The Cost and Quality of Full Day, Year-round Early Care and Education in Massachusetts: Preschool Classrooms

Executive Summary

Center for Research on Women

a part of The Wellesley Centers for Women

An executive summary of a report on the findings from The Massachusetts Cost and Quality Study
Funded by the Massachusetts Department of Education

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Acknowledgements

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Preface

The message emanating from brain research and research on early care and education programs is clear: quality early experiences have a positive impact on the development of a young child, and contribute to greater school readiness. Providing early educational, emotionally supportive and nurturing experiences are vital in order for children to develop successfully.

There are an estimated 167,000 children in early education and care programs in Massachusetts. The Commonwealth's substantial investment of over $500 million in early childhood education, coupled with the high numbers of children in child care programs, makes understanding the quality of services imperative, both to children's welfare and for planning effective state investments.

In 2000, the Department of Education, Early Learning Services, contracted with Wellesley College Center for Research on Women and Abt Associates to conduct a study of the cost and quality of early care and education in Massachusetts. We are pleased to present the first report from this study, addressing early care and education for preschool-aged children in full-day, year-round centers. Future reports will address early care and education for infants and toddlers in full-day, year-round centers, as well as early care and education in publicly-administered preschool classrooms and in family child care homes.

Summary of Results

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 and three-quarters of school-age children had mothers who were employed outside the home (Kids Count 1998). Early care and education is a vital community resource enabling parents to work (Smith 1998).

Recent research on brain development, coupled with rising concerns about school readiness, has fueled an interest in the ways in which early care and education can support young children's cognitive and language development. The research on early child care clearly indicates that child care can play an important role. Children who attend child care centers that offer high quality care, particularly more language stimulation, show more advanced cognitive and language development (Burchinal, Roberts, Riggins et al, 2000; NICHD ECCRN 2000).

The early years are also crucial years for the development of social skills – the ability to make friends, to get along well with others, to cooperate in group activities, to understand others' perspectives – skills that are necessary to the development of self-esteem and social relationships, and to later school success. Research has found that higher quality child care is associated with young children's social and emotional development (c.f., Lamb 1998). The quality and stability of children's relationships with their child care providers appears to be particularly important to children's social and emotional development (c.f., Howes & Hamilton 1992, 1993; Howes, Matheson & Hamilton 1994).

"…high-quality care is associated with outcomes that all parents want to see in their children, ranging from cooperation with adults to the ability to initiate and sustain positive exchanges with peers, to early competence in math and reading."

The cumulative evidence of the research on the relationship between early child care and children's development is clear; for children in child care, the quality of that care is consistently associated with children's development. As the National Research Council notes (2000, pg. 313), "…high-quality care is associated with outcomes that all parents want to see in their children, ranging from cooperation with adults to the ability to initiate and sustain positive exchanges with peers, to early competence in math and reading."

It is in this context that the Massachusetts Cost and Quality Study began. The Study was designed to address four broad research questions:

- What is the quality of early care and education services in Massachusetts?
- What are the costs of early care and education services?
- What is the relationship between quality and costs? Does it cost more to provide higher quality care?
- What is the relationship between the family income of children served and the quality of care provided by early care and education programs?

This report presents the findings from the ***first phase*** of the Massachusetts Cost and Quality Study, which examined the research questions in ***community-based centers serving preschool-aged children*** (2.9 years to 5 years). The report is based on data from 90 preschool classrooms, randomly selected from the licensing lists, and located in centers around the state. Each classroom was observed by trained observers; center directors were interviewed by trained interviewers. The Appendix provides more information about the study methods.

This study was designed to provide an accurate, up-to-date picture of the cost and quality of early care and education services for preschoolers in centers providing full-time care. This study was ***not*** designed to evaluate the effectiveness of specific regulations, subsidies or other policies. Answers to these and other questions would require a different study design than that used to provide this snapshot of early care and education for preschoolers in Massachusetts. The overall findings of this first phase of the Massachusetts Cost and Quality Study can be summarized in a few points.

❖ Fulltime early care and education for preschoolers in Massachusetts is comparable to or better than similar preschool care in other states.

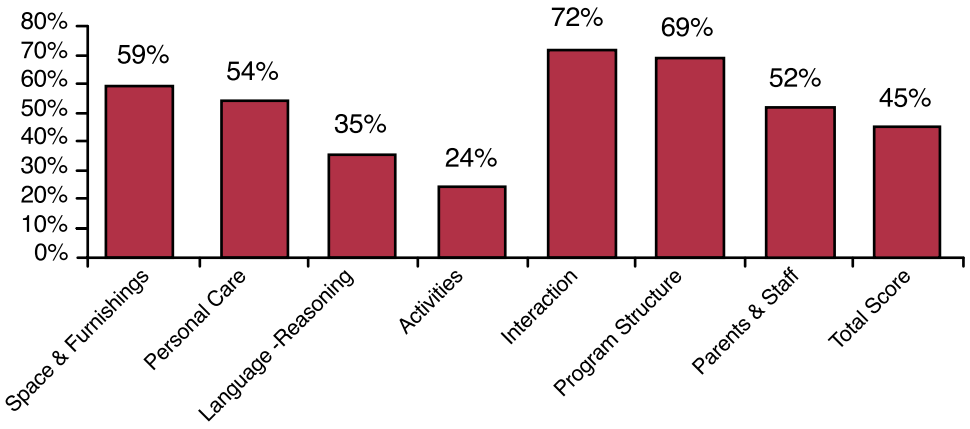
The average rating for the Massachusetts' preschool classrooms in our study was 4.94 on the Early Childhood Environment Rating Scale - Revised (ECERS-R), compared to average scores ranging from 3.82 to 4.49 on the ECERS for the four states in the Cost, Quality and Child Outcomes Study (Helburn 1995). The Early Childhood Environment Rating Scale is a commonly used observational measure that provides benchmarks for different levels of quality. These benchmarks are labeled 1 = inadequate care, 3 = minimally adequate care, 5 = good care and 7 = excellent care. On average, Massachusetts preschool classrooms received a score of 4.94, approaching the "good care" benchmark, and comparable to the average ratings of preschool classrooms in other states. Massachusetts' performance, compared to other states, may reflect the state's relatively strict regulations governing licensed early child care centers, as well as other state initiatives to improve the quality of early care, including Community Partnerships for Children.

❖ Massachusetts' preschool classrooms vary considerably in the quality of care and education that they provide.

More than half of the observed classrooms did not meet the ECERS-R benchmark for Good care (see Figure 1). Children in these classrooms are receiving care that falls below the standards set for developmentally-appropriate care, and, while they may be in care that meets minimal standards, many opportunities to enhance children's development are being missed. Many children are in care for 8 to 10 hours a day, and this care could be an ideal opportunity to enrich their lives.

Massachusetts classrooms also varied in their performance in specific areas of practice, reflected in the subscale scores of the ECERS-R. Massachusetts classrooms are doing well in some areas, and less well in others. For example, more than two-thirds of the classrooms met or exceeded the Good benchmark on the Program Structure scale of the ECERS-R; the majority of Massachusetts' preschool classrooms appear to be doing a good job of providing a varied and flexible structure to the day. However, more than two-thirds of classrooms were rated as less than Good quality on Language-Reasoning and on Activities. These classrooms do not provide the rich language

Figure 1: Percent of Classrooms Meeting Good Benchmark on ECERS-R Scales

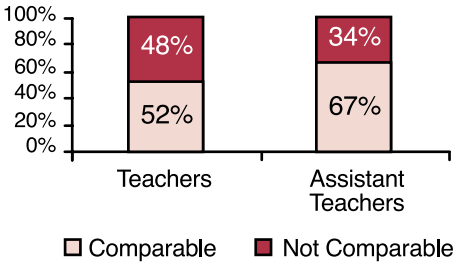


environment that research has found is essential to children's language and cognitive development, and that is related to later school success. In addition, these classrooms did not provide the variety of activities that would give children the opportunity to explore and learn about their environment.

- **Centers with lower child:staff ratios, better-educated teachers, and that make greater use of teachers, rather than assistant teachers for staffing provide higher quality care in their preschool classrooms.**

We found that classrooms with lower child:staff ratios (fewer children per staff member) received higher total ratings on the ECERS-R. Classrooms in centers with better-educated teaching staff were rated as providing more developmentally-appropriate stimulation, and better staff-child relationships. Finally, classrooms that were staffed with more hours of care provided by teachers, rather than by less-qualified assistant teachers, had staff who were more sensitive to children and more engaged in their activities.

Figure 2: Comparability of New Hires



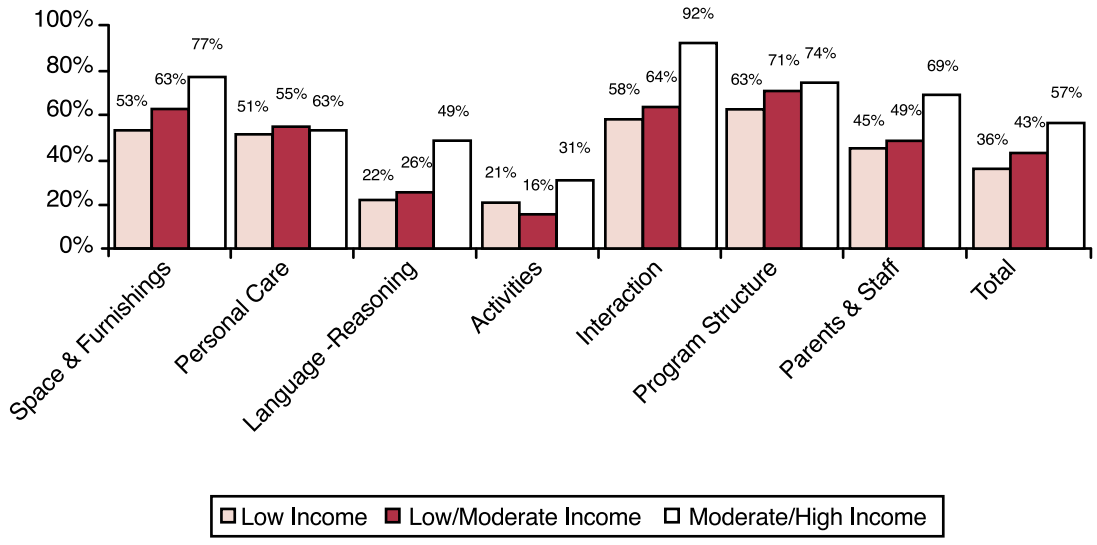
While qualified teachers are clearly an important part of quality early care and education, center directors reported that it was difficult to hire, and retain, qualified teachers. On average, center directors reported that 26% of their teaching staff had left in the past year. Some of the teaching staff went to other centers or preschool classrooms, but about 40% left the field of early care and education. Overall, about 10% of all the teaching staff in the centers in this random sample left the field entirely, in the past year. Center directors also reported that it took more than one month to hire a replacement for 58% of their most recent teacher vacancies. In addition, 48% of newly-hired teachers were less qualified than their predecessors (Figure 2).

❖ Low- and moderate-income families are less likely to have access to quality preschool care and education.

A central issue surrounding quality child care is whether lower-income children attend centers of comparable quality to those that serve children from higher-income families. Specifically, we were interested in whether centers serving children from families with different income levels differed in the quality of early care and education they provided. We categorized centers into three income groups. Low-income centers were defined as those in which directors reported that at least 75% of the children come from families with incomes below $30,000 per year. Low/moderate income centers 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). Moderate/high income centers are those in which at least 50% of 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.

We found considerable variations in staffing across these three groups of centers. Centers serving low-income and low/moderate-income families were more likely to be staffed with a greater proportion of classroom time from assistant teachers, rather than teachers, compared to centers serving higher income families. Conversely, centers serving moderate/high income families made greater use of teachers, rather than assistant teachers. We found variations in the education levels of staff that are consistent with this staffing pattern. Only 10% of classroom staff at centers serving predominantly low-income families had a two-year college degree or more, compared to 28% of staff at centers serving low/moderate income families, and 61% of classroom staff at centers serving moderate-to-high income families. These variations in staffing are reflected in variations in observed quality of early care and education in their preschool classrooms.

Figure 3: Percent of Classrooms Meeting Good Benchmark, by Income Group Served



We found that centers that serve predominantly low- or low/moderate income families were rated as poorer quality than centers that serve predominantly moderate/high income families. Overall, 57% of moderate/high income centers provide care that meets the Good benchmark, compared to only 36% of low-income centers and 43% of low/moderate income centers (Figure 3). Centers serving predominantly low-income or low/moderate income families had poorer quality space and furnishings, poorer supports for parents and staff, and offered the children poorer quality language-reasoning activities plus poorer quality staff-child and child-child interactions.

It has been suggested by some that we do not all have to drive a Cadillac, or attend "the best" center. However, the activities and staff behaviors that are necessary to meet the Good benchmarks on the Language-Reasoning and Interactions scales are precisely those behaviors that have been shown to be linked to better child outcomes. Children attending centers that serve predominantly low-income or low/moderate families are less likely to receive the level of early care and education that will prepare them for school and later life.

❖ Labor is the single largest component of child care center costs, and labor costs are strongly associated with the observed quality of early care and education.

Labor expenditures made up 72% of the average center budget. Higher labor costs were found to be strongly related to higher levels of quality. We found that labor costs were 16% higher for centers providing preschool care and education in the 4.5 to 5.49 range on the ECERS-R scale, compared to labor costs for centers rated as providing care rated lower than 4.5, after controlling for number of children served, input prices, and center characteristics such as for-profit status. Labor costs were 40% higher for centers providing preschool care and education rated 5.5 or higher on the ECERS-R, compared to labor costs for centers providing care rated lower than 4.5. A rating of 5 on the ECERS-R is necessary to meet the benchmark for good quality early care and education.

❖ Higher quality early care and education costs significantly more than lower quality care and education.

Higher labor costs were somewhat off-set by lower non-labor costs at a given center. As a result, combined total costs for centers in the 4.5 to 5.49 range were only 9% higher than total costs for centers rated below 4.5 on the ECERS-R, a difference that is not statistically significant. However, the total costs for care rated 5.5 or higher were an estimated 27% higher than for care rated below 4.5, even when centers off-set higher labor costs with lower non-labor costs.

Conclusion

What are the key factors that are related to better quality early care and education for preschoolers? We found that centers with better child:staff ratios, better educated teachers, and more classroom hours from teachers rather than from assistant teachers, provided better quality care overall, including more developmentally-appropriate stimulation, and better relationships between classroom staff and children. In addition, we found that centers serving different income groups varied considerably in both the education levels of their teachers, the extent to which they used teachers rather than assistant teachers in the classroom, and the quality of care they provided. While qualified teachers are clearly an important part of quality early care and education, center directors reported that it was difficult to hire and retain qualified teachers.

We also found evidence to support the belief that higher quality care and education costs more than poorer quality care and education. These findings, alone, do not provide a prescription for policy and practice. We cannot necessarily infer that lower-quality centers can achieve higher levels of quality by spending more. There may be other unmeasured characteristics of centers that contribute to quality, such as directors' training and experience.

Furthermore, these models do not address how additional funds should be spent. Reasonably, additional funds should be spent on those factors that will improve quality. This study may suggest what those factors are, but it can not guarantee success. Other factors may well operate. Future research should examine centers at various levels of quality and see how they differ in their operations — and whether the ensuing differences in quality are "things money can buy". Evaluation research is also needed to determine whether, in fact, policies that target additional funds to specific areas do increase observed quality of early care and education in preschool classrooms.

Nonetheless, these data present compelling evidence that higher quality early care and education is associated with greater costs. And indeed, it would be surprising if this were not the case. Many improvements in quality may be attainable nearly for free, by putting certain "best practices" into place. In order to reach the highest levels of quality early care and education for all centers, however, centers must be able to spend real resources if they are to increase the quality of their staff. We found that lower child:staff ratios, higher levels of classroom staff education, and the greater use of teachers rather than assistant teachers, all of which are likely to increase labor costs, were associated with better quality early care and education. Yet directors report that they are not able to retain their teachers, and are unable to hire replacements of comparable skill, in the current market. We hope that this report will contribute to a fruitful discussion of the cost and quality of preschool care and education in Massachusetts, and to efforts to extend its benefits to all children.

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Appendix: *Study Design and Methods*

This executive summary is based on a full report, which presents the findings from the ***first phase*** of the Massachusetts Cost and Quality Study. This first phase examined the research questions in ***community-based centers serving preschool-aged children*** (2.9 years to 5 years). This study was designed to provide an accurate, up-to-date picture of the cost and quality of early care and education services for preschoolers. This study was ***not*** designed to evaluate the effectiveness of specific regulations, subsidies or other policies. Answers to these and other questions would require a different study design than that used to provide this snapshot of early care and education for preschoolers in Massachusetts.

Study Design. We drew a random sample of 90 community-based centers serving preschoolers on a full-day, full-year basis. The centers were randomly sampled from the Office for Child Care Services (OCCS) licensing lists for the six OCCS regions. Head Start programs were not included in the sample because other on-going studies were addressing the specific needs of this program model.

Centers were drawn from across the state, in direct proportion to each region's market share of the state's center-based, early care and education market. Sixty-five percent of the selected centers agreed to participate in the study. This is comparable to, or better than, the response rates from the original Cost, Quality and Child Outcomes Study, which ranged from 41% in North Carolina and 44% in California, to 68% in Colorado and Connecticut.

Each center's likelihood of being selected into the sample was proportional to their share of the market. That is, their likelihood reflected the number of children they served, relative to the number of children served by other centers in their OCCS region. In our descriptive analyses, the data from each center were weighted to reflect their market share. In addition, all data have been weighted to adjust for sampling probability, ineligibility for the study, and non-response, to produce descriptive statistics representative of the entire state. This report includes data from centers from all regions of the state, from not-for-profit and for-profit centers, and serving a variety of children and their families.

To measure the quality of care, a single preschool-aged classroom was chosen in each of the licensed centers in our sample. Specially-trained data collectors observed classrooms for three to four hours. Observers rated classrooms on the Early Childhood Environment Rating Scale – Revised Edition (ECERS-R; Harms, Clifford & Cryer 1998), as well as on other measures. At the conclusion of the observation, data collectors interviewed providers to gather information on their education and training. Center directors or owners were interviewed separately, by another research team member, about general center characteristics, enrollment, staffing, revenues and expenditures. Cost analyses are based on the 84 of the 90 centers that provided complete financial information.

Measuring Quality. The main measure of quality used in this study was the Early Childhood Environment Rating Scale - Revised Edition (ECERS-R; Harms, Clifford, & Cryer 1998). The ECERS-R provides benchmarks for key quality indicators, including Language-Reasoning, Activities, and Interactions. The ECERS-R is a recent revision of the ECERS, which was the first in a series of rating scales developed by Drs. Harms, Clifford and Cryer for use both by practitioners and by

researchers. The ECERS has been widely used for a number of years, and has become one of the standards in the field, offering useful benchmarks for practitioners, researchers and policymakers. The ECERS has good predictive validity, with studies showing that ECERS scores are related to children's development (c.f., Peisner-Feinberg & Burchinal 1997; Whitebook, Howes, & Phillips 1990). The ECERS was used in the original Cost, Quality and Outcomes Study (Helburn 1995), on which this Massachusetts study is modeled. By using the ECERS, the picture we develop of early care and education in Massachusetts is directly comparable to that in other states.

The ECERS-R is a 43-item scale designed to be used in center-based care for children aged two to six years. The ECERS-R is organized into seven scales: Space and Furnishings, Personal Care Routines, Language-Reasoning, Activities, Interaction, Program Structure, and Parents and Staff. Each scale has additional subscales, with multiple items that must be passed to receive a given score. Each subscale is scored on a seven-point scale, with benchmarks established for 1 = "Inadequate", 3 = "Minimal", 5 = "Good", and 7 = "Excellent". Programs that pass some of the items that are part of the benchmark for a "3", but not all of them, are scored a "2" on that subscale. Similarly, programs that fall between "Minimal" and "Good" are scored a "4", and programs that fall between "Good" and "Excellent" are scored a "6".

The ECERS-R ratings were based on observations by trained observers. As a measure of the inter-rater reliability of the observations, we calculated the proportion of the items on which a pair of observers, observing the same classroom, agreed exactly on the ratings. On average (across all possible pairs of observers), a pair of observers agreed exactly on 67% of the ECERS-R items; on average, a pair of observers agreed within one point on the seven-point scale on 84% of the ECERS-R items. More detailed information on the ECERS-R, and the other observational measures used, is provided in the full report of this study.

Cost/Quality Analyses. Following Helburn (1995), we modeled the relationship between center costs and classroom quality in a multivariate framework. Expenses incurred for operating a center during a year, like the cost of operating any business, are assumed to be determined by output, input prices, quality, and type of establishment. *Output* is measured as the number of child hours of early care and education provided per year at the center. *Input prices* include market wages, rent per square foot, and the local unemployment rate. *Quality* is measured by the ECERS-R or the Process Quality Index, depending on the model.

Separate models were estimated for labor costs, non-labor costs, and both combined. While the main implications are drawn from the combined model, it is illuminating to see which components of costs are most affected by various factorsæe.g. that quality has a significant impact on labor but not on non-labor costs. Caution must be exercised in interpreting the component models, however, because centers may trade off one type of expenditure for another.

The models were estimated using the SAS GENMOD procedure, assuming a log link function and a gamma error distribution. This is conceptually equivalent to regressing the log of costs on the log of the various explanatory variables, but is preferred because it gives econometrically consistent results. It can be shown that if the underlying model is multiplicative, directly regressing the log of the dependent variable on the log of the explanatory variables yields inconsistent parameter estimates that confound the impacts with differences in the variances. More information about the cost analyses can be found in the full report.