majority through local community college or professional association workshops or other child development courses.

The Role of Training. What is the role of training, other than that received in higher education? Fifteen percent (15% or 30) of the family child care providers had earned a CDA (Child Development Associate) credential, which provides specific training for family child care providers (an additional 15% had taken CDA courses; they are not included in these analyses). When we test the relationship between having a CDA credential and process quality, controlling for group size and provider formal education, we find that having a CDA is associated with providing a more stimulating environment for children, and with the total FDCRS score.

Table 9: Standardized Estimates of Relationships Between Holding a CDA and Process Quality Measures (N = 166)

	Stimulation	Warmth & Sensitivity	FDCRS Total
Group Size	.04	-.01	.11^
Provider Yrs of Education	.43***	.46***	.41***
CDA credential	.19**	.09	.27***
R^2	.23***	.22***	.28***

^ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

What about other forms of training? As we saw in an earlier section, almost every provider had some training, either through workshops or professional meetings, or through more formal programs, such as the CDA or college courses. We compared the quality of early care and education offered by three different groups of providers: [1] providers with a CDA or one or more college level courses in early childhood education or a related field (including providers with a degree in early childhood education or a related field); [2] providers with an A.A. degree or higher, in a field not related to early childhood education; and [3] providers with other types of training. As we can see in

Table 10, there are significant differences in the total FDCRS scores among these three groups; but the significant differences are between the group with the least training or education, compared to those with either a CDA, college courses in early childhood education, and/or an A.A. degree or higher, in a related or unrelated field. We found similar results when we analyzed Stimulation, with the group with the least training or education being significantly different from the other two groups. We did not find that there were significant differences in Stimulation or the Total FDCRS score between providers with an A.A. degree or higher, and providers with a CDA or college courses in early childhood education.

Table 10: Comparing Levels of Training

	Level of Training		
	Workshops, etc. in early childhood education	CDA or college course(s) in early childhood education	A.A. or higher in any field
N	92	77	14
Mean Total FDCRS score	4.29	4.68	5.08
(standard deviation)	(.91)	(.95)	(.92)
F test of significance			13.92 ***

^ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

Beliefs about Children's Learning

In addition to structural aspects of quality, previous research has found that a provider's beliefs about children's learning is related to the quality of care she/he provides. Providers were asked a number of questions about how children learn, the role of parents and teachers for children's learning, and the extent to which children should be allowed to be curious (Schaefer & Edgarton 1985).[3] A provider with a high score on this scale responded that children need to learn absolute obedience and not to disagree with their parents about their ideas. These providers also believed that children do not learn best by doing things themselves, but rather should listen to others. To determine the extent to which provider beliefs about children's learning were related to process quality in this study, we added "beliefs about children's learning" to our previous models.

We found that when "beliefs about children's learning" was added we were able to explain a greater proportion of the variance in process quality. Specifically, we found that in addition to years of education, beliefs about children's learning was significantly related to both Stimulation and the FDCRS Total Score. Providers who held more traditional beliefs about children's learning were rated lower on stimulation as well as on global quality.

[3] The Beliefs about Children's Learning scale has a possible range of 30 to 150. The mean score for our sample was 89.97 with a standard deviation of 13.71 (range: 58 to 132). Twenty-five percent of providers scored between 58 and 80, and another twenty-five percent scored between 99 and 132.

Table 11: Standardized Estimates of Relationships Between Beliefs About Children's Needs and Process Quality Measures (N = 166)

	Stimulation	Warmth & Sensitivity	FDCRS Total
Group Size	.03	-.01	.10
Provider Yrs of Education	.35**	.42**	.33**
Provider Yrs of Experience	.03	.01	.05
Beliefs About Children's Learning	-.23**	-.10	-.24**
R^2	.24**	.21**	.25**

^ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

In addition, when we add "beliefs about children's learning" to the equation, the standardized estimate of the relationship between provider education and stimulation drops from .43 to .35 – suggesting that the relationship between education and stimulation is mediated by beliefs about children's learning. In other words, providers with more education are more likely to belief that children learn through exploration rather than obedience to authority, and those beliefs are, in turn, associated with providing children with the activities and materials that allow children to explore and learn.

Summary

Provider education was the most significant predictor of variations in quality. When we examined specific types of training and education, we found that providers with a CDA, college courses in early childhood education, or an A.A. degree or higher in any field, were more likely to provider higher quality care than providers without such education or training. Forty-five percent (45%) of providers met this standard of education/training. In addition, licensed providers who believed that children learned best through experiences rather than listening to teachers, and that children's curiosity should be fostered, rather than absolute obedience to authority, tended to provide a more stimulating, language-rich environment for the children, and to receive higher global quality scores.

Family Income and the Quality of Family Child Care Homes

A central issue surrounding quality child care is whether low-income children attend family child care homes of comparable quality to those that serve children from higher-income families. Specifically, we were interested in whether homes serving children from families with different income levels differed in the quality of early care and education they provided. We categorized family child care homes into three income groups. Homes serving *low-income* families were defined as those in which providers reported that at least 75% of the children come from families with incomes below $30,000 per year. Homes serving *low/moderate-income* families are those in which at least 75% of the children come from families with incomes below $80,000 per year (but not 75% below $30,000). Homes serving *moderate/high-income* families are those in which at least 50% of the children come from families with incomes over $30,000 (and they do not meet the criteria for low-moderate classification) or 40% or more of the children come from families with incomes over $80,000.

Figure 13: Percent of Providers Serving Families in Different Income Groups

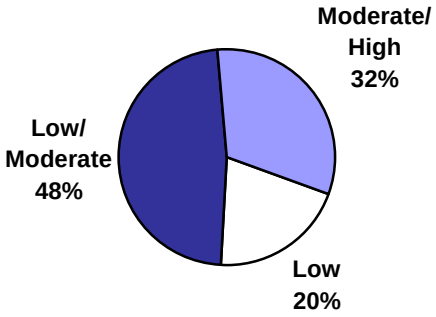
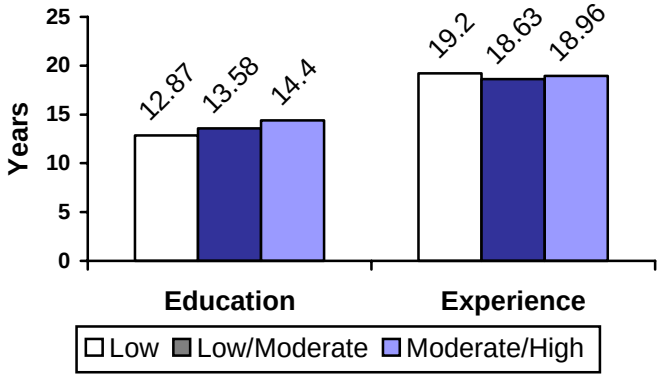


Figure 14: Provider Education and Experience by Income Level Served



Education, Experience and Group Size

We examined the quality of the family child care homes separately for each of the three income groups described above. First, we examined differences by income categories in group size, provider years of education, and provider years of experience. Figure 14 shows the differences in provider's education and years of experience by the different income levels

served.

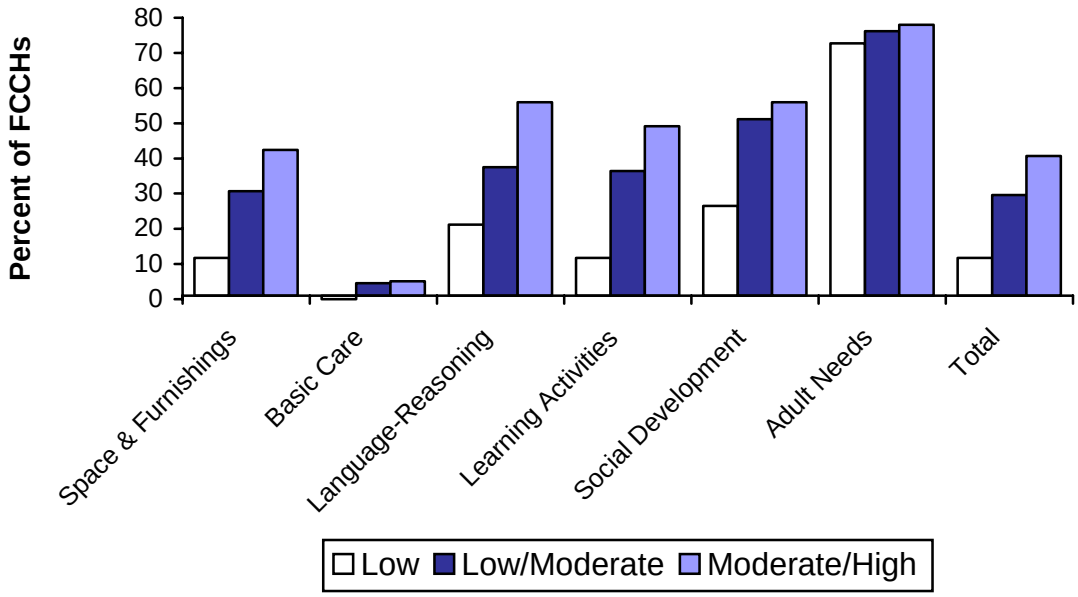
Providers who served low-income families had the least number of years of education, an average of 12.87 years, or just over a high school education. Providers who served moderate/high income families had somewhat more education—an average of 14.4 years, roughly comparable to an Associates degree. Providers serving low/moderate income families fell between the other two groups. However, there is very little difference in providers' years of experience across the three income groups.

There were also only slight differences in the group size of family child care homes across the three income levels served by providers, ranging from a group size of 4.18 children per adult for low-income homes, to 4.82 children per adult for low/moderate income homes, to 4.96 children per adult in homes serving moderate and/or high income families. None of these groups had average group sizes that are larger than what is allowed by child care licensing regulations.

Process Quality

As we saw in an earlier section of this report, provider education is related to the quality of early care and education we observed in these family child care homes. We found significant differences in the quality of homes serving families of different income levels. Family child care homes serving low income children are less likely to meet the Good benchmarks with respect to Space and Furnishings, Language-Reasoning, Learning Activities and Social Development.

Figure 15: Percent of Family Child Care Homes Meeting Good Benchmark, by Income Level Served



The Cost of Early Care and Education in Family Child Care Homes

In this chapter we examine sources of revenue and measures of costs for family child cares home in Massachusetts using data from an interview administered to 202 family child care providers. The sample of providers is representative of the entire state,[4] and the questionnaire provides a rich source of information on hours of operation, parent fees and subsidies, out-of-pocket expenditures, business use of the home, and basic demographic information for the provider and the families served.

Most measures of revenue and costs presented in this section are given on a per child care hour basis. At other times, average annual revenues or costs are used. In all instances, averages are taken over all providers; note, therefore, that the "average cost per child hour" and the "average annual cost" do not differ merely by a constant, but are conceptually different.[5]

Sources of revenue include parent fees, family child care systems,[6] the Child and Adult Care Food Program (CACFP), and subsidies, such as DSS vouchers, Title I, or employer subsidies. Costs include out-of-pocket expenditures and two implicit factors: the wage rate of the family child care provider and the occupancy cost of the provider's own home. A portion of this chapter is devoted to how we compute an "effective wage" for the family child care provider and how we prorate the costs associated with using the family child care provider's home. We also examine revenues and costs by provider characteristics, by region and by income of families served.

Revenues

Family child care providers received an average of $3.76 per child care hour across all revenue sources. Total revenue was quite similar for providers with and without any systems income: $3.85 versus $3.73 per child care hour, respectively. However, the sources of revenue differed for independent providers and providers who were part of family child care systems. For independent providers, without systems income, the total comprised $3.46 from parents, $0.09 from subsidies, and $0.17 from CACFP (See Figure 16).

[4] Family child care homes were sampled according to market share within each region. See Appendix A for more details.

[5] For example, if provider A has annual costs of $40,000 and provides 10,000 child hours of care per year, while provider B has annual costs of $30,000 but provides only 5,000 child hours of care per year, then for these two providers (a) the *average annual cost* is $35,000 (($40,000 + $30,000)/2); (b) *average child hours* provided is 7,500 ((10,000 + 5,000)/2); and (c) the *average cost per child care hour* is $5 ((($40,000/10,000) + (30,000/5,000))/2 = ($4 + $6)/2). Note that (c) does not equal (a)/(b) because the average of a ratio is not the same as the ratio of the averages.

[6] Family child care systems are agencies that collect government funds and parent fees and, in turn, pay the family child care provider directly. Among other reasons, family child care systems are beneficial because providers who are paid through them have a reliable source of revenue and need less time to perform administrative tasks.

For providers with systems income, this total consisted of an estimated $2.06 of systems revenue, $0.75 directly from parents, $0.70 directly from subsidies, and $0.34 from the Child and Adult Care Food Program (CACFP) (See Figure 17).[7] Note that these percentages were averages across all providers.

Figure 16: Revenue Sources, Independent Providers

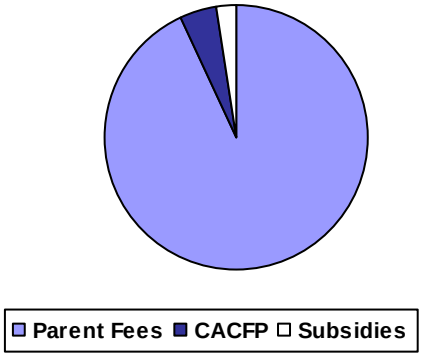
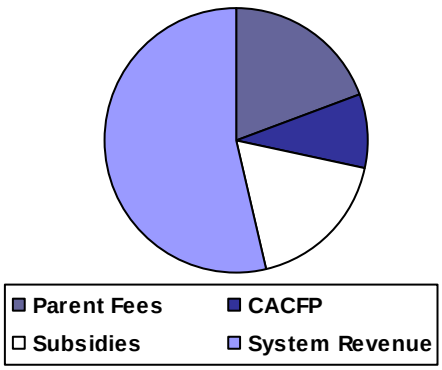


Figure 17: Revenue Sources, System Providers

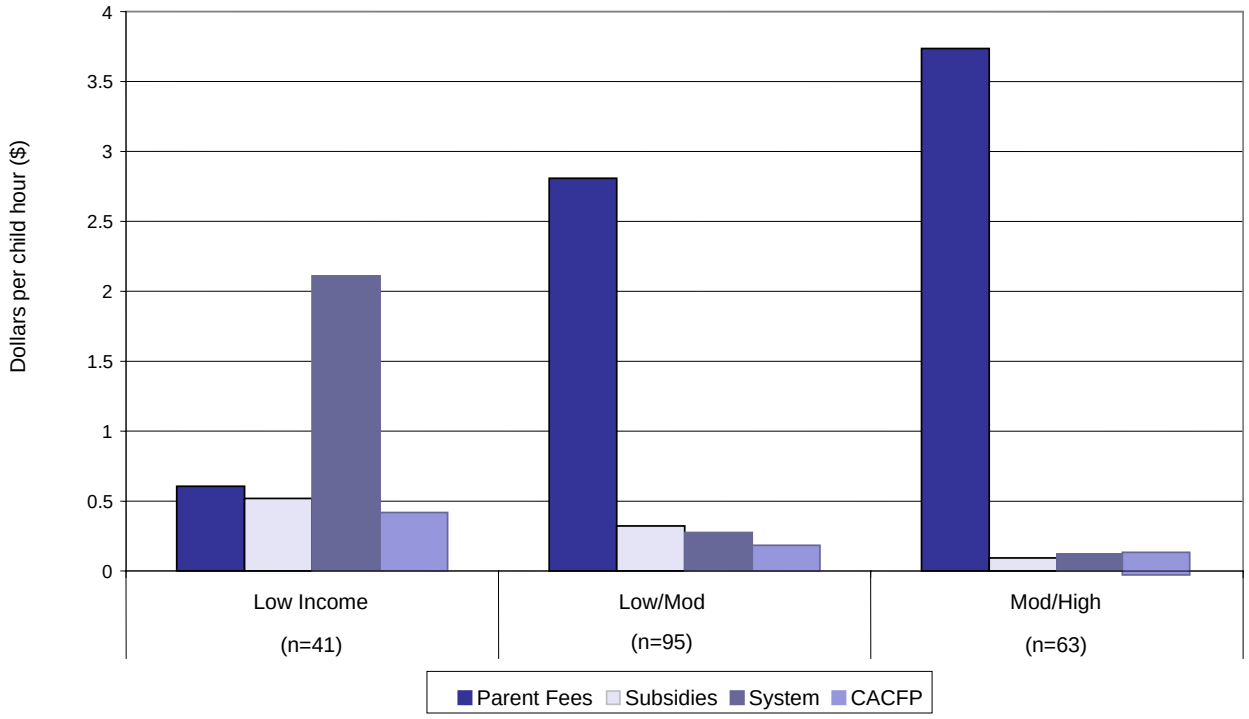


Revenue by Income of Families Served

Total revenue per child care hour is highest among providers who serve higher income families (Figure 18). Providers who served moderate- to high-income families received $4.11 per child care hour, *versus* $3.60 to $3.65 per child care hour for providers serving predominantly low-income and low-to-moderate-income families.
Among providers serving moderate- to high-income families, more than 90% of revenue came from parent fees. Such fees also accounted for much of the revenue (almost 80%) to providers who served low- and moderate-income families. The remaining 20% of their revenue came from subsidies, systems, and CACFP. In sharp contrast, providers who served predominantly low-income families received only 15% of revenues from parent fees. The majority of revenue to these providers (58%) was received through family child care systems. Subsidies and CACFP also accounted for a sizable portion of revenue.

[7] Revenue from family child care systems consists of both subsidies paid to the provider and indirect payments from parents. However, the family child care systems data did not allow us to identify directly the portion of systems revenue associated with parent fees and subsidies. Because systems providers tend to serve lower-income families, we expected that they ultimately derive a greater portion of their revenue from subsidies than do independent providers.

Figure 18: Revenue by Income of Families Served



Revenue by Region of the State

In general, regional variations in revenues reflect other regional differences, such as in household income or the median cost of a family home. Family child care providers in the Metrowest region of Massachusetts had the highest total revenue, nearly $4.50 per child care hour, followed by Boston and the Northeast region of the state which had revenues of $4.22 and $3.83 per child care hour, respectively. Providers in the Central region of the state had the lowest level of revenue per child care hour, $3.26.

Parent fees ranged from 50% to 90% of total revenue across all regions of the state. Among providers in the Metrowest region nearly 90% of revenues, or about $4.00 per child care hour, were from parent fees. Parent fees accounted for a much smaller percentage of provider revenue in every other region of the state, with the next highest level of parent fees being $2.76 per child care hour in the Northeast, about 73% of providers revenue. Providers in the Western region of the Massachusetts collected the lowest level of parent fees, equal to $1.71 per child care hour, or about 50% of total revenue.

Revenue from family child care systems and subsidies varied widely across the state. Family child care systems revenues were highest in metro Boston, accounting for more than one-third of revenues. Subsidies were most common in the Western part of Massachusetts, and accounted for 23% of revenue among these providers. In contrast,

providers in the Central and Metrowest regions of Massachusetts had less than 10% of revenue from family child care systems and less than 5% of revenue from subsidies.

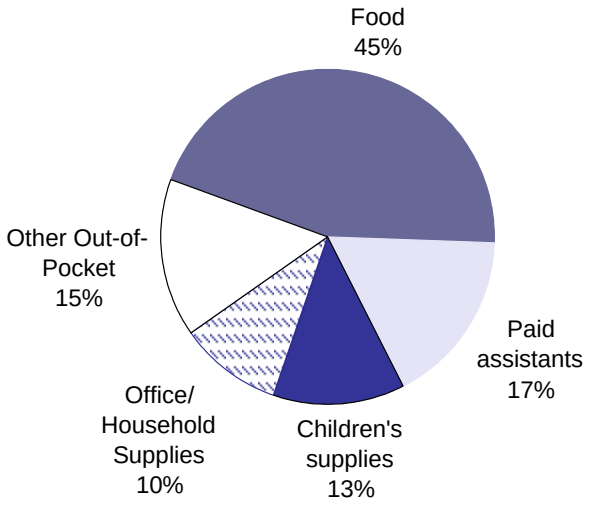
Costs

Just like any other business, family child care incurs occupancy[8] and labor costs, in addition to out-of-pocket expenditures. However, assigning a dollar value to occupancy and labor costs in a family child care home is difficult. The provider does not explicitly pay wages to employees (in most cases) or rent space for the sole purpose of running a business; rather, occupancy costs are those associated with the provider's own home and labor costs are primarily those associated with the provider's own time.

We begin this section by summarizing out-of-pocket expenditures. We then describe our method of measuring occupancy and labor costs for family child care providers. The final subsection combines all three cost components and arrives at an average total cost per child care hour among family child care providers in Massachusetts.

Out-of-pocket expenditures. Out-of-pocket expenditures were about $200 per week, on average, or about $0.90 per child care hour. The bulk of these expenses (45%) were spent on food (Figure 19). The remaining expenses were shared somewhat evenly between paid assistants, children's supplies (e.g., toys, art materials), office and household supplies (e.g., paper towels, copying, postage), transportation, training, organization dues, and other expenses (diapers, start-up equipment (computers, cribs, climbers)[9].

Figure 19: Out-of-Pocket Expenditures



Occupancy costs. We found that the average yearly occupancy costs for family child care providers in Massachusetts were

[8] Occupancy costs include the costs of housing (mortgage, rent) as well as maintenance and repairs, utilities and other related expenses.

[9] Expenses were depreciated in the following way: start-up expenses such as renovations or home improvements for the purposes of providing child care or meeting safety requirements were depreciated with a 20-year recovery period; equipment purchased as start-up expenses such as playpens and high chairs were depreciated with a 10-year recovery period; and equipment purchased in 2000, which combines furniture with computers, were depreciated with a 5-year recovery period. Data on start-up expenses was only available for providers licensed in 1999 or 2000. Lack of data for other providers is not deemed a serious deficiency, however, because depreciated start-up expenses contributed only a small amount ($0.01) to overall expenditures per child care hour.

$8,125 in 2001. This value reflects the cost to the provider of using a portion of the home for the family child care business. Occupancy costs are an accepted component of the costs of doing business. In family child care homes, many providers do not think of their housing costs as part of the cost of doing business, unless they take the tax deduction for business use of their home allowed by the Internal Revenue Service. However, it is important to consider occupancy costs as true costs for several reasons. Providers have often spent cash to improve the space specifically for the family child care business. More importantly, the space used for the family child care business is not available for other purposes – it can't be rented out, and it can't be used for family purposes without considering the family child care use of the space. Finally, if we as a society wish to expand the supply of family child care homes, one of the costs of doing so is the cost of space.

Estimating occupancy costs. Annual occupancy costs are estimated based on the value of the provider's home, the fraction of space that is used for the family child care business, and the fraction of time that the space is used, following the guidelines of the Internal Revenue Service. Each of these components is discussed below.

If the provider is renting the family child care home, the annual cost of the home is equal to what the provider pays in rent, plus repairs and utilities.[10] If the provider owns the home, the annual cost of the home is calculated based on an implicit rental value, estimated to be 12% of the value of the home. This fraction of the home value accounts for interest, taxes, depreciation, and capital gains.[11] The value of the home is based on the provider's assessment of its "fair market value."[12]

All space in the home is characterized as either dedicated space, which is used solely for the family child care business; shared space, which is used both by the provider's family and the family child care business; or private space, which is used exclusively by the provider's family.[13] On average, dedicated space and shared space accounted for 10% and 35% of the provider's home, respectively. More than half of the provider's home was designated as private space, on average, and was not included in the calculation of occupancy cost.

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[10] Fourteen percent of providers in our sample did not own the home in which family child care was provided.

[11] Implicit rent for an owned home can be approximated as $R=(i + T + d – g + e) \times V$, where V is the value of the home, i is the interest rate, T is the tax rate, d is the rate of depreciation and maintenance, g is the rate of expected capital gains, and e is a measure of effort recognizing that management of a home for the purpose of running a family child care business requires some level of entrepreneurship (Mills and Hamilton, *Urban Economics*, 4th ed., 1989). Note that this formula assumes each of these components is proportional to the value of the home.

[12] Fair market value of the home is reported by 152 of 173 home owners. Imputed amounts for home value were used for the 21 providers who did not report a value of the home. The imputed value was based upon the purchase price of the home, the year the home was purchased, the amount of repairs made to the home, if any, and the year(s) in which the repairs were made.

[13] The proportion of the home that is used for child care may be calculated based either on square footage or on the number of rooms. For greater precision we use square footage. Kitchens and bathrooms are excluded as these are deemed to be "common space," and their costs are allocated proportionately.

When calculating occupancy costs, the cost of dedicated space, i.e., rooms that are used exclusively for the child care business, is included in its entirety. The cost of shared space in the home is prorated to exclude the amount of time this space was available to the family, depending on hours of operation.[14] On average, shared space is used for the family child care business about one third of the time.[15] The sum of the dedicated and shared space costs is equal to the total annual occupancy cost.

Labor costs. The average hourly earnings (net of costs) among Massachusetts family child care providers was $7.32, or about $23,000 annually based on a 62-hour work week, the average number of hours worked per week for these family child care providers. Working hours include both hours of operation and other time spent doing shopping, cleaning, laundry, and paperwork.

Estimating providers' earnings. There are many ways to think about the earnings of family child care providers. In this section, we focus on what the provider actually earns as a family child care provider, not on her potential earning power in other occupations. However, even earnings are not straightforward to estimate. Often, providers think of their revenues (gross income) as their earnings; however, providers incur out-of-pocket expenses that reduce their income. In addition, we have argued that it is important to consider occupancy costs as reducing the "profit" a provider makes from her child care business.

We considered all of these factors in choosing to use the providers "effective wage" or "effective earnings" in our report. The provider's "effective wage" is equal to her gross income from providing child care minus the incurred costs of providing the child care, divided by the total hours that she works.[16] The effective wage calculation also accounts for two additional factors: child care for the provider's own children[17] and

[14] If the family child care business were operating for 40 hours per week and the space was available to the family for the remaining hours, we would include as occupancy costs (40 / 168) = 24% of the value of the shared space.

[15] It could be argued that the shared space would not be used by the family during sleeping hours. When we exclude eight sleeping hours per day from the denominator, the time percentage for shared space is increased to 55%. Throughout the chapter we assume the family has access to shared space during all non-business hours (i.e., we include sleeping hours).

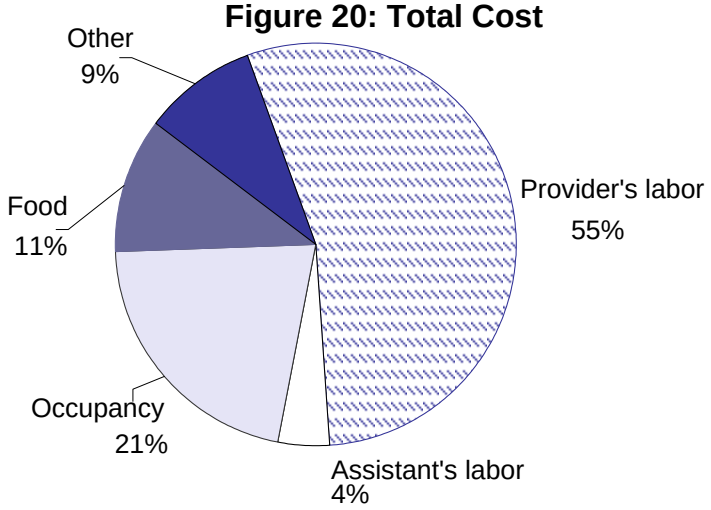
[16] An alternative method of estimating labor costs would be to assign a wage to the provider based on local wage rates in similar occupations. Drawbacks of this method are that it requires a reliable estimate of local wage rates, and an appropriate job classification that matches family child care providers. In addition, using wages from other occupations does not take into account some of the non-pecuniary benefits of being a family child care provider, such as spending time with one's own children or not having to commute to work. Although not ideal, we believe the effective wage is a superior method of measuring labor costs.

[17] For accounting purposes, child care for the provider's own children is included as an implicit cost, since the provider would have had to put the child in care had she taken other employment. It is an *implicit* cost because the provider pays herself. This payment is also counted as revenue, though, along with total revenue from all other children in care. That is, the family child care provider is both paying herself for the care of her own child and including the cost of care as a part of total cost. Although this accounting procedure for the provider's own children constitutes a wash in the effective wage calculation, the inclusion of child care hours associated with the provider's own children impacts the measure of total

sick/vacation days for both the provider and the children in care.[18] By deeming the effective wage (or earnings) to be the best indicator of labor costs, we are assuming in effect that potential child care providers assess the attractiveness of the occupation based on net income per hour worked.

Total Cost. The average total cost per child hour across all providers was $3.78.[19] Labor costs for providers and assistants accounted for more than half (59%) of total costs (Figure 20). The large majority of labor costs were associated with the providers' own labor, as measured by the "effective wage"; labor costs associated with paid assistants accounted for 4% of total cost. Occupancy costs and out-of-pocket expenditures each accounted for about 20% of total cost.

Figure 20: Total Cost



Variations in Costs by Number and Ages of Children in Care. Average total cost per child hour differed by the number and ages of children served (Figure 21). Total costs were higher among providers who cared for at least one infant, compared to those who did not, while no noticeable difference in total costs was seen for providers who cared for school-aged children and those who do not. A J-shaped curve fits the relationship between the number of children cared for by the provider and total cost per child care hour. Total costs per child hour were higher for providers who served six or more children compared to providers who served fewer children. Costs for providers who cared for the fewest number of children (1-3), however, were higher than costs for providers caring for 4-5 children.

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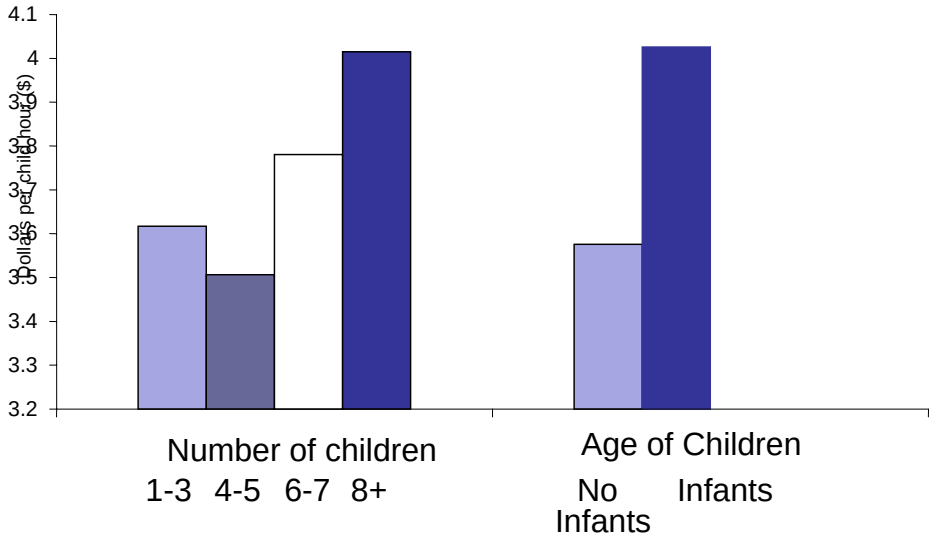
child care hours, and impacts all measures of cost given in terms of child care hours.

[18] Revenues and total hours worked are adjusted to account for the provider's holiday, vacation, and sick time and training. Revenues and total hours are also adjusted in instances where fees are not collected or are only partially collected when a child is out sick or on vacation. Finally, pre-paid child care is counted as revenue when calculating the effective wage, even if it is partly unused, whereas the actual number of hours that the child was in care is counted towards the total number of child care hours when calculating total cost per child care hour.

[19] Total cost per child care hour was computed by taking the effective wage multiplied by total hours of work plus the total of non-labor costs, and dividing this sum by the number of child care hours provided. It is no coincidence that the total cost to the provider is equal to the provider's revenue; total labor costs, calculated via the "effective wage," were equal to revenues minus non-labor cost. The two-cent difference between total revenue and total cost was due to rounding.

Figure 21: Variations in Cost by FCCH Characteristics



Costs by Income of Families Served and by Region. As mentioned above, average yearly occupancy costs were $8,125, or $0.82 per child care hour. Occupancy costs were higher for providers serving higher-income families. This is consistent with the expectation that providers who serve middle- to high- income families are also living in neighborhoods with higher property values. Providers with 75% or more of their children from low-income families had average occupancy costs of about $4,500, compared to providers serving mostly moderate- to high-income families who had average occupancy costs of $11,700.

Given the way in which we calculate effective earnings (revenues minus occupancy and out-of-pocket expenses), providers with lower occupancy costs would be expected to have higher effective earnings (all other things being equal). In fact, this is what we found: effective earnings are higher among providers who both serve low-income families and live in regions with lower property values. Providers with homes that are of higher value are inherently accepting lower earnings because of the high occupancy costs associated with using their highly-valued property for the family child care business and because child care fees in these neighborhoods are not sufficiently higher to cover the difference in occupancy costs. Instead, providers in those neighborhoods accept lower effective earnings than their counterparts. Providers who serve predominantly low-income families have an effective hourly wage of $7.60, while those who serve high-income families have an effective hourly wage of only $5.74. Providers serving low-to-moderate income families have the highest average effective wage, $8.12. [20]

[20] When we consider both the provider's labor and paid assistants' labor in our labor costs, however, we

Expenditures on food and other out-of-pocket expenditures are lowest among providers serving families in the middle income group. This could be due to the fact that providers who serve low-income families receive more revenue in terms of subsidies and family child care systems, compared to those who serve low- and moderate-income families, and because providers who serve moderate- and high-income families have higher levels of revenue overall.

Occupancy costs vary by geographic region, with the highest occupancy costs in the Metrowest region of the state and the lowest occupancy costs in the Western region of the state. Effective earnings in Western Massachusetts and in Boston both exceed $8.00/hour, while earnings in the Northeast are equal to about $6.00/hour. Total labor costs, including both the provider's own labor and paid assistants, are highest in Boston and in the Metrowest region of the state. Interestingly, out-of-pocket and food expenditures are fairly constant across all regions of the state.

Full Costs

Other costs associated with family child care are not borne by the family child care provider, such as costs of administering subsidies, the Child and Adult Care Food Program (CACFP), and family child care systems, and the value of donated equipment. These "social costs," or costs paid by a third party, such as the taxpayer or a charity, should be considered when calculating the full costs of providing family child care.

Almost half (46%) of all family child care providers received donated equipment, toys, or other free materials for the family child care business. Had the providers not received these donations, they would have needed to purchase this equipment and materials to provide the same service; therefore, we consider the value of donations to be part of the full cost of providing family child care. On average, providers received $88 in donated goods in 2000. In terms of costs per child care hour, however, the additional costs to providing family child care associated with donations was negligible.[21]

The CACFP program provides reimbursements to both family child care providers and to sponsoring organizations. Participating family child care providers are subsidized to help pay for meals and snacks and CACFP sponsoring organizations are reimbursed by the federal government for activities, such as training providers in CACFP requirements, determining reimbursement tiers, monitoring compliance, submitting claims, and distributing reimbursements. These CACFP provider and sponsor reimbursements should be counted as part of the full cost of providing family child care. Had the sponsor not covered these costs, the family child care provider may have worked additional hours to enable her to participate in CACFP – as is indeed the case for self-sponsoring child care centers.

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find that the differences in labor expenditures for providers serving lower income families vs. providers serving higher income families is less striking.

[21] Across all providers, the total cost per child care hour was increased by less than one cent when donations were included.

CACFP administrative costs are part of the total cost for child care, separate from the provider's total labor and non-labor costs, since these are costs incurred by the taxpayer.[22] We estimate these costs at $44 per month, the amount that sponsoring organizations are reimbursed,[23] since in equilibrium we would expect costs to be closely related to the level of reimbursement. Including CACFP administrative costs increased costs per child care hour by about four cents.

Similar to CACFP costs, administrative costs associated with family child care systems are also part of the cost of providing family child care. Estimating these costs empirically is difficult, however, and requires assumptions about the administrative costs associated with processing subsidy payments and parent fees and also requires assumptions about the proportion of systems payments to the provider that come from parent fees and from subsidies.[24] Under the assumption that 70% of government subsidy payments to the family child care system are given to family child care providers[25] and assuming that the ratio of parent fees to subsidies is the same for providers in systems compared to those not in systems, family child care systems incur a social cost equal to roughly two cents per child care hour.

Theoretically, it is important to include all costs - including those not borne by the provider - when examining the total cost associated with family child care. While the absolute value of administrative costs is also important, the administrative costs and donations paid by third parties accounted for only a small portion – less than 2% -- of the total cost of family child care.

Summary

After deducting out-of-pocket expenses, and the costs of using their own homes for their business, providers earn an average of $7.32 per hour for their labor. The large majority (70%) of revenue came in the form of parent fees. Other sources of revenue included payments from family child care systems, reimbursement from the CACFP program, and other subsidies.

The total cost of providing family child care matched provider's revenues, a consequence of the way in which occupancy and labor costs are calculated. Occupancy costs are calculated based on the rental value of the home, the fraction of space that is used, and the amount of time the home is used for the family child care business. The provider's own earnings are estimated as the "effective wage" (i.e., total revenues minus occupancy costs and out-of-pocket expenditures).

[22] CACFP participation may also increase other expenses, such as office supplies, and the total number of hours worked, but for simplicity we assume that these effects are negligible.
[23] Federal Register, vol. 66, no. 124, Wednesday, June 27, 2001, notices, p. 34145.
[24] There is also an administrative cost to the State and Federal government associated with providing subsidy dollars to the family child care systems. We assume that this amount is negligible in terms of costs per child care hour.
[25] Based on conversations with a family child care system administrator.

Labor costs accounted for about 60% of total costs, a small fraction of which were associated with paid assistants. Non-labor costs included occupancy costs, which accounted for 20% of the total, and food and other out-of-pocket expenditures, each of which accounted for 10% of total cost.

Revenues and total costs varied substantially by income of families served and by region of the state. Revenues were highest among providers who served moderate- to high-income families, and among providers in Boston and the Metrowest region of the state. Subsidies and payments from family child care systems played a significant role among providers serving low-income families, whereas parent fees were the most dominant source of revenue among other providers.

When considering the full costs of family child care, we examined costs borne by third parties, such as donations or administrative fees associated with subsidies. These costs had only a slight impact on the total cost of family child care.

The Relation between Cost and Quality

This section examines the relation between the quality of care offered in Massachusetts' family child care homes, as measured by the Family Day Care Rating Scale (FDCRS)[26], and the total cost of care. We address two questions:

1. Is there a relation between quality and cost?
2. If there is such a relationship, does it simply reflect the effects of other confounding factors, such as the characteristics of providers or children, or of the market?

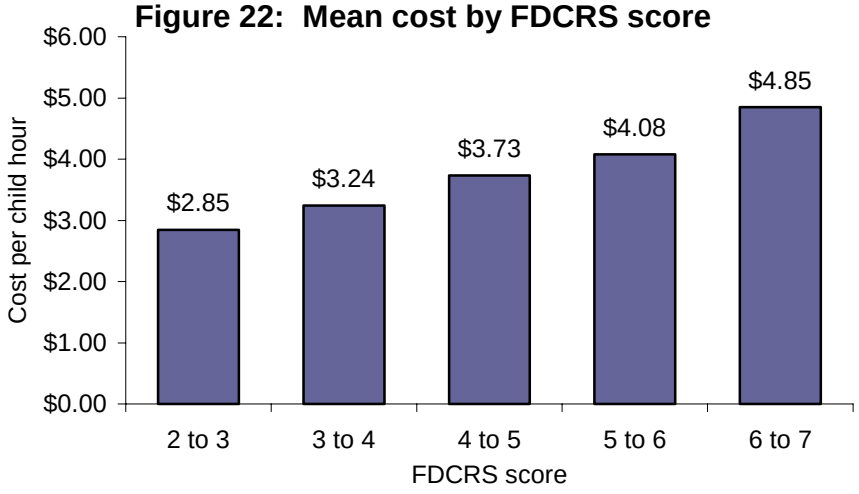
These two questions are addressed by descriptive and multivariate analyses, respectively. We conclude that higher quality care is indeed associated with higher cost, even after taking other factors into account.

Quality and Costs

Total costs per child care hour increased monotonically with FDCRS score (Figure 22). The largest increase in cost across FDCRS scores occurs between the highest and second highest FDCRS category.

This relationship suggests that providers who provide higher quality care have higher revenues. But it does not necessarily follow that families can get higher quality care by paying more. The explanation might be that providers living in high-

Figure 22: Mean cost by FDCRS score



[26] We use the FDCRS as the measure of quality because it provides benchmarks that are easily interpretable in this analysis. The FDCRS is sometimes critiqued as not adequately describing the relationship between the provider and the child. To address this critique, in the first section of this report, we have described the quality of these relationships using the Arnett Global Caregiving Rating Scale, a more comprehensive measure of warmth and sensitivity. In addition, we note that the Global Caregiving Rating Scale is correlated .76 with the total FDCRS measure used in the cost/quality analyses, indicating that the FDCRS does capture much of the variation in quality, including the variation in warmth and sensitivity. We believe that the usefulness of the FDCRS benchmarks, and the correlation of the FDCRS with the Global Caregiving Rating Scale, justify the use of this measure of quality in these cost/quality analyses.

income communities are both the ones who have higher costs (and higher revenues) and the ones who provide the highest quality family child care. If quality of family child care is simply a function of community income, then it would not be feasible to improve the quality of child care in low-income communities. This does not appear to be the case, however, as we see a high degree of variation in FDCRS scores among providers with similar socio-economic characteristics. For example, while the simple correlation between providers' own household income and FDCRS scores is strong, providers' household income statistically explains only 6 percent of the variation in FDCRS scores, which means that some combination of factors other than household income explains 94% of the variation in quality.[27]

Given the apparent complexity of the relationship between FDCRS score and cost, we attempt to gain a better understanding of the cost-quality relationship by applying multivariate regression techniques.

A Multivariate Framework

The cost of providing family child care potentially varies across providers for many reasons other than quality. Multivariate analysis allows us to examine the relationship between cost and quality while controlling for these other factors. The specification used in the analyses below is based on a model presented in Marshall *et al.* (2001).[28] See Appendix A for a detailed description of the ways in which we measured each of the variables in the cost model.

The cost of care is measured on a per child-care hour basis. Because we have defined family child care labor costs as a residual, this cost measure is equivalent to the provider's revenue from all sources, divided by hours of child care provided. We do not distinguish between the *cost* and the *price* of family child care.

The pricing of family child care differs substantially from the pricing of center care. Center care directors must balance total revenues and expenditures from year to year or else they will go out of business. If input prices (rent, wages) are higher they must charge families more in order to cover their costs. Furthermore, we would not expect to see child day care centers that faced the same occupancy costs and prevailing wages to offer equivalent quality care for substantially different fees (and other revenue sources). Yet this situation may well be seen in the family child care market. Because FCC providers have personal relationships with the families they serve, the prices they charge may reflect factors other than costs of production. In addition, family child care providers' income fluctuates to accommodate changes in revenues and costs, which a

[27] These statistics are based on a 14-level categorical measure of providers' annual household income in increments of $5000, with the bottom category of under $10,000 (no observations) and a top category of $70,000 or more (56 observations). The same results are obtained when income is grouped by quartile (under $40,000, $40,000 to $55,000, $55,000 to $70,000, over $70,000).

[28] Nancy L. Marshall, Cindy L. Creps, Nancy R. Burstein, Frederic B. Glantz, Wendy Wagner Robeson, Steve Barnett. 2001. *The Cost and Quality of Full Day, Year-round Early Care and Education in Massachusetts: Preschool Classrooms*. Wellesley Centers for Women and Abt Associates Inc.

center can not do with the wages of staff.

Family child care providers, in contrast to centers, incur only minor out-of-pocket costs. Their own time may not have an attractive alternative use, especially if they have small children of their own (e.g. getting a job outside of the home may not be a desired or practical alternative for many family child care providers). The space they use in their own house certainly does not have an attractive alternative use. We hypothesize that they set their price based mainly on two sets of considerations: what they could earn doing something else, and what they think the families they serve could pay. This suggests that for a given level of quality, family child care providers will charge more if they have more education, and if they are in higher-income neighborhoods. Their age and race/ethnicity may also affect their economic options.

Treatment of education in models of family child care cost is problematic, because this characteristic affects quality of care as well as the provider's "reservation wage"—the minimum amount she would accept to provide child care, as determined by her other opportunities. It is hard to interpret the influence of quality on cost of care holding the provider's education constant, because education is so strongly related to quality. Yet there is also variation in education across providers who achieve the same level of quality, and the better educated providers could command higher wages in other occupations. On the whole, we think the best estimates of the "cost of quality" are those that ignore providers' education. The policy question of interest is how much more does high quality care cost—not how much more does it cost to obtain from providers with a given level of education. Race, ethnicity, and age, on the other hand, are not expected to be related to quality. They are included in the models to capture differences in employment opportunities.

Higher quality care is expected to be more expensive because families are willing to pay more to obtain it. Also, a provider who offers lower-quality care because she serves more children may be willing to accept a lower fee per child.

Operating characteristics might also be expected to affect the price of care per child hour for a given level of quality: hours of operation, overnight operation, scale (number of children served), participation in FCC systems, participation in CACFP, and receipt of child care subsidies.

The income of families served (actually or potentially) is a final factor affecting prices charged by family child care providers. Family incomes vary substantially across the regions of the state, with the northeast and especially the metrowest areas containing higher-income neighborhoods and towns, and the western, central and southeast areas containing lower-income neighborhoods and towns. Boston, the remaining region, clearly contains a mixture. Simply including regional indicators in a model captures a great deal of the variation in family child care markets. A more precise measure can be obtained by including the median income of the actual neighborhood, defined by zip code. Still a third approach is to use information on the income of families served by the individual providers. This last approach is subject to question, however. Within a neighborhood or market, the income of families served may be an effect rather than a

cause of the price charged: lower income families will gravitate to lower-priced providers. On the other hand, the level of quality of care may be affected by the characteristics of families served, because interactions between providers and children go both ways, and providers' behaviors may be influenced at least in part by the behaviors of the children in her care. Furthermore, even within a neighborhood, a provider may charge more for a given level of quality if she serves higher-income families. This argues for including this measure of the incomes of families served, and we have done so in our central estimates.

The explanatory variables that are included in the model are conceptually those that affect the cost of care. The model purposefully excludes provider characteristics such as provider's education and attitudes toward child care. These provider characteristics are associated with *quality* of care, the primary variable of interest in our multivariate model -- and including provider characteristics in the model would mean that we would underestimate the relationship between quality and cost.

The Relation between Cost and Quality

We tested several models of the relation between cost and quality; the models varied in the specific measures of market conditions and neighborhood income that were used. We present here the final model, which included both market measures and provider demographics, as well as the quality of early care and education provided, as measured by the FDCRS score (see Table 12). All five estimated models are reported in Appendix A.

In general, the findings for the relationship between costs and quality confirm what the descriptive statistics above imply.[29] Incremental increases in quality for providers rated as good or excellent imply significant increases in cost, even after controlling for all the factors listed in Table 12. About 27 percent of the variation in cost is explained by these measurable factors. Controlling for region and other market measures, providers with FDCRS scores of "good" (5 to 6) or "good/excellent" (6 to 7) charged rates that were 30 and 40 percent higher, respectively, compared to providers with less than a "minimal" FDCRS score of 3.[30]

[29] A benchmark model which includes only the four quality indicators shows incremental costs of 13 percent, 27 percent, 36 percent, and 53 percent, respectively (for levels of 3 to 4, 4 to 5, 5 to 6, and over 6, relative to less than 3). These differentials are diminished somewhat by the addition of covariates, as shown in the multivariate models.

[30] That the indicators for the lower quality levels are not statistically significant is an artifact of the choice of the excluded group—in this case, providers with scores below 3. If the excluded group had instead been providers with "good/excellent" quality, the same information would have been conveyed, but the indicators for the lowest groups would have been statistically significant—reflecting that cost in these groups is statistically significantly different from the cost of good/excellent quality. Regardless of how the data are presented, however, the point estimates show a *monotonic* relationship between cost and quality, and the estimated differences between any two quality groups that are further apart are greater than between two quality groups that are adjacent.

Table 12: Final Multivariate Model of Log of Cost of Care per Child Hour

Factors	Coefficient Estimates
Intercept	1.0145
FDCRS[31]	
3-4	**0.0735**
4-5	**0.1578**
5-6	**0.2979****
>6	**0.4010****
Service characteristics	
log of operating hours	0.0236
Operate overnight	–0.0850
Number of children in care:	
5-9	0.0805
10-14	-0.0868
15-19	0.0881
Care for infants	0.0718
In FCC system	0.1790^
In CACFP	0.0902
Some children receive subsidies	0.0584
Measures of market	
Log of median neighborhood income	-0.0331
Percent low-income children served	-0.2045
Percent high-income children served[32]	0.1516^
Region of the State:[33]	
Western	-0.0172
Central	-0.0223
Northeast	0.2149*
Metrowest	0.3050**
Southeast	-0.0158
Provider demographics	
Under 30	-0.0655
Over 49[34]	0.1173^
Black	0.0588
Hispanic	-0.1771
Other nonwhite race/ethnicity[35]	0.2925*
Scale	9.7974

^ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

The model also provides a complex picture of the economic context of the relation between quality and costs. The incomes of families served, variations in the economies

[31] "FDCRS scores of less than 3" served as the reference category, to which other FDCRS categories are compared.
[32] "Percent of moderate-income children served" is the income reference category, to which each of these two income variables is compared.
[33] The Boston region is the region reference category to which each of the other five regions is compared.
[34] "Between the ages of 30 and 49" is the age reference category to which these two age variables are compared.
[35] "White" is the reference race/ethnic category, to which the other categories are statistically compared.

in different regions of the state, and variations in income at the neighborhood level are all inter-related. Those living in the Northeast and Metrowest regions of the state had costs that were around 21 and 31 percent higher, respectively, than those residing in Boston. These regional differences in costs reflect regional differences in labor markets and household incomes. When we did not control for neighborhood variations in income or for region (model 3 in Appendix A), we found that providers serving higher income families (over $80,000 per year) received 24 percent more in revenues, and providers serving lower income families received 24 percent less, than those serving moderate-income families.[36] However, once we controlled for these market variables, we found that there was no longer a significant difference between the revenues of providers serving low-income families and the revenues of providers serving moderate-income families. While providers serving higher-income families received 15% more than providers serving moderate-income families, even after controlling for neighborhood variations in income and for region, this is a marginally significant result ($p < .10$).

Systems providers' revenues are, on average, 3.2% higher than independent providers' revenues (see Revenues section, above). When we controlled for quality of care, hours of operation, number of children served, region of the state and neighborhood income (Models 1 and 2 in Appendix A), the difference between system providers and independent providers' revenues was not significant. However, when we added controls for the income of the families served, in the model shown in Table 12, we found that providers participating in FCC systems had revenues that were about 18 percent higher than independent providers, a marginally significant result ($p < .10$).

Interestingly, other service characteristics (hours of operation, number of children in care, infant care) did not have measurable associations with cost, once we controlled for market variables and provider demographics.

Summary

Descriptive results showed a positive relationship between quality, as measured by the FDCRS score, and the cost of providing family child care. These results were confirmed in the multivariate context, suggesting that the relationship between cost and quality was real and that it could not be explained away by confounding factors such as region of the state, operating characteristics, the income of families served, or provider education.

The multivariate models of total cost can be used to estimate how much it would cost to fund (through parent fees, government subsidies and other revenue sources) all family child care providers above some quality threshold. The multivariate models do not tell us what it would cost to improve the quality of existing family child care homes. Rather, the multivariate models tell us, once all providers reach a given level of quality, what it will cost to operate those homes – given the costs of higher quality family child care homes. For example, once all providers are brought up to at least "minimal" quality,

[36] Note: Costs and Revenues are synonymous in these models. We use the term "revenues" here because we believe it makes more sense in the context of this discussion of family income.

how much would it cost to maintain all Massachusetts family child care providers of this quality?

There are two factors to account for when considering how much it would cost to operate all Massachusetts family child care homes at or above a specific level of quality: (1) the incremental cost of providing higher quality in one family child care home and (2) the number of providers who would be affected. We know that 9% of current family child care homes have FDCRS scores below a 3 (Minimum quality). Based on the final model in Table 12, we can estimate how much more it would cost to operate all family child care homes in the state, if these 9% of sub-minimal homes were brought up to the Minimal benchmark. The increase in cost would be negligible (less than 1%) because the incremental cost of a family child care home with an FDCRS score of 3, compared to a home with a FDCRS score of less than 3.0, is 7 percent. But it becomes increasingly expensive to operate family child care homes when we raise our quality threshold from "minimal" to "minimal-to-good" or from "minimal" to "good" because more homes currently fail to meet the threshold. Specifically, we find that it would take a 3.7 percent increase in cost to operate family child care in Massachusetts, if all providers were expected to be at or above the "minimal-to-good" threshold, and it would take a 13.5 percent increase in cost if all providers were expected to achieve the "good" threshold.[37]

These estimates of the additional costs needed to operate family child care homes in Massachusetts if different quality standards are met might not be precise. It may be possible to target factors that support higher quality homes but that are unrelated to cost, or it might be possible to target costs strategically so as to incur lower costs. In addition, the multivariate analysis estimates are based on about 200 family child care homes and have a margin of error associated with them. Equally important, while it is clear that higher quality care costs more, these models do not explain how to improve the quality of family child care homes in Massachusetts, or how much such improvements would cost. However, the first section of this report, on quality, provided clear evidence that providers with more formal education, or with training in early care and education, such as that provided in CDA programs or in college-level courses, tend to provide higher quality family child care than providers without such training or education.

[37] These percentages are computed as follows. In order to operate family child care in Massachusetts if all providers are required to achieve a "Minimal" FDCRS quality score, 9.2 percent of the sample (currently scoring under 3.0) would have a 7.4 percent increase in cost, for an overall increase in cost of 0.7 percent. In order to operate family child care in Massachusetts if all providers are required to achieve a "minimal-to-good" FDCRS score or higher, costs would increase an additional 8.4 percent (the difference between 0.1578 and 0.0735) for 35.1 percent of the sample (currently scoring under 4.0), or 3.0 percent. Summing both increases in cost (i.e., the increase associated with the increase from "inadequate" to "minimal" and the increase from "minimal" to "minimal-to-good") yields an overall cost increase of 3.7 percent. Finally, to operate family child care in Massachusetts if all providers are expected to meet or exceed the "good" quality benchmark would imply an additional cost increase of 14.0 percent for 70.3 percent of the sample (currently scoring under 5.0), or 9.8 percent. So, to operate a family child care in Massachusetts in which all homes met or exceeded the "good" benchmark would be a 13.5 percent increase in costs.

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Appendix A: Methodology and Alternative Cost Models

Sampling Weights

The sample for this study is self-weighting, which means that each observation has a weight of 1. We provide below the rationale for this.

The sample weight applied to each observation is equal to the inverse of the probability of being included in the sample. The probability that a provider would be in included in this study, P, is equal to the probability of selection, times the probability of responses, conditional on selection, i.e.:

$$P = \left[\left(\frac{n_r}{S_r} \right) \left(\frac{n_r^{respond}}{n_r} \right) \right] \qquad (1)$$

where n_r is the number of family child care providers sampled from region r; $n_r^{respond}$ is the number of family child care providers that responded out of those who were selected to participate; and S_r is the total number of family child care providers in region r.

Family child care providers were sampled by region - with replacement - according to market share within each region, so that $n_r = n_r^{respond}$. And since the number of observations sampled from region r is based on market share, $n_r = \left(\frac{S_r}{\sum_r S_r} \right) * N$, where $\sum_r S_r$ represents the total number of family child care providers in the state and $N = \sum_r n_r$, or the total sample size across all regions. Substituting these values into equation (1) yields the following:

$$P = \left[\left(\frac{n_r}{S_r} \right) \left(\frac{n_r^{respond}}{n_r} \right) \right] = \left(\frac{\left(\frac{S_r}{\sum_r S_r} * N \right)}{S_r} \right) \left(\frac{n_r}{n_r} \right) = \frac{N}{\sum_r S_r} \qquad (2)$$

As noted above, the sample weight is the inverse of the probability of being included in the sample. Therefore,

$$\text{weight} = \left(\frac{\sum_r S_r}{N} \right) \qquad (3)$$

Note that this value is equal to some constant. Consequently, weights do not vary by region and the sample is self-weighting.

Observational Measures Used in This Study

Group Size. While interviews can give us information on the group size that a home strives for, observations give us information about actual group sizes. Over the course of the observation, observers counted the number of children and adults present every twenty minutes, for a minimum of six observations. This information is used to calculate an average observed group size for each home.

Family Day Care Rating Scale (FDCRS; Harms & Clifford, 1989). The FDCRS is an adaptation of the Early Childhood Environment Rating Scale (ECERS), designed to be used in family child care settings for children under six years of age. The 32 items cover the following scales: Space and Furnishings for Care and Learning, Basic Care, Language and Reasoning, Learning Activities, Social Development, and Adult Needs. Observers make their ratings based on three to four hours of observation in a FCCH, and the ratings are considered descriptive of the care in that setting for the group of children as a whole. Each observer in the present study conducted reliability visits with at least three other observers. Inter-rater reliabilities for the present study ranged from .43 to .88, with an average reliability of .74.

Global Caregiving Rating Scale (Arnett, 1989). This scale measures caregiver involvement and teaching style with children and is based on the entire observation period. The 26 items are rated on a four-point scale from "not at all characteristic of the caregiver" to "very much characteristic, " and cover four areas -- sensitivity, harshness, detachment, and permissiveness. A total score was constructed from the items. Inter-rater reliabilities for the present study ranged from .61 to .88, with an average reliability of .74.

Explanatory Variables Included in Cost Models

Quality

We measure quality of care by the FDCRS score and enter the FDCRS score as a series of dichotomous variables.[38] This allows for a nonlinear relationship between the FDCRS score and the cost measures.

Service characteristics

The models include the following service characteristics that potentially affect costs.

[38] The FDCRS score categories are as follows: less than three, three to four, four to five, five to six, and six or higher.

Operating hours: Total costs per child hour may be lower for family child care providers that are open longer hours, since fixed costs can be spread out over a longer period of time.

Overnight hours: Costs may be higher for providing care during non-standard hours because of providers' reluctance to care for children at these times. Alternatively, less effort might be required to provide care during nighttime hours and we might see lower costs on a per child hour basis.

Total number of children in care per week: Homes that serve more children may reap returns to scale. For example, the cost of providing care to two children might be less than twice the cost of providing care to one child. Note that this measure refers to the number of children that receive *any* care during the week, not the number that are cared for at any one time.

Care for infants: Infants are more expensive to care for because they require more attention and supervision.

Participates in CACFP: Providers that participate in the food program may have higher total revenue because not all of their revenue needs to come from parent fees – some portion of it comes from the food program.

In FCC system: FCC systems providers may incur additional costs compared to independent providers, or have lower per child hour costs compared to independent providers. FCC systems providers are likely to also receive subsidies – see below.

Child care subsidies: Providers that accept child care subsidies may have lower revenue—either because the subsidy puts a cap on what they may charge, or because they are serving especially poor families. Alternatively, holding constant the types of families served, they may have higher revenue than other providers, because it is not coming out of the parents' pockets but rather fees are paid by a third party.

Income of actual and potential customers (measures of the market)

Income of families served: Providers may be reluctant to charge high fees to low-income families, and may be more comfortable in charging higher fees if their clients are better able to afford them. This aspect is measured by the providers' report on the percent of children they serve whose families are lower income (incomes under $30,000 per year) and higher income (over $80,000 per year). Providers were able to classify 98 percent of the children they served into these broad income categories.

Median neighborhood income: Family child care is highly localized, with providers drawing children from the surrounding neighborhood. The income of potential customers is captured by the median household income in the provider's zip code.

Region: Another broad measure of the market is provided by a set of regional dummies (western, central, northeast, metrowest, southeast), with Boston as the excluded category. These indicators capture not only differences in customers'

income across the state, but also other factors that could affect the price of child care, such as alternate economic opportunities for providers, availability of center care, and proportion of working mothers.

Provider demographics

Provider characteristics that were included are race/ethnicity (black, Hispanic, other nonwhite race/ethnicity), education (high school or less, BA or more) and age (under age 30, over age 49).

Model Estimation

Costs are modeled using a multiplicative functional form:

$$TC_i = \prod_{j=1}^{k} x_{ij}^{b_j}$$

where TC_i refers to provider i's total cost; x_{ij} refers to the value of characteristic j for provider i; and b_j refers to an estimated parameter associated with characteristic j. Continuous measures of provider demographics are entered in log form, so that the corresponding parameters are elasticities. Coefficients for dichotomous measures of provider demographics are interpreted as percentage changes in costs associated with the presence of the characteristic. The dependent variable is cost per child care hour, adjusted for vacation and sick time of the provider and the children in care.

We estimated five model specifications that use different measures of market conditions and provider demographics. The first three models included as market measures only region indicators, only median neighborhood income, and only income of families served, respectively. The fourth model included all three, and is the source of our main estimates. The final model included providers' age and education as well as all three market measures.

In general, the findings for the relationship between costs and quality confirm what the descriptive statistics above imply.[39] Incremental increases in quality for providers rated as good or excellent imply significant increases in cost, even after controlling for output, input prices, and service characteristics (Table 13). An OLS specification of the cost models indicates that about 27 percent of the variation in cost is explained by these measurable factors.

For the most part, coefficient estimates and significance levels were robust across the different specifications of the total cost model. Significant determinants of total cost included the quality of child care, membership in an FCC system, and region. Controlling for region as well as other market measures (Model 4), providers with

[39] A benchmark model which includes only the four quality indicators shows incremental costs of 13 percent, 27 percent, 36 percent, and 53 percent, respectively (for levels of 3 to 4, 4 to 5, 5 to 6, and over 6, relative to less than 3). These differentials are diminished somewhat by the addition of covariates, as shown in the multivariate models.

FDCRS scores of "good" (5 to 6) or "good/excellent" (6 to 7) charged rates that were 30 and 40 percent higher, respectively, compared to providers with less than a "minimal" FDCRS score of 3.[40] Providers participating in FCC systems charged about 18 percent more than other providers. And those living in the Northeast and Metrowest regions of the state charged rates that were around 21 and 31 percent higher, respectively, than those residing in Boston. Controlling for region, providers serving higher income families (over $80,000 per year) charged 15 percent more than those serving moderate-income families. Service characteristics did not have measurable impacts on cost—operating hours, overnight operation, number of children in care, or infant care.

The models provided some evidence that providers tailor their fees to their markets. When the regional dummy variables are included, as in Models 1, 4, and 5, they pick up most of the variation in income of families served. When the regional indicators are excluded, however, the elasticity of price of care with respect to neighborhood income is estimated at 23 percent (Model 2). In an alternative model (Model 3), the parameters suggest that a provider that served all low-income families would charge 24 percent less than a provider that served moderate-income families ($30,000 to $80,000 per year), who in turn would charge 24 percent less than providers who served high-income families. No additional effects on costs were seen for serving subsidized children.

[40] That the indicators for the lower quality levels are not statistically significant is an artifact of the choice of the excluded group—in this case, providers with scores below 3. If the excluded group had instead been providers with "good/excellent" quality, the same information would have been conveyed, but the indicators for the lowest groups would have been statistically significant—reflecting that cost in these groups is statistically significantly different from the cost of good/excellent quality. Regardless of how the data are presented, however, the point estimates show a *monotonic* relationship between cost and quality, and the estimated differences between any two quality groups that are further apart are greater than between two quality groups that are adjacent.

Table 13: Comparing Five Multivariate Models of the Log of the Cost of Care per Child Hour

	Model 1 Regional indicators	*Model 2* Neighborhood income	*Model 3* Income of families served	***Model 4*** **All three market measures**	*Model 5* All three market measures plus provider education
Intercept	0.6857	–1.3141	1.1948	**1.0145**	0.4065
FDCRS					
3-4	**0.0927**	**0.1065**	**0.0804**	**0.0735**	**0.0629**
4-5	**0.1709^**	**0.1728^**	**0.1563**	**0.1578**	**0.1754^**
5-6	**0.3225****	**0.3272****	**0.2956****	**0.2979****	**0.2833****
>6	**0.4786****	**0.4091****	**0.3065***	**0.4010****	**0.3516***
Service characteristics					
log of operating hours	0.0301	–0.0567	–0.0735	**0.0236**	0.0433
Operate overnight	–0.0916	–0.2301	–0.1938	**–0.0850**	-0.0594
Number of children in care:					
5-9	0.0631	0.0167	0.0549	**0.0805**	0.0709
10-14	-0.0956	–0.1566	–0.1102	**-0.0868**	-0.1134
15-19	0.0743	0.1024	0.1453	**0.0881**	0.0615
Care for infants	0.0799	0.0567	0.0503	**0.0718**	0.0765
In FCC system	0.0915	0.1039	0.1898^	**0.1790^**	0.2077*
In CACFP	0.0773	0.0633	0.0585	**0.0902**	0.0940
Some children receive subsidies	0.0356	0.0097	0.0347	**0.0584**	0.0380
Measures of market					
Log of median neighborhood income		0.2301*		**-0.0331**	0.0086
Percent low-income children served			–0.2384^	**-0.2045**	-0.1920
Percent high-income children served			0.2404**	**0.1516^**	0.1237
Region of the State:					
Western	–0.0147			**-0.0172**	0.0841
Central	–0.0110			**-0.0223**	0.0805
Northeast	0.2035*			**0.2149***	0.2460*
Metrowest	0.3294**			**0.3050****	0.3268**
Southeast	–0.0138			**-0.0158**	0.0381
Provider demographics					
Under 30	-0.1044	-0.1086	-0.0664	**-0.0655**	-0.0715
Over 49	0.0920	0.0946	0.1366*	**0.1173^**	0.1132^
Black	0.0312	0.1050	0.0418	**0.0588**	0.1184
Hispanic	-0.2678**	-0.1368	-0.0991	**-0.1771**	-0.1530
Other nonwhite race/ethnicity	0.3079*	0.4308**	0.3369*	**0.2925***	0.2794*
High school or less					0.0500
BA or more					0.1782*
Scale	9.4619	8.5343	8.9342	**9.7974**	10.1421

^ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$