

The Massachusetts 2006 Market Rate Survey

By

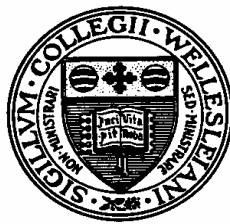
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Finally and most importantly, we would like to thank all of the Massachusetts child care providers that participated in the study. The study would not have been possible without their gracious cooperation and the time they took to participate in the study. Thank you all.

Executive Summary

The 2006 Massachusetts Market Rate Survey was carried out for two reasons.

First, the Survey will be used by the Massachusetts Department of Early Education and Care (EEC) to review its present subsidy rate structure and make funding and reimbursement rate recommendations to the Board of Early Education and Care and the State Legislature. Second, the Survey is required by Federal law (the Child Care and Development Fund) and regulations (45 Code of Federal Regulations Parts 98 & 99) to ensure that the price that the Commonwealth pays for subsidized child care (i.e., reimbursement rates) allows low-income children with child care subsidies to have access to early education and care that is equal to that of more economically advantaged children.

The Survey

The survey was designed to provide accurate estimates of market prices for early education and care throughout Massachusetts for all types of licensed care (Family Child Care, Group Child Care and School Age Care) and for different age children (infants, toddlers, preschoolers and school-age). EEC in consultation with the researchers decided that a sample of three thousand six hundred providers would be sufficient to provide accurate estimates of market prices.

The researchers allocated the 3600 providers across regions of the state (six Department of Early Education and Care Regions, see Figure 1), types of care and ages of children in care in such a way as to approximately equalize the accuracy with which all prices were estimated. This resulted in a sample size that ranged from 46 providers of center-based infant child care in the Western Region of the State (Region 1) to 500 family child care providers in Boston (Region 6). The sample for center-based infant

child care in the Western Region of the State included all providers licensed to care for infants in the Western Region.

Massachusetts providers were overwhelmingly willing to participate in the survey. The response rate for the survey ranged from 76% for family child care providers to 88% for child care centers. Only 5% of centers and school-age providers refused to participate in the survey and only 11% of family child care providers refused to participate in the study.

Results

The Massachusetts Department of Early Education and Care mainly subsidizes full-time care for children under five and after-school care for children who attend school. In this Executive Summary, we highlight prices for these types of care. We present results for the most representative price (i.e., the median price) for each type of care as well as the price at the 75th percentile. The body of the report contains prices for other types of care (e.g., vacation care for school-age children) and for part-time care.

Table 1 contains current reimbursement rates, estimated medians and 75th percentiles of daily prices for full-time care (care for six or more hours per day, five days per week for group care) of infants, toddlers and preschoolers in centers for each Early Education and Care Region. (See Figure 1 for a definition of EEC Regions.) Table 2 contains current reimbursement rates, medians and 75th percentiles of daily prices for after-school care of school-age children at school-age centers, and Table 3 contains current reimbursement rates, median and 75th percentile of daily prices for the full-time (six or more hours per day, four or five days a week) care of children under 2 years and children over 2 years in family child care homes. The confidence intervals for these

percentiles indicate that the medians and 75th percentile are estimated with considerable accuracy. (See full report for the confidence intervals.)

As can be seen in Table 1, the median price of care is highest for full-time care of infants in Greater Boston (Region 4) and the median price of care is lowest for after-school care in Western Massachusetts (Region 1). In general, our results indicate that prices are higher in the eastern part of the state than the western part of the state.

Infant, Toddler, and Preschool Care in Centers

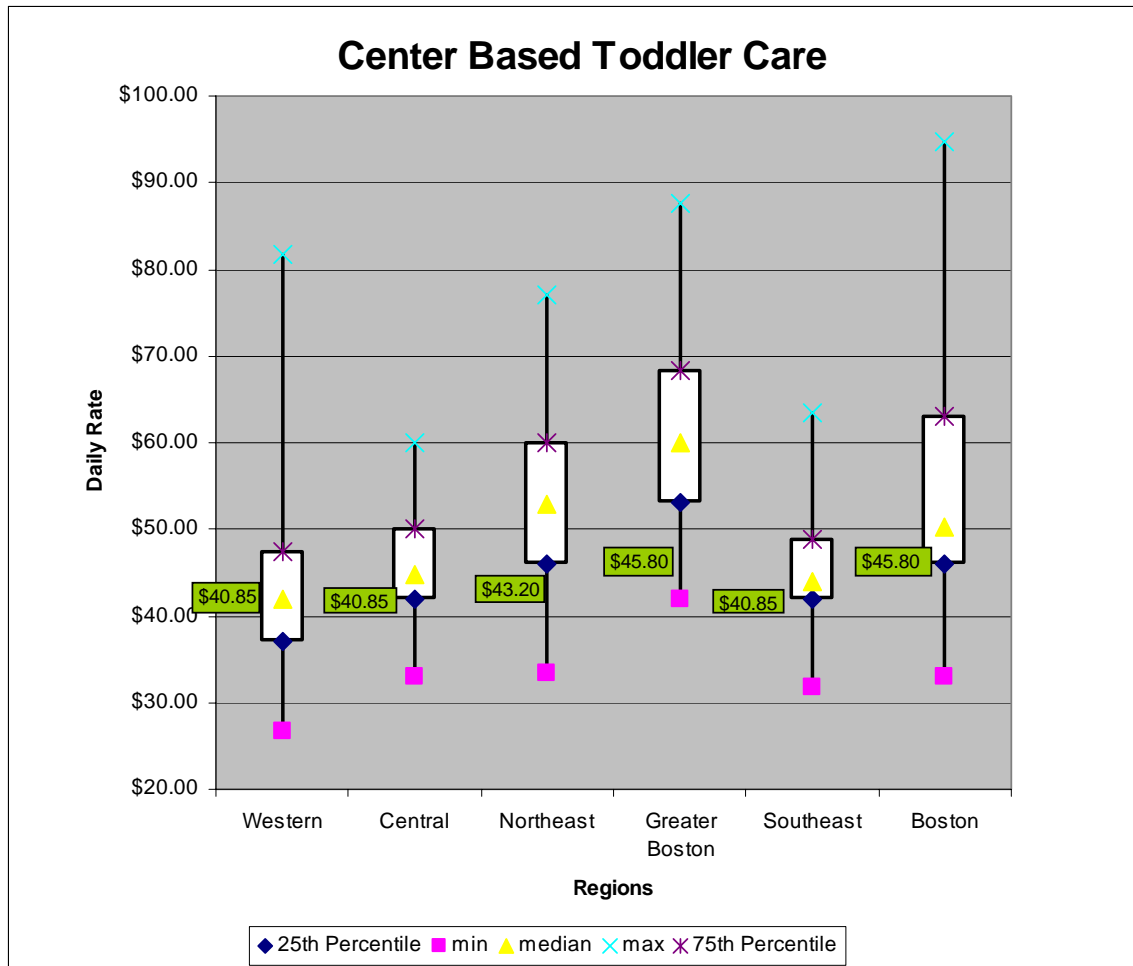
Median, Full-Time, Daily Prices for Group Center Care

Prices for full-time, center care for children aged birth to school age are consistently highest in Greater Boston (Boston Suburbs) and consistently lowest in Western Massachusetts. For example, the median price for full-time, center care for preschoolers is \$50 per day in Greater Boston (Region 4) and the median price for full-time, center care for preschoolers is \$33 per day in Western Massachusetts.

How Do Full-Time, Daily Prices for Center Care of Children Birth to School Age Vary within Regions of the State?

Prices for full-time center-based child care vary most in Boston. For example, 25% of the centers surveyed in Boston charge \$46 per day or less for toddler care (care for children from 15 months to 33 months) and 25% of providers charge \$63 per day or more. Fifty percent of the prices for toddler care in Boston are between \$46 and \$63 per day, a range of \$17. The following chart illustrates the variation of prices in each EEC region. The white box displays the range of prices for the middle half of the prices in the region, prices between the 25th and the 75th percentiles. The median price (50th percentile) is indicated by the triangle in the box. In general, a shorter box indicates that providers' prices are clustered in a smaller range and a taller box indicates greater

variation in regional prices. The current EEC regional reimbursement rates are displayed in the shaded green boxes.



* The shaded box indicates the current reimbursement level for each region.

Prices for full-time center care for children under five vary least in the Central Region of the state (Region 2) and in the southeastern part of the state (Region 5). For example, 25% of the centers surveyed in Region 2 charge \$42 per day or less for toddler care and 25% of providers charge \$50 per day or more. Fifty percent of the

prices for toddler care in Region 2 are between \$42 and \$50 per day, a range of only \$8.

How Have Full-Time, Daily Prices for Center Care of Infants, Toddlers and Preschoolers Changed since 2003?

Comparing market prices reported in the 2003 Massachusetts market rate survey with prices from the current survey, we find that median, full-time prices for center care for children under five increased in all regions and for all ages (infants through preschoolers) between 2003 and 2006.¹ Center prices for infant and toddler care increased most rapidly in Northeastern Massachusetts (Region 3). Prices for infant care increased by 17% in Region 3 while toddler prices increased by 20% between 2003 and 2006. Center preschool prices increased most rapidly in Central Massachusetts (Region 2) and also increased rapidly in Region 3. Prices for center based preschool care increased by 23% in Region 2 and by 22% in Region 3 between 2003 and 2006.

Median full-time prices for group center care increased least rapidly in Boston (Region 6). To be more specific, center prices for infant care in Boston increased by only 5%, center prices for toddler care by 9% and center prices for the care of preschoolers by only 4% between 2003 and 2006.

In most areas of the state for most types of care, the increase in prices between 2003 and 2006 exceeded the increase in median state income and the increase in the consumer price index (CPI-U All Items). Between 2003 and 2006, median state income

¹ The methodology used in the 2003 Market Rate Survey was different from the methodology used in the 2006 Survey. Hence, the difference in prices between the 2003 Survey and the 2006 Survey can reflect differences in methodology as well as differences in prices

increased by 6%. Between April 2003 and April 2006, the consumer price index increased by 9.63%; that is, inflation of 9.63% occurred.

How Do Current Market Prices Compare to EEC Reimbursement Rates for Infants, Toddlers and Preschoolers?

Massachusetts' reimbursement rates are considerably lower than the median market rates for all types of care in all Regions except for infant care in the Western Region. They are often below the 25th percentile of market rates, that is, three fourths of the centers in our samples charge higher prices for private-paying children than the reimbursement rate. For example, for Region 3 (Northeastern Massachusetts), the reimbursement rate for infants is \$47.95 per day, compared to our median rate of \$60.80 or 25th percentile rate of \$53.65. For Region 3, toddlers, the reimbursement rate of \$43.20 is less than our median rate of \$52.80 or 25th percentile rate of \$46.00; and for preschoolers, \$33.70 is less than \$42.20 or \$38.00. Similar results hold for the other regions of the state.

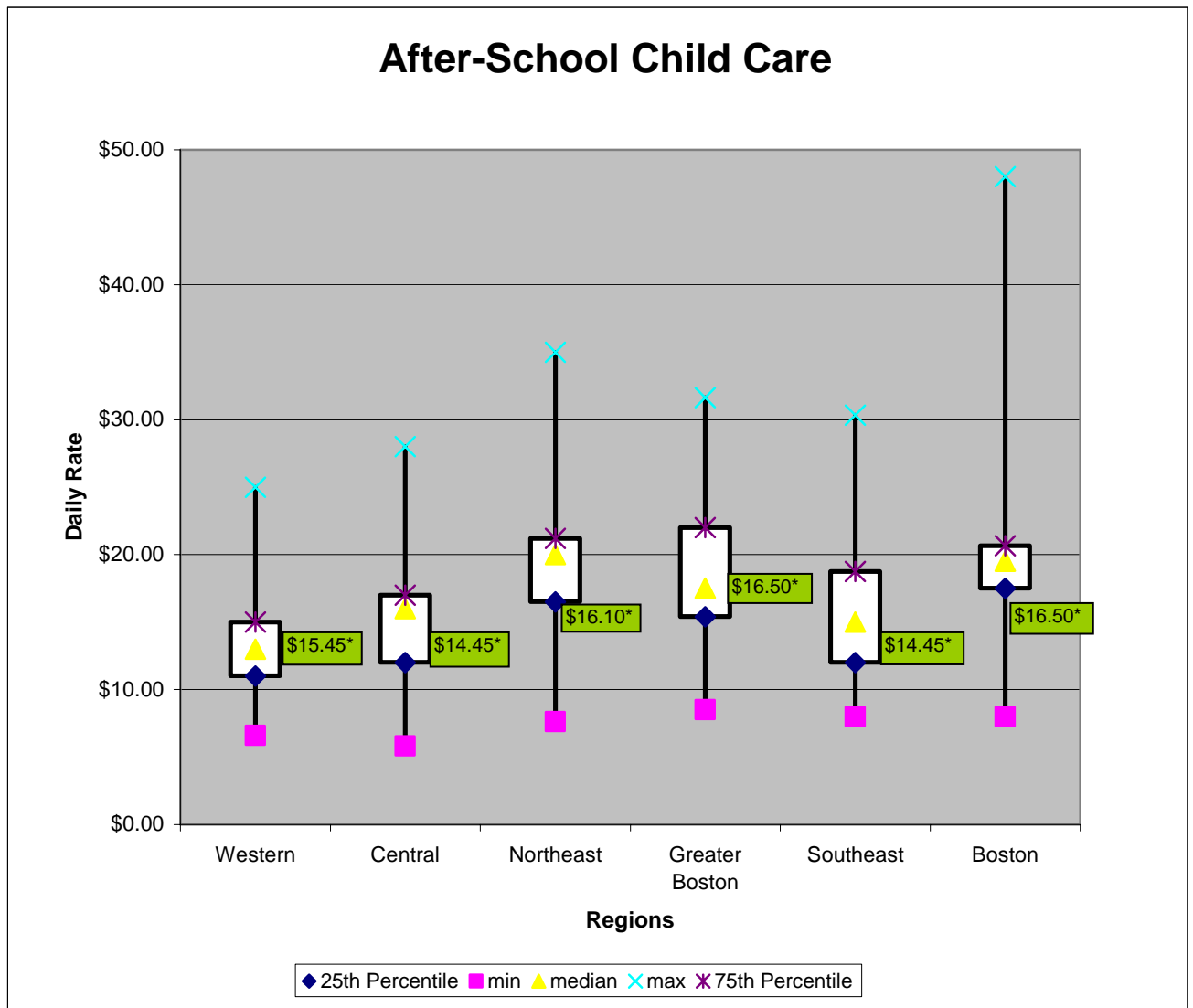
After-School Care

Median, Daily Prices for After School Care

As can be seen in Table 2, the median price of after-school care is consistently highest in Northeastern Massachusetts (Region 3 which includes Lawrence and Lowell) and in Boston (Region 6) and lowest in Western Massachusetts (Region 1). To be more specific, the median price of after-school care is \$20 per day in Northeastern Massachusetts and downtown Boston and \$13 per day in Western Massachusetts.

How Do After-School Prices Vary within Regions of the State?

Prices for after-school care vary most in the Southeastern Massachusetts, the Cape and Islands (Region 5). For example, 25% of the centers surveyed in Region 5 charge \$12 per day or less for after-school care and 25% of providers charge \$18.75 per day or more. Fifty percent of the prices for after-school care in Region 5 are between \$12 and \$18.75 per day, a range of \$6.75.



* The shaded box indicates the current reimbursement level for each region.

Typical prices for after-school care vary least in Boston (Region 6). For example, 25% of the centers surveyed in Boston charge \$17.50 per day or less for after-school

care and 25% of providers charge \$20.65 per day or more. Fifty percent of the prices for after-school care in Boston are between \$17.50 and \$20.65, a range of only \$3.15. However as can be seen in the figure above, there are some unusually high prices in the Boston area.

How Have Prices for Center-based After School Care Changed since 2003?

Comparing market prices reported in the 2003 Massachusetts market rate survey with prices from the current survey, we find that median prices for after-school care increased in all regions except Western Massachusetts (Region 1) between 2003 and 2006. Prices for after-school care increased most rapidly in Southeastern Massachusetts, the Cape and Islands (Region 5). To be more specific, the median price for after-school care increased by 25% in Region 5 between 2003 and 2006. Prices for after-school care declined by 4% in Western Massachusetts between 2003 and 2006.

How Do Current Market Prices Compare to EEC Reimbursement Rates for After-School Child Care?

For Regions 1, 2 and 5, the reimbursement rate of \$14.45 is similar to the median market prices of \$13.00, \$16.00 and \$15.00 for the three regions. For Region 3, the reimbursement rate of \$16.10 is less than the median market price of \$20.00, and in fact is less than the 25th percentile price of \$16.49. For Regions 4 and 6, the reimbursement rate of \$16.50 is less than the median market prices of \$17.51 and \$19.50 for the two regions, and less than the 25th percentile of market prices for Region 6 (\$17.50).

Family Child Care

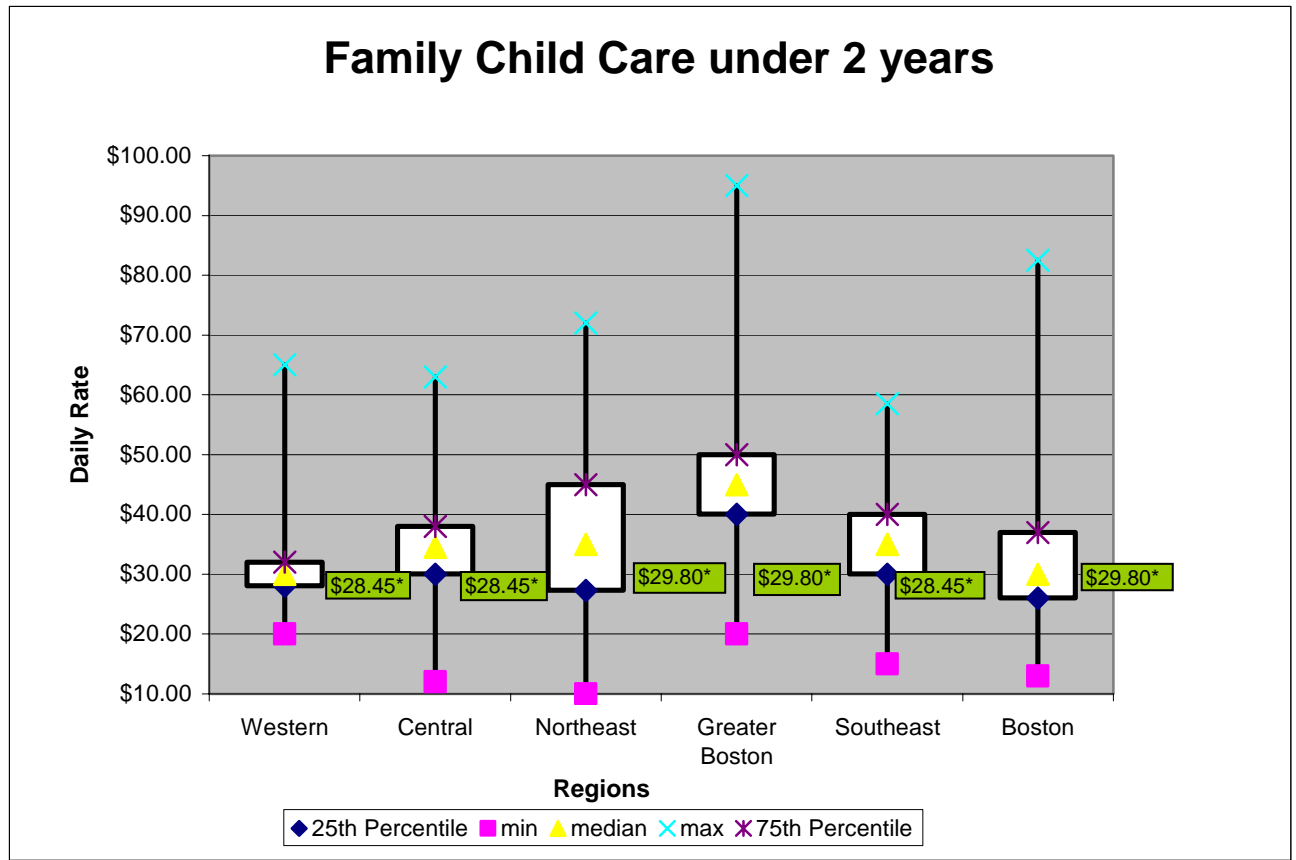
Median, Full-Time, Daily Prices for Family Child Care

As can be seen in Table 3, the median price of full-time care for younger children (children less than 2 years old) in family child care is not very different from the median price of full-time care for older children (children 2 years of age or older). For example, the median price of family child care for younger children is exactly the same as the median price of family child care for older children in Southeastern Massachusetts, the Cape and the Islands (Region 5), \$35 per day.

The median price for full-time, family care is consistently highest in the suburbs of Boston and consistently lowest in Western Massachusetts and downtown Boston (Region 6). The median price for full-time, family child care for older children is \$45 per day in the suburbs of Boston and the median price for full-time care for older children is \$30 per day in downtown Boston.

How Do Full-Time, Daily Prices for Family Child Care Vary within Regions of the State?

Typical prices for full-time family child care vary most for children less than 2 years of age in Northeastern Massachusetts (Region 3). For example, 25% of the family child care providers surveyed in Region 3 charge \$27.30 per day or less to care for children less than 2 and 25% of providers charge \$45 or more. Fifty percent of the prices of family child care for children less than 2 in Region 3 are between \$27.30 per day and \$45 per day, a range of \$17.70. There are some unusually high prices in both downtown Boston and Greater Boston.



* The shaded box indicates the current reimbursement level for each region.

Prices for full-time family child care vary least for children less than 2 years of age in Western Massachusetts (Region 1). For example, 25% of the family child care providers surveyed in Region 1 charge \$28 per day or less to care for children less than 2 and 25% of providers charge \$32 per day or more. Fifty percent of the prices for family child care are between \$28 per day and \$32 per day, a range of only \$4.

How Have Full-Time, Daily Prices for Family Child Care Changed since 2003?

Comparing market prices reported in the 2003 Massachusetts market rate survey with prices from the current survey, we find that median, full-time prices for family child care increased in all regions and for all ages (children less than 2 and children age 2 and above) except for the care of children less than 2 in Northeastern Massachusetts (Region 3). Family child care prices increased most rapidly for children 2 and older in

Boston (Region 6) and for children less than 2 in Western Massachusetts. Prices for children 2 and older increased by 20% in Boston and prices for the care of children less than 2 increased by 18% in Western Massachusetts.

Median full-time prices for family child care for children below 2 increased least rapidly in Northeastern Massachusetts (Region 3) and prices for the care of children 2 and over increased least rapidly in Southeastern Massachusetts, the Cape and the Islands (Region 5). Median, daily family child care prices for children less than 2 in Region 3 declined by 2% and median, daily family child care prices for the care of children 2 and over increased by only 12% in Region 4 between 2003 and 2006.

How Do Current Market Prices Compare to EEC Reimbursement Rates for Family Child Care

The reimbursement rates are considerably lower than the median market rates for non-systems providers of family child care though not as far below median as for group providers. For example, for Region 3 (Northeastern Massachusetts), the reimbursement rate for a non-system provider for children under two years of age is \$29.80, which is less than our median price of \$35.00, and is about equal to the 30th percentile of our price distribution, which is \$30.00. For Region 3, children of age two or greater, compare the reimbursement rate of \$26.35 to our median rate of \$35.00, or our 25th percentile of \$26.00. Similar differences hold for other regions, except that for Region 4 (suburbs of Boston) they are larger. For example, for Region 4, children of age less than two, compare the reimbursement rate of \$29.80 to our median rate of \$45.00, or our 25th percentile of \$40.00; for children of age two or more, compare \$26.35 to \$45.00 or \$37.00.

Conclusions and Possible Explanations for Market Prices

Market prices of early education and child care, like market prices of all other goods and services, are determined by both supply and demand factors. On the demand side, income is a major determinant of prices. On the supply side, the cost and availability of labor is a major determinant of prices. In this section, we suggest some possible explanations for the pattern of market prices found in this study. These observations rely on economic theory and empirical work on markets.

Income Level and Market Prices

Economic theory tells us that higher income results in increased demand for all normal goods and services. Likewise, less economically advantaged families, due to their lower incomes, would be expected to choose lower priced goods and services than their wealthier neighbors. In the early education and child care market, all else equal, higher income areas would have greater demand and higher prices than lower income areas. Market prices for early education and child care generally confirm these predictions. For example, higher family incomes in the Boston metropolitan areas and the lower incomes in the Western part of the state are the likely explanation for the differences in prices -- across all types of care -- between the eastern and western parts of the Commonwealth.

Economic theory also predicts that areas with more disperse income distributions are likely to have greater price dispersion than areas with less disperse income distribution. For example, the high dispersion of prices for group care in Boston and the relatively much lower dispersion of typical prices for family child care and school-age care in Boston are likely a result of the dispersion of income for typical families purchasing these types of care in Boston. Families purchasing early education and child

care in Boston are a mix of local residents and commuters. Low income families in Boston may use subsidies to pay for care, use relative care or struggle to pay for care without subsidies. Both EEC's reimbursement rates and the price that unsubsidized low-income families can pay for care are low. However, commuters from higher income suburbs who place their children in care in the Boston area are able to pay higher prices. Hence, we see some very low and very high prices in the Boston area.

Market Prices and the Early Education and Child Care Workforce

The market prices for early education and child care that we report are impacted both by income, as described above, and the level of wages and availability of child care workers. Economic theory indicates that the change in market prices for early education and child care between 2003 and 2006 reflect changes in these factors. The incomes of highly skilled workers have increased very rapidly over the last two decades. At the same time, the incomes of low-income workers have stagnated. This would lead us to expect larger increases in prices in high income areas and much lower increases in low-income areas. However, the affect of higher incomes on price is sometimes tempered by other factors such as the availability and cost of early education and child care teachers.

Early education and child care prices in this study are a reflection of the economic reality that demand for and availability of services drive the price of services. In most cases, the market is working as we would expect with higher income families having and being able to afford higher priced goods – in this case early education and child care – and lower income families able to only afford, even with subsidy from the state, lower priced goods. Sorting out the relative importance of income, labor costs and other factors affecting market prices for early education and child care, and even more importantly

the relationship between the *price* and *quality* of early education and child care is a complex task. *The Provider Cost Survey*, now in progress, will examine these complexities in more detail to determine what types of assistance, supports and potential market interventions will maximize EEC's investment on behalf of children in need of services.

FIGURE 1

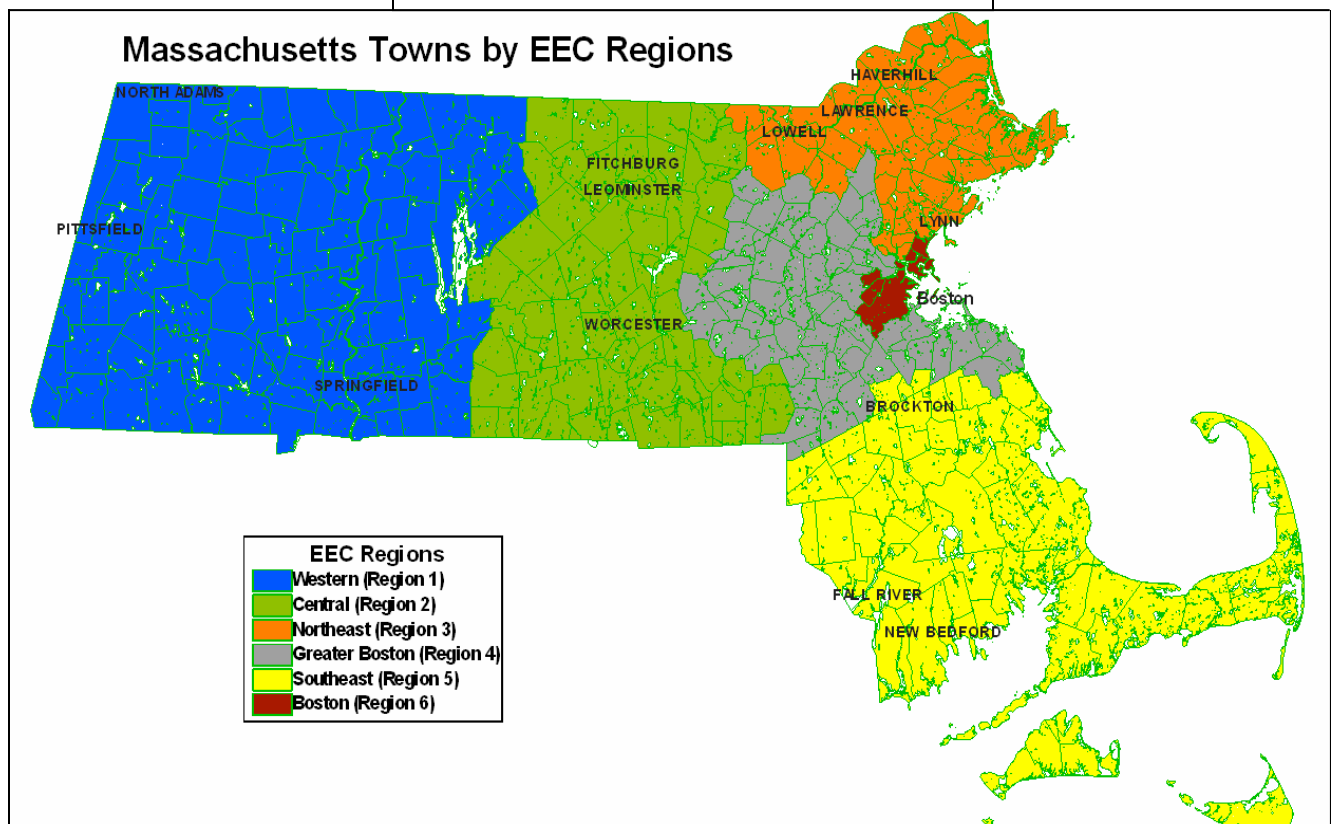


Table 1
Massachusetts—2006 Market Rate Survey

GROUP CHILD CARE CENTERS

Full Time Group Centers - Current Rates, Median and 75%ile of Prices

Region	Type	Current Rate	Median	75%ile
Western (Region 1)	INF	\$45.30	\$45.00	\$52.50
	TOD	\$40.85	\$42.03	\$47.50
	PS	\$31.60	\$33.00	\$38.60
Central (Region 2)	INF	\$45.30	\$49.00	\$55.00
	TOD	\$40.85	\$44.80	\$50.00
	PS	\$31.60	\$37.00	\$40.88
Northeast (Region 3)	INF	\$47.95	\$60.80	\$66.83
	TOD	\$43.20	\$52.80	\$60.10
	PS	\$33.70	\$42.20	\$48.80
Greater Boston (Region 4)	INF	\$51.60	\$66.60	\$75.25
	TOD	\$45.80	\$60.06	\$68.40
	PS	\$34.75	\$49.70	\$57.14
Southeast (Region 5)	INF	\$45.30	\$49.00	\$54.50
	TOD	\$40.85	\$44.00	\$48.81
	PS	\$31.60	\$37.00	\$41.85
Boston (Region 6)	INF	\$51.60	\$60.00	\$78.28
	TOD	\$45.80	\$50.25	\$63.03
	PS	\$34.75	\$36.00	\$46.70

Table 2
Massachusetts—2006 Market Rate Survey

School Age Centers

After School Care - Current Rates, Median and 75%ile of Prices

Region	Current Rate	Median	75%ile
Western (Region1)	\$14.45	\$13.00	\$15.00
Central (Region 2)	\$14.45	\$16.00	\$17.00
Northeast (Region 3)	\$16.10	\$20.00	\$21.20
Greater Boston (Region 4)	\$16.50	\$17.51	\$22.00
Southeast (Region 5)	\$14.45	\$15.00	\$18.75
Boston (Region 6)	\$16.50	\$19.50	\$20.65

Table 3
Massachusetts—2006 Market Rate Survey

FAMILY CHILD CARE

Full Time Family Child Care (< 2 Years)
Current Rates, Median and 75%ile of Prices

Region	Current Rate	Median	75%ile
Western (Region 1)	\$28.45	\$30.00	\$33.00
Central (Region 2)	\$28.45	\$34.50	\$38.56
Northeast (Region 3)	\$29.80	\$35.00	\$45.00
Greater Boston (Region 4)	\$29.80	\$45.00	\$50.00
Southeast (Region 5)	\$28.45	\$35.00	\$40.00
Boston (Region 6)	\$29.80	\$30.00	\$37.00

Full Time Family Child Care (\geq 2 Years)
Current Rates, Median and 75%ile of Prices

Region	Current Rate	Median	75%ile
Western (Region 1)	\$25.00	\$29.00	\$32.00
Central (Region 2)	\$25.00	\$32.00	\$38.00
Northeast (Region 3)	\$26.35	\$35.00	\$40.00
Greater Boston (Region 4)	\$26.35	\$45.00	\$50.00
Southeast (Region 5)	\$25.00	\$35.00	\$40.00
Boston (Region 6)	\$26.35	\$30.00	\$36.00

Introduction

The 2006 Massachusetts Market Rate Survey was carried out for two reasons. First, the Survey will be used by the Massachusetts Department of Early Education and Care (EEC) to review its present subsidy rate structure and make funding and reimbursement rate recommendations to the Board of Early Education and Care and the State Legislature. Second, the Survey is required by Federal law (the Child Care and Development Fund) and regulations (45 Code of Federal Regulations Parts 98 & 99) to ensure that the price that the Commonwealth pays for subsidized child care (i.e., reimbursement rates) allows low-income children with child care subsidies to have access to child care that is equal to that of more economically advantaged children.

The EEC contracted with a research team, headed by Ann D. Witte, to design the 2006 Market Rate Survey and to carry out the analyses of the market prices collected by the Survey and with the Massachusetts Child Care Resource & Referral Network, Inc. to carry out the surveys of providers. Work on the 2006 Market Rate Survey began in late January, 2006. Providers were interviewed between March 29, 2006 and May 24, 2006. This final report was delivered to EEC in July, 2006.

The outline of the report follows. The next section describes the way in which the Market Rate survey was carried out. This section includes discussions of the way in

which providers were selected for the Survey, the questionnaires used in the Survey and the way in which the interviews were carried out. The section that follows describes interview outcomes and the way in which the Survey data were analyzed. This section also includes reports on response rates and refusal for the Survey. Section 3 of the report presents the findings of the Survey and the final section briefly summarizes the results of the Survey. A second document contains five Appendices. The Appendix 1 contains a technical discussion of the way in which the sample was designed. The Appendix 2 contains copies of the announcement letters and work sheets that the EEC mailed to providers selected to participate in the Survey. The two appendices that follow provide detailed results for the Survey. Appendix 3 provides response rates, refusal rates, participation rates and yield rates for the interviews and Appendix 4 contains complete results for the Survey. The final appendix contains copies of the questionnaires used in the Survey.

How the Survey Was Carried Out

In this section, we begin by describing the way in which providers were selected for the Survey. We next describe the sampling frame used for the Survey and the way in which providers were selected for the Survey from this sampling frame. The sections that follow describe the questionnaires used for the surveys, the way in which the questionnaires were pilot tested, the training of interviewers for the survey, the materials mailed to providers prior to the beginning of interviews and the way in which the interviews were carried out.

The Sampling Plan

The research team developed a statistically valid stratified random sample of the provider population to determine the child care prices charged in Massachusetts. The

Sampling Plan was designed by the researchers in conjunction with EEC. The design called for 3600 providers in the sample, which is approximately 40% of the licensed providers in Massachusetts.

The sampling plan targeted all licensed child-care programs in the state. The sample was segmented by geographical region (6 EOHHS Regions—See Executive Summary Figure 1), by type of care (centers, school age and family child care), and by age of child for centers (infants, toddlers and preschoolers) and for family child care (children less than 2 and children 2 and older).

The researchers designed the sample to equalize the accuracy with which the percentiles of market prices is estimated for each type of care in each of the six EOHHS Regions of the state. This required that a different number of providers and a different fraction of providers be selected for each market segment (region, type of care, and age category). We will refer to these market segments as “cells.”

There were 36 cells in the sample design. There were 30 cells defined by the six Regions and five types of care (infant care in centers, toddler care in centers, preschooler care in centers, care for children less than 2 in family child care homes, and care for children two and older in family child care). In addition, there were six cells for school-age care, one cell for each of the six EOHHS Regions.

The 3600 total observations were allocated to the 36 cells in such a way as to approximately equalize the accuracy of the estimated prices (the sampling variance) for each of the cells. This allocation was based on the expected variance of price in each cell, the expected response rate in each cell, and on the number of providers in each cell. See Appendix 1 for a more detailed and technical description of the sampling plan.

Sample sizes were larger for cells for which the variability of price was higher, the expected response rate was lower, and the size of the cell was larger.

The largest number of observations allocated to a cell was 500 (family child care in Region 6). The smallest number was 46 (center care for infants in Region 1). In some cases (center care for infants in Regions 1, 2 and 3, 4 and 6; center care for toddlers in Regions 1, 2, 4 and 6; center care for preschoolers in Region 6; and school age care in Regions 2 and 5) the researchers selected all available providers for the sample. The smallest number of observations allocated to a cell in which not all providers were selected was 60 (school age care in Region 1).

The sample was selected in such a way as to approximately equalize the sampling variance for full time care. (The project also collected and analyzed prices for part time care, and for other types of care including holiday, snow day and vacation day care, but the allocation of observations cannot simultaneously equalize the sampling variance for all of these.) The sample included 2026 family child-care programs, 954 center programs, and 620 school-age programs.

The Sampling Frame and Selection of Providers

The sampling frame for the Survey was the EEC's licensing list of February 2006. The licensing lists were comprehensive and up-to-date and allowed all licensed providers in the state to have the opportunity to be selected for the interviews. The total size of the sampling frame was 9,119 licensed providers, including 6,666 family child-care providers, 1726 centers and 727 school-age programs.

Exclusions: The planning team determined that certain categories of providers should be excluded from the sampling frame since they either did not provide services to the general public or they provided services for a niche in the child care market.

The excluded provider categories are listed below.

- ☐ drop in care
- ☐ emergency back-up care
- ☐ employer-supported programs that only served their own employees' children
- ☐ recreation programs
- ☐ providers offering only part-week care
- ☐ programs serving special unique populations such as children of teen parents
- ☐ sick child care
- ☐ Early Intervention Programs
- ☐ non-licensed programs
- ☐ relative care

Providers remaining in the sampling frame were sorted by region and type of care provided to create a list of providers for each cell. To create a stratified random sample, a separate random sample was selected for each of the 36 cells in the sample. Some providers have children in more than one age category. When such providers were interviewed, they were asked to provide prices for all age categories that they served. For additional details see Appendix 1.

After selecting the providers for the sample, the remaining providers were ordered randomly to be used as "backup" providers. There should have been 18 such backup lists: six for family child care (one for each Region), and similarly six for group child care and six for school age care. However, in three cases (school age care in Regions 2 and 5; center care in Region 6) no backup providers were available, since all providers were in the sample.

The backup providers were used for two things. First, they were used as the source of providers for the pilot test of the survey. Second, they were used to replace certain types of providers in the sample. Replacement was necessary because the sampling frame and hence the samples included some providers that were not eligible to participate in the Survey. To be more specific, providers who were no longer providing

services but had not notified EEC of that status, providers for whom no usable phone number was available, providers who spoke a language other than Spanish and English, and providers who had no private-paying children. Providers with only subsidized children cannot provide market prices.

The Questionnaires

The planning team for the MRS study (consisting of Richard Graham and Rod Southwick of EEC, Sue Halloran and Corrine Corso of the Massachusetts Resource and Referral Network and Ann Witte and Marie Sweeney of the research team) developed three surveys to collect information about prices paid by private-paying parents. The team developed separate surveys for:

- ☐ Center-based care
- ☐ School-age care
- ☐ Family child care

The survey for the 2006 Child Care Market Rate study included questions about enrollment and rates (see Appendix 5 for copies of the Surveys). The researchers included additional questions to determine prices for additional services such as summer care and holiday care.

The draft questionnaires developed by the planning team were reviewed by EEC staff and the Transition Team Rates Working Group. Marie Sweeney of Workplace Solutions drafted the surveys and coordinated the various draft revisions.

The questionnaires were designed to collect complex pricing information from providers through easy-to-understand surveys. Based on the Flesch-Kincaid Readability Index, the FCC survey is at a Grade 6 literacy level. The center and school-age surveys are at a Grade 8 literacy level.

The surveys collected information about prices and enrollment, but gathered different information from each of the three groups because of the different type of early care and education each groups offered:

Center Survey. The center survey asked providers to quote their prices for private-paying children presently enrolled in full-time and part-time infant, toddler, and preschool programs. For kindergarten care, the survey collected prices for on-site kindergarten services and for child-care services for kindergarten-age children who attended public kindergarten. For school-age children the center survey collected prices for: after-school care, before-school care, full day/full week summer care (including EEC-licensed summer camps), and holiday/snow days/teacher early-release days/a day in a school year vacation week.

The design of this survey maximized the opportunity to obtain private-paying prices. For example, from each center provider, the survey collected prices for all age categories that the provider was serving at the time of the survey. This could range from infants to school-age children. Thus if a provider had been selected for the infant sample, the survey would collect prices for all age categories for which the provider had private-paying children in care at the selected site.

Family Child Care Survey. The family child care (FCC) survey asked providers to quote their prices for individual children, for up to eight private-paying children in care at the time of the interview. The planning group for the study used this approach to allow FCC providers with different rates for the same age children to quote the rates they actually charge. In previous Market Rate Surveys, prices were collected for up to six private-paying children. For this 2006 study, the researchers expanded the survey to collect prices for up to eight private-paying children in care. This maximized the amount of pricing information obtained from each FCC provider and resulted in the collection of additional prices for the family child care market.

In addition, the FCC survey asked providers to report their prices for kindergarten-age children and school-age children for (1) a holiday/snow day/day in a school vacation week, and for (2) full day/full week summer care.

School-age Survey. The school-age survey asked providers to quote their prices for school-age children presently enrolled in (1) after-school care, (2) before-school care, (3) a full-day of care for holiday/snow days/teacher early-release days/a day in a school vacation week, as well as (4) full day/full-week summer care (including EEC-licensed summer camps). The survey also collected

prices for kindergarten-age children for (1) on-site kindergarten and (2) child care services for kindergarten children who attended public kindergarten.

Survey Screening Questions

All of the questionnaires begin with screening questions to determine (1) which providers should be interviewed and (2) what price information should be collected. The researchers included these questions since this is a market rate survey to determine the present “arms-length prices” in the marketplace. “Arms-length prices” are prices charged in a market transaction between unrelated/unaffiliated parties.

Providers no longer in business: The surveys began with a series of questions to identify providers who were no longer providing child care services. The initial survey question asked the provider if they were presently providing child care services. If the provider was no longer providing services at the time of the interview, the survey asked if they had provided child care within the past month or were any children enrolled within the coming month. If a provider had not provided care during that time-frame, the interviewer would end the survey. Thus, only providers who had recently provided services were eligible to be interviewed. As the interviewers eliminated a provider from the sample, they selected a replacement provider from a back-up provider list for that group, if available.

Providers with subsidized children: The surveys next asked providers to identify the private-paying children in the provider’s care at the time of the interview. If a provider only had subsidized children in their care (contracted, vouchers, CPC, etc.), the interviewer would replace the provider. The planning team agreed that the purpose of the study was to obtain market prices. Only private-paying children pay market prices,

therefore programs exclusively serving subsidized children were eliminated from the study.

Additional screening: The third level of screening questions related to the number of days-per-week the private-paying children were enrolled. The EEC determined that prices would be collected for full-week care, therefore the survey directed the provider only to report prices for private-paying children enrolled for a full week. In addition, the survey directed the providers only to report prices for "paid" child care, for which the provider received a financial payment from a private-paying, non-related parent.

Rate Questions

The planning team carefully developed the rate questions to collect the prices for the private-paying children in care. The following are the actual questions used in each of the three surveys to collect private rates. As noted below, the questionnaires directed the providers to quote their rate without "add-on" fee or "discounts" included.

FCC

What rate do you charge for care for this child? In quoting your rate, please do not add on any fees that are above your regular rate...and please do not deduct for any discounts. If you have already deducted for a "sliding-scale discount" or a "sibling discount", please tell me what the full rate is without the discount.

Center (for full time preschool care)

What do you charge for your full-time preschool rate or tuition for private paying children? In quoting your rate, please do not "add on" any additional fees above your regular rate such as for transportation, and, please do not deduct for any discounts or subsidies. [PROBE: Subsidies include a "sliding-fee scale" or a "sibling discount". "Private paying" means the tuition is paid by the parents, not by the state, federal government,

or any third-party funding source. "Full-time" is care for 6 hours or more per day for five-days-per week]

SACC (for after-school care)

What rate do you charge for private-paying school-age children enrolled in after school care, for a four or five day week? In quoting your rate, please do not "add on" any additional fees above your regular rate, such as for transportation, and please do not deduct for any discounts or subsidies. [PROBE: Subsidies include sliding-fee scales or a sibling discount. "Private paying" means that the tuition is paid by the parents, not the state or any other funding source. "School-age" is from first grade up to 13 years of age.]

Pricing Units

The researchers designed the center, school-age, and family child care questionnaires to enable providers to quote their rates as they actually quote them to parents. Thus, they developed the rate questions to be "open-ended," that is, providers could quote their prices in the unit they generally used with parents. Center providers could quote their prices in any of the following units: hour, 1/2 day, day, week, month, semester, school-year, year, or an "other" unit of time. School-age providers could quote their rates per: hour, morning, afternoon, day, week, month, semester, school year, year, or an "other" unit. Family child-care providers could quote their rates as: hour, 1/2 day, day, week, month, or an "other" unit. This lowered response bias in the study since providers were not asked to calculate a rate they did not actually use.

(Response bias results when providers give inaccurate responses to questions.)

Providers were not asked to estimate a "daily rate" when they did not offer such a rate or did not typically use that rate.

Additional Questions

The EEC was interested in obtaining information about parent use of public Pre-Kindergarten and public Kindergarten programs and questions were added to obtain this information. The following question was included to obtain this information.

How many of the.. private-paying preschool-age children attend a public Pre-K program, in addition to your program?

The EEC planned to undertake a comprehensive "Provider Cost Study" during the summer of 2006. For many years the providers in the state had asked for this important study, to identify the full costs of providing child care services. As part of the preliminary work to develop the sample for the provider-cost study, the market rate survey asked the providers if they would be willing to participate in the forthcoming cost survey.

Decisions Related to the Questionnaires

The planning team reviewed many pricing issues as they developed each of the three MRS surveys. The issues included the following.

- ☐ definitions for full-time care and part-time care
- ☐ which categories of providers should be excluded or included in the study (e.g., summer camps, drop-in care, Head Start)
- ☐ what language, in addition to English, would be available for the providers
- ☐ what rate should be collected for summer care (last summer's rate or an estimation of the rate for the coming summer)
- ☐ definition of kindergarten-age children
- ☐ what rate information should be collected for kindergarten-age children
- ☐ what information should be collected from FCC providers who were part of a family child care system
- ☐ how to resolve the issue of multiple prices for one age group reported by a provider

Full-time & Part-time Care: The EEC determined that the surveys would collect prices for both full-time and part-time care. Full time is defined as care for 6 hours or more per

day for a full week of care. Part-time is care for less than 6 hours per day, for a full week of care.

Full week is defined as:

Centers:	five days per week
FCC:	four or five days per week
SACC:	four or five days per week.

The planning team expanded the definition of full-week care to include four day-per-week care based on recommendations by members of the Transition Rates Working Committee that a number of FCC providers need to offer care for a four-day week to meet the needs of the market. Therefore, the Department expanded the definition of a full week for both FCC and SACC care to include care for four or five days per week. The planning group determined that, in order to limit the length of the survey, the researchers would not collect information for part-week care, for less than 4 or 5 days per week.

Inclusions: The Department directed the researchers to include Head Start programs in the center interviews, to obtain prices charged by these providers for any private-paying children in their care. The center survey also included two questions to identify providers that had any Head Start component in their program, and to identify those primarily funded by Head Start.

Survey in second language: The Child Care Network translated the family child care survey into Spanish, for providers requiring a Spanish language interview. In all six of the state regions, interviewers conducted some interviews in Spanish.

FCC system providers: The planning team designed the FCC survey to obtain private-rates paid directly to the provider. Thus the interviewer would only collect a price for a private-paying child if the parent directly paid the FCC system provider. This enabled the interviewers to collect private prices from system providers.

Providers with multiple prices for a particular type of care (e.g., full-time toddler care). In instances where a provider reported that they had more than one rate for their care ("we have a rate for full-time toddlers for 6-8 hours per day and a rate for over 8 hours per day") the interviewer directed the provider to quote their most commonly used rate for the care. If a provider could not report a most commonly used rate, the interviewer

then asked for the highest rate. The researchers included this in the survey to enable the interviewers to address this issue using a uniform methodology.

Survey Age Definitions

The following are the age definitions used for the 2006 Child Care Market Rate Study.

AGE DEFINITIONS FOR MRS STUDY

CENTER

- Infant:** under 15 months of age
- Toddler:** from 15 months up to 33 months of age
- Preschool:** ages 2 years 9 months up to the age a child enters kindergarten
- Kinder-
garten:** eligible for public kindergarten in area
- School age:** from kindergarten/first grade up to 13 years of age
(also up to 17 years of age if child is documented as a
child with special needs)

SCHOOL AGE

- School-age:** from kindergarten/first grade up to through 13 years
of age. A school age child can also include a child up
to 17 years of age, if the child has special needs

FAMILY CHILD CARE

children from 0 to 13 years of age. This can also
include a child up to 17 years of age, if the child has
special needs

The Pilot-Tests

Two members of the planning team (Marie Sweeney & Corrine Corso) interviewed 69 licensed providers for the pilot-tests of the three questionnaires. The pilot-test groups included providers from each of the six EOHHS Regions. It also included a variety of types of programs such as school-age programs, family child-care providers, large family child-care providers, center programs serving only one age group, and center programs serving multiple-age groups. In addition, the members of the Transition Team Rates Working Group reviewed the surveys in-depth and provided feedback and recommendations about each of the three surveys.

Based on the results of the pilot-test, the planning team made various revisions to the surveys. The researchers added additional probes to clarify some of the questions and changed some of the terminology. All of the surveys were edited to shorten various questions.

Pilot-test Outcomes

Listed below are examples of issues raised during the pilot-tests.

SACC: some of the providers, when asked for their 'after-school' rate, quoted a rate for 'before & after school' care. Based on this, the researchers added a direction to the interviewers to only collect 'after school' and 'before-school' rates individually, not as combined rates.

Center: a provider quoted a rate for an age category at another of their sites, not the sample site. The researchers added survey directions to the interviewers to only collect rates for children at the sample site.

Family child care: the provider reported that she would be retiring "soon." Should this provider be included in the study? Since the provider was still providing care at the time of the interview, this provider should be included in the study.

The Training of the Interviewers

Corrine Corso of Massachusetts Child Care Resource & Referral Network and Marie Sweeney of Workplace Solutions trained the CCR&R staff to carry out provider interviews. In all, they trained 39 CCR&R staff to interview and collect information about enrollment and rates for private-paying children. Thirteen CCR&R agencies participated in the training and conducted the interviews in the field.

The trainers conducted the training for each of the three surveys. They conducted two training sessions for the FCC survey in Cambridge and in Southboro MA. They held two additional sessions in Cambridge and in Southboro for training in the center and school age surveys. Each training session lasted approximately four hours. Training topics and activities included the following.

- ☐ review of goals for MRS
- ☐ review of MRS materials
- ☐ complicating situations
- ☐ frequently asked questions
- ☐ role playing
- ☐ discussion of dispositions & sample replacement
- ☐ discussion of protocol for conducting seven call-attempts
- ☐ training on the web based surveys, which recorded the results of each interview
- ☐ review of the Network web site's bulletin board

As part of the training, the instructors discussed the purpose and importance of the study. They reviewed terms and definitions used in the questionnaires. They discussed possible complications that might arise and methods of dealing with these complications. All of the interviewers received reference materials and training in the questionnaires, as well as training in technical questions posed by the providers in the pilot tests. Marie Sweeney conducted role playing of each survey with the interviewers.

All of the interviewers reviewed the surveys on the web-based hosting service. They entered the results of mock interviews on the web-based questionnaires to become familiar with the electronic surveys. Finally, the instructors discussed the protocol for conducting the interviews, including seven call-attempts per sample, and dispositions for each call attempt. The interviewers were directed to refer unusual circumstances to Corrine Corso via an electronic bulletin board set up for the study. Corrine contacted Ann Witte and Marie Sweeney with any technical questions that needed to be resolved.

In the training sessions, the trainers and interviewers also discussed effective methods of encouraging respondents to participate and eliciting accurate responses. The trainers advised the interviewers of preferred times to reach various types of providers. The interviewers contacted family child-care providers during week days, in the evenings and on weekends. Center and school-age providers were contacted during the day, Monday through Friday.

The Interviews

The interviewers utilized the questionnaire designed for each provider's prototype (center, school age, or family child care). Each of the three surveys was hosted on a web-based hosting service. Interviewers accessed the web-based hosting service to record and store the results of each survey. This system effectively managed the three surveys and the data. As the interviewers asked the survey questions, provider responses were entered directly into digital databases. Direct data entry leads to fewer data entry errors and, hence, to more accurate data.

As part of the interview protocol, the interviewers attempted to contact and interview each provider in the sample. Interviewers made up to seven call attempts to a provider prior to terminating efforts to obtain a completed interview. If a provider was

contacted at an inconvenient time, the interviewer would set up an appointment and then call back at the agreed-upon time. In situations where a provider reported that they were no longer in business, the phone had been disconnected, or a provider had no private-paying children, the interviewer replaced that provider with a "back-up" provider for that cell. If the interviewer found that a provider required a Spanish-speaking interviewer, the bilingual interviewer then contacted that provider. These steps enabled the interviewers to reach and interview most of the providers in the sample.

In general, the questionnaire worked well in obtaining the information needed and eliciting responses from providers. The interviews ranged in length, depending on the prototype and the language. Family child care interviews ranged in length from 10 to 12 minutes to complete; Spanish language FCC interviews required from 12 to 17 minutes to complete. The school-age survey ranged in length from 10 to 15 minutes. Group child care surveys had a broader average range of 10 to 20 minutes as the length of time varied greatly depending on how many types of care the provider offered.

The interviewers conducted the field interviews with the FCC providers from 3/29/06 to 5/05/06. They conducted the GCC and SA interviews from 4/14/06 to 5/24/06.

Complications: Interviewers experienced difficulty actually obtaining private prices in two of the regions (Regions 3 and 6) since many of the providers had no private-paying children in care. This required that the interviewers in these regions replace many sample providers and continue attempting to reach providers, only to find that many of the providers did not qualify for the interview.

Efforts to Encourage Provider Participation

The planning team developed and implemented steps to encourage providers to participate in the interviews.

- Providers selected for the sample received an announcement letter from Ann Reale, Commissioner of the Department of Early Education and Care. This letter informed them of their selection for this important study, and encouraged providers to participate in the interviews (see Appendix 2 for a copy of the letters).
- In addition to the announcement letter from the Commissioner, the Department included a simple worksheet in the mailing to each sample provider, to assist them with their preparation for the interview (see Appendix 2 for a copy of the worksheets).
- The EEC and Massachusetts Child Care Resource & Referral Network informed various child care groups affiliated with the provider community and other relevant groups of the forthcoming study. The EEC also informed the child care licensors of the study.
- The EEC placed an announcement of the Market Rate Study on its web site.
- The EEC called on the Transition Team Rates Working Group to assist with planning and implementing the study including marketing of the study to providers in the state.

When contacted for the interview, many providers knew about the study from the announcement mailing and were quite willing to participate.

Response Rates and Refusal Rates

Appendix 3 gives response and refusal rates (and also some other related rates) for each cell. It also gives precise definitions of these rates.

The overall refusal rate for the study was 9%. The refusal rate varied from 2% (for several of the group child care and school age cells) to 16% (for family child care, region 3). The refusal rate was much higher for family child care providers (11%) than

for group child care or school age providers (5% in both cases). It was also somewhat higher than for the 2000 market rate study (6%).

The overall response rate was 81%. This is quite respectable response rate when compared with other market rate surveys. The response rate varied from 72% (for family child care, Region 3) to 97% (for school age care, Region 2). The response rate was higher for group child care providers (88%) and school age providers (84%) than for family child care providers (76%).

Data Checks and Outliners

The researchers performed the following data checks to ensure that inaccurate or inappropriate data were excluded from the study.

1. If a provider quoted prices for less than a full week of care (4 or 5 days per week for school age and FCC and 5 days per week for centers) the prices were removed from the data.
2. If a provider quoted prices that were for more than 7 days per week or 24 hours per day the prices were removed from the data.
3. If a provider quoted prices in increments of less than one cent, these prices were generally removed. For example, 10.6772 per day was removed. If a price was excessively large with increments of less than a dollar these were removed. For example, \$160.47 per day was removed.
4. If the data to perform conversions to daily or hourly rates were not available, prices were generally removed.

After data checks were performed and problematic observations removed, the data were converted to daily rates and outliers were removed. In general, the removal of outliers *does not affect price percentiles* in this study. The reason is that we are calculating percentiles, not averages, and there are generally enough observations with the same values (ties) that deleting a few observations at either end of price distribution does not change the value of the various percentiles at all. They are removed solely for the purpose of improving the accuracy of the reported prices. Outliers would increase the standard errors of the estimated percentiles.

The rules the researchers used to identify outliers follow.

1. Remove daily prices below \$10 per day for centers and family child care.
2. Remove prices in excess of 10 times the median deviation from the median price.

The low outlier rule is a "rule of thumb" used by the researchers in previous pricing studies. Daily prices were generally \$10 per day or greater, so there were very few prices removed based on this rule. For FCC providers, only 9 out of 3,668 full time prices were below \$10 per day. There were no full time center prices below \$10 per day. For after-school SACC, where the unit is "per afternoon," the low outlier rule was modified to exclude prices that were below \$1.00 per afternoon. This resulted in only 6 out of 490 prices being removed from after-school SACC data.

The high outlier rule is a common method for determining outliers. For FCC providers, the high outlier rule generally resulted in the removal of prices in excess of \$100 per day. This occurred 21 times in 3,668 prices. For center providers, there was only one high outlier out of 1,670 prices. For school-age care, there were only 2 high outliers out of 490 prices.

Total numbers of outliers for each region for each type of full time care are summarized in the table that follows:

Type	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Total	Resulting n
FCC	0	3	12	1	2	5	23	3,645
Center	0	0	0	1	0	0	1	1,669
School Age	1	0	1	6	0	0	8	482
Total	1	3	13	8	2	5	32	5,796

For full time center care , full time FCC, and after-school care, there were 32 outliers out of 5,828 prices, leading to 0.5% of the data being outliers and excluded from the study.

Results

Appendix 4 contains a number of tables which give the results of the study. Appendix 4A gives the results for group child care (child care centers); Appendix 4B gives the results for family child care; Appendix 4C gives the results for school age care; and Appendix 4D gives the results for kindergarten care.

The format of the tables is similar in all cases. For example, in Appendix 4A we have four tables (Tables 4A.1, 4A.2, 4A.3 and 4A.4) giving detailed results for the 40th, 50th, 60th and 75th percentiles of price for full time group child care. This is followed by a table (Table 4A.5) giving just the percentiles, for the 25th, 30th, 35th, ..., 75th percentiles.

We will explain the format of Table 4A.1. This table gives the results for the 40th percentile of price for full time center care. (Many of the remaining tables have the same format and the same explanation applies.) We will refer specifically to the first row of the table.

The first column gives the EOHHS Region. For example, the first row indicates that results are for Region 1 (Western Massachusetts). The second column gives the type of care. In the case of the first row, this is infants (INF). The third column gives the total number of providers (the “population size”) contained in the sampling frame. In this case we have $N = 46$. The fourth column gives the number of providers actually sampled (the “sample size”), in this case $n = 34$. The fifth and sixth columns give the maximum and minimum price reported by the providers who were sampled, in this case \$59.00 and \$30.00 per day. The seventh column of the table gives the relevant percentile price. For example, the seventh column of Table 4A.1 contains 40th percentile, \$43.70. The eighth column gives the standard error of the estimate of the relevant price percentile, in this case \$1.23. The ninth column gives the parametric 95% confidence interval for the price percentile. In this case, in a statistical sense we can be 95% sure that the true 40th percentile is between \$41.29 and \$46.11. The tenth column gives the non-parametric confidence interval. It is constructed differently and gives a slightly different result: we can be 95% sure that the true 40th percentile is between \$40.00 and \$45.00.

We recommend that readers use the parametric confidence intervals when the sample size (n) is greater than or equal to 40 and the nonparametric intervals when the sample size is less than 40. In this particular case, $n = 34$ so we recommend use of the non-parametric confidence interval.

Table A4.5 gives all percentiles between the 25th and 75th percentiles (in increments of 5 percentage points) but does not give the population size, sample size, maximum or minimum prices, standard errors, or confidence intervals.

All other tables are essentially identical in format to either Table A4.1 or Table A4.5.

Although we present results for many different percentiles of prices, our discussion below will focus on two things. The first is the median (50th percentile) price, which is the most representative price to quote. The median is a common summary statistic for the central tendency of a distribution. (The mean is another common statistic, but in this case the median is preferred because it is less sensitive to extreme observations.) The second measure we will discuss is the inter-quartile range (IQR), defined as the difference between the 75th and 25th percentiles of the prices. It is a common measure of the variability of prices within a given sample (cell). (The variance is another common measure, but in this case the IQR is preferred because it is less sensitive to extreme observations.)

Accuracy of the Study

The goal of the study was to develop statistically credible information on the current market prices charged by providers in the state of Massachusetts. This goal was met since a statistically valid methodology was used, and since the relevant market prices were estimated with a verifiable and acceptably high degree of precision.

At the time the sample was designed, the degree of precision was intended to be approximately equal for each market segment (cell). More specifically, a goal that we hoped to achieve was that the 95% confidence intervals for the various percentiles of prices would be on the order of plus or minus 5% of the price. So, for example, if the median price in our sample for a given cell is \$40.00 per day, we intended that the 95% confidence interval for the true median price would be no wider than [\$38.00, \$42.00].

We intended that this degree of precision be achieved for full time care in centers, for full time family child care, and for after school care for school age children.

For full time care in centers, this goal was achieved for 16 of the 18 cells. For full time family child care, this goal was achieved for all cells that correspond to children of age at least two, but it was not achieved for two cells (regions 3 and 5) for children of age less than two. In both of these regions the median prices are the same for younger children (age less than two) and for older children (age two or more), so it is natural to combine the two age groups, in which case the goal is met.

For after school care of school age children, this goal was met for half of the cells. For the other half of the cells, it was not. Nevertheless, the precision of the estimates is still high enough that we do not recommend combining cells for after school care. The reason that we failed to meet the goal is simple. When the sample was designed, kindergarteners were part of the school age group. Later it was decided to analyze kindergarteners separately. (See the discussion of the results for kindergarteners below for more detail.) This left fewer school age observations than had been anticipated.

For some other types of care, the number of observations was just too small to obtain precise estimates for each separate cell, and we combined some cells to attain an adequate degree of precision. For example, for part time care in centers, we combined all six regions for infants, and we combined all six regions for toddlers. For part time family child care, we kept regions 1 and 6 as separate cells, but we combined regions 2 and 5, and we combined regions 4 and 6. For holiday, snow day and vacation family child care, we combined all regions and all age groups. For school age holiday, snow day and vacation care, and also for summer care and for before school care, we

combined all six regions. In each case we tried to keep as many ages and regions separate as we could, but we combined ages or regions where that was necessary to obtain enough observations to obtain precise estimates.

Results for Full-Time Center Care

In this section, we will discuss the main results for full time care in centers. Full-time care is defined as care for a full week (five days), at least six hours per day.

Table 4A.2 gives the relevant median prices, plus other information. The median price for full time center care varies from \$33 per day for preschoolers in region 1 (Western Massachusetts) to \$67 per day for infants in region 4 (suburbs of Boston). For each region, the median price of full time center care is higher for younger children than for older children below school age. For each age group, the median price is consistently highest in region 4 (suburbs of Boston) and lowest in region 1 (Western Massachusetts).

It is also of interest to see how much prices vary within cells. Here the relevant measure is the inter-quartile range (IQR). It can be calculated from Table 4A.5 by subtracting the first numerical column (25th percentile) from the last numerical column (75th percentile). The IQR ranges from \$8.00 (region 2, toddlers) to \$26.28 (infants, region 6). The within-cell price variability is highest in regions 6 and 4 (Boston and suburbs of Boston) and lowest in regions 2 and 5 (Central Massachusetts, and Southeastern Massachusetts, Cape and Islands). The within-cell price variability is generally but not always higher for younger children than for older children.

Results for Full-Time Family Child Care

The median price for full time family child care does not vary appreciably with the age of the child, at least at the levels at which we group age (less than two vs.

greater than or equal to two). Compare the results in Table 4B.6 to those in Table 4B.10. For four regions the median prices are exactly the same for both age groups, and the maximum difference is only \$2.50 per day. So we may as well just look at the results for the two age groups combined (Table 4B.2).

With age groups combined, the median price ranges from \$30 per day for Regions 2 and 6 (Central Massachusetts and Boston) to \$45 per day for region 4 (suburbs of Boston). The median prices for the other regions are \$33, \$35 and \$35, so a fair summary is just that the median price is higher in the suburbs of Boston than in the other areas of the state.

The within-region price variability (IQR calculated from Table 4B.13) ranges from \$6 in Region 1 (Western Massachusetts) to \$15 in Region 3 (Northeastern Massachusetts). Prices are high but not variable in Region 4 (suburbs of Boston): there are very few low prices there.

Comparing the FCC with the results for full time group child care, we see that prices for full time family child care are lower, and less variable, than prices for full time center care.

Results for After-School Care of School Age Children

The median prices for after school care are given in Table 4C.2. The median price of after school care ranges from \$13 in Region 1 (Western Massachusetts) to \$20 in Region 3 (Northeastern Massachusetts). More generally, it is lowest in Western Massachusetts, and highest in Northeastern Massachusetts and Boston, with the other three regions lying in between.

The inter-quartile range (IQR) calculated from Table 4C.5 ranges from \$3.15 for Region 6 (Boston) to \$6.75 for Region 5 (Southeastern Massachusetts, Cape and

Islands). The regions with the highest median prices (regions 3 and 6) do not have large within-cell price variability, because they have very few low prices. For example, in Region 6 (Boston) the 25th percentile is \$17.50, the median is \$19.50 and the 75th percentile is \$20.65. Most providers charge about the same (relatively high) price.

Results for Part Time Care

Part time care is defined as full week (four or five days), less than six hours per day. We report prices for part time care on an hourly basis. We provide separate results for centers and for family child care.

The median prices for part time group child care are given in Table 4A.7. Note that, as discussed above, we combined all six geographical regions into one “statewide” unit for infants and for toddlers, so as to achieve a large enough sample size to allow precise inference. The median price ranges from \$4.79 per hour (preschoolers, Western Massachusetts) to \$9.88 (infants, statewide). As was the case for full time care, the price is higher for younger children and lower for older (but less than school age) children. For preschoolers, for whom we have separate results for the various regions, the median price is highest in Regions 4 and 6 (suburbs of Boston, and Boston) and lowest for Region 1 (Western Massachusetts).

It is not meaningful to compare the within-cell price variability of the infants and toddlers cells, which mix prices statewide, with the within-cell price variability of the preschool cells, which are for a single geographical region. However, if we look at the preschool cells only, the inter-quartile range (IQR) calculated from Table 4A.10 ranges from \$2.11 in Region 5 (Southeastern Massachusetts, Cape and Islands) to \$4.25 in Region 6 (Boston). In fact, an accurate summary is that the variability of part-time

preschool prices is just higher in Boston than in the remaining five regions. Those regions are not very different from each other in terms of price variability.

The median prices for part time family child care are given in Table 4B.17. Here we have four regional groupings: Region 1 (Western Massachusetts), Region 3 (Northeastern Massachusetts), Regions 2&5 (Central Massachusetts and Southeastern Massachusetts, Cape and Islands) and Regions 4&6 (Boston and suburbs of Boston). The median price ranges from \$4.00 in region 1 to \$5.50 in regions 4&6. So we find lower part time prices in Western Massachusetts and higher prices in the Boston area, which is essentially the same as what we found previously for full time care. Also part time prices are lower for family child care than for care in centers, which again agrees with our previous findings for full time care.

There is no substantial difference in within-cell variability for the different part time center family child care cells.

Results for Kindergarten Care

When the sample for the project was designed, there was no plan to collect separate information for kindergarteners. They were lumped with school age children. However, given the expansion of kindergarten to full day in many Massachusetts communities and the passage of legislations designed to build a Massachusetts Universal Pre-Kindergarten program, EEC asked us to examine the way in which families with children in public kindergarten combine kindergarten with child care. We therefore separated kindergarten age children from other school age children. Kindergarten age children are defined as children who are eligible for public kindergarten in the area in which they live.

We obtained information on two different types of kindergarten age children. First, there are kindergarten age children who receive child care and who do not attend public kindergarten. We will call this case “pure kindergarten care.” This can be full time or part time. Second, there are kindergarten age children who do attend public kindergarten but also receive other child care. We will call this case “kindergarten with public kindergarten.” In most of the latter cases, the other child care is part time. However, there were a substantial number (103) of children who received full time (six hours or more per day) child care plus attended public kindergarten. For all types of kindergarten, we calculated percentiles only on a statewide basis, due to a lack of enough observations to calculate precise results for separate regions.

For full time “pure kindergarten”, Table 4D.1 gives a median price of \$42.40 per day. For full time “kindergarten with public kindergarten”, Table 4D.5 gives a substantially lower median price, \$31.90. This difference is not present for part time prices. The full time “pure kindergarten” median price is substantially higher than the full time family child care median price for preschoolers, and somewhat higher than the full time center care median price for preschoolers. The full time “kindergarten with public kindergarten” median price is substantially less than the full time center care median price for preschoolers, and at the lower end of the range of median prices for full time family child care for preschoolers.

For part time “pure kindergarten” the median price is \$4.67 per hour (Table 4D.3) whereas for part time “kindergarten with public kindergarten” the median price is \$5.25 per hour (Table 4D.4). These prices are lower than the median prices for part time center care, and comparable to the median prices for part time family child care.

There is no substantial difference in within-cell price variability between “pure kindergarten” and “kindergarten with public kindergarten”, either for full time or for part time care.

Results for Holiday, Snow Day, Vacation Care and Before School Care

Prices for various other types of care were analyzed on a statewide basis.

We obtained prices for holiday, snow day and vacation day care from both family child care providers and school age care providers. For the family child care providers, we combined holiday, snow day and vacation care (HSV), but kept summer vacation care separate. Also for HSV care we distinguished kindergarteners from school age children. None of these distinctions mattered much. Table 4B.22 reports median prices of \$31.75, \$30.00 and \$30.00 per day for the three groups. For school age providers, the median price for HSV care was \$33.00 per day (Table 4C.6), which again is very similar.

We also obtained prices from school age care providers for before-school care. The median price is \$7.00 per hour (Table 4C.10).

Comparisons to Current Reimbursement Rates

In this section we compare our price percentiles to the Massachusetts Department of Early Education and Care (EEC) maximum standard reimbursement rates. These comparisons are complicated by two facts. First, the reimbursement rates are set for three groups of regions: Regions 1&2&5, region 3, and regions 4&6. These groups do not generally match the regional definitions of the cells in our analysis. Second, reimbursement rates are set for four different tiers (highest price for Tier 4, lowest for Tier 1). Since we have mostly focused on median rates above, we will make comparisons to the Tier 3 rate which is one of the two “central” rates. However, this

choice does not matter much because the reimbursement rates do not vary substantially over tiers.

We will begin with group child care (centers). The reimbursement rates are considerably lower than the median market rates. They are often below the 25th percentile of market rates, that is, three fourths of the centers in our samples charge higher prices for private-paying children than the reimbursement rate. For example, for Region 3 (Northeastern Massachusetts), the Tier 3 reimbursement rate for infants is \$45.05 per day, compared to our median rate of \$60.80 or 25th percentile rate of \$53.65. For Region 3, toddlers, the Tier 3 reimbursement rate of \$42.90 is less than our median rate of \$52.80 or 25th percentile rate of \$46.00; and for preschoolers, \$33.40 is less than \$42.20 or \$38.00. Similar results hold for the other regions of the state.

Similar results hold for the reimbursement rates for non-systems providers of family child care, though not so strongly. For example, for Region 3 (Northeastern Massachusetts), the Tier 3 reimbursement rate for a non-system provider for children under two years of age is \$29.45, which is less than our median price of \$35.00, and is about equal to the 30th percentile of our price distribution, which is \$30.00.. For Region 3, children of age two or greater, compare the reimbursement rate of \$26.05 to our median rate of \$35.00, or our 25th percentile of \$26.00. Similar differences hold for other regions, except that for Region 4 (suburbs of Boston) they are larger. For example, for Region 4, children of age less than two, compare the reimbursement rate of \$29.45 to our median rate of \$45.00, or our 25th percentile of \$40.00; for children of age two or more, compare \$26.05 to \$45.00 or \$37.00.

For systems providers of family child care, the Tier 3 reimbursement rates are typically much more similar to our median prices. For example, for Region 3

(Northeastern Massachusetts), the Tier 3 reimbursement rate for a system provider for children under two years of age is \$39.35, which is greater than our median price of \$35.00, and is about equal to the 60th percentile of our price distribution, which is \$40.00. For Region 3, children of age two or more, the reimbursement rate of \$35.85 is quite close to our median price of \$35.00. Similar results hold for most of the other regions, although again median market prices exceed the reimbursement rates for the suburbs of Boston.

For school age care, we will discuss only after school care. For regions 1&2&5, the Tier 3 reimbursement rate of \$14.20 is similar to the median market prices of \$13.00, \$16.00 and \$15.00 for the three regions. For region 3, the reimbursement rate of \$15.75 is less than the median market price of \$20.00, and in fact is less than the 25th percentile price of \$16.49. For Regions 4&6, the reimbursement rate of \$16.20 is less than the median market prices of \$17.51 and \$19.50 for the two regions, and less than the 25th percentile of market prices for Region 6 (\$17.50).

Clearly the current reimbursement rates are less than typical market prices, with the possible exception of systems providers of family child care.

Comparisons of Median (50th Percentile) and 75th Percentile Prices

Because we report results for many different percentiles of the distribution of market prices, our results could be used to calculate the difference in cost in setting reimbursement rates at various different percentiles of the price distribution. In this section we will discuss the difference between the median (50th percentile) and 75th percentile prices. But similar calculations could be done for other percentiles as well.

A generality that might be kept in mind is that the difference between the 50th and 75th percentiles of prices is a measure of within-cell price variance. It will be roughly half of the difference between the 75th and 25th percentiles, which we called the inter-quartile range (IQR) above, and used as our measure of within-cell price variation. Obviously the cost of moving reimbursement rates from the 50th percentile to the 75th percentile will be higher where the variation of price is higher.

A few specific examples might be informative. Consider group child care for infants in Region 6 (Boston), which was a cell with high within-cell price variation. The median price is \$60.00 per day and the 75th percentile price is \$78.28. Since $\$78.28 / \$60.00 = 1.30$, raising the reimbursement rate from the 50th percentile to the 75th percentile would raise the cost to the state by 30% for each infant in care. As another example, consider group child care for toddlers in Region 5 (Southeastern Massachusetts, Cape and Islands), which was a cell with low price variation. The median price and 75th percentile price are \$44.00 and \$48.81, respectively, so that raising the reimbursement rate from the 50th percentile to the 75th percentile would raise the cost to the state by only about 11% for each infant in care.

The interpretation of the results of the previous paragraph is subject to the following qualification. Changing reimbursement rates is likely to also change the number of children being cared for in different areas, since providers may be willing to accept more children at a higher reimbursement rate, and families may change their decisions about where to send their children as more opportunities become available. Our calculation above of a 30% increase in cost for each infant in care in Boston does not indicate a 30% increase in total cost to the state, if the number of infants in care

changes. We have no basis for estimating how the number of children in care might change if reimbursement rates change.

To summarize, the 75th percentile of prices are approximately 15% higher than the median. For full time center care, apart from Boston, the 75th percentile price is typically about 15% higher than the median. Boston is an outlier with differences between the 75th percentile and the median of 20-30%. For full time family child care, the 75th percentile price is typically about 15% higher than the median for all regions. For after school care for school age children, there is more variability in the results but on average the 75th percentile price is still about 15% higher than the median price.

Comparisons of 2006 and 2003 Prices

In this section we compare the prices from this study to the prices from the 2003 Market Rate Study.² We will compare median prices for various cells.

We begin with group child care (centers). The median price for full time center care increased between 2003 and 2006 in each cell, that is, for each age group and in each geographical region. The increase ranged from 4.35% for preschoolers in Region 6 (Boston) to 23.33% for preschoolers in Region 2 (Central Massachusetts). Note that these are total percentage increases over the three years, not annual rates of increase. Region 6 (Boston) is an outlier, in the sense that prices increased much less there than in other regions of the state. Over this three year period, the median price for infant care increased 5.26% in Boston, and from 11.36% to 16.92% in the other five regions of the state; for toddler care, compare 9.24% for Boston to a range of 10.00% to 20.98% for the other regions; and for preschooler care, compare 4.35% for Boston to a range of 10.00% to 23.33% for the other regions of the state. Looking at all regions

² The methodology used in the 2003 Market Rate Survey was different from the methodology used in the 2006 Survey. Hence, the difference in prices between the 2003 Survey and the 2006 survey can reflect differences in methodology as well as differences in prices

except Boston, prices generally increased the most for preschoolers and the least for infants, though the variation across regions is at least as large as the variation across types of care. For the 15 non-Boston cells, the median increase (in percentage terms) was approximately 16%.

We next discuss family child care. We will look at prices separately for younger (age less than two) and older (age greater than or equal to two) children because that is the way the 2003 prices were reported. For younger children in Region 3 (Northeastern Massachusetts), the median price fell by 1.63%. For younger children in Region 5 (Southeastern Massachusetts, Cape and Islands), the median price increased by only 0.89%. These cells are outliers in the sense that all other cells have much larger price increases. For the other 10 cells, the percentage increase in median price ranged from 12.5%, for both age groups in Region 4 (suburbs of Boston), to 20%, for younger children in Region 6 (Boston). For the other 10 cells, the median increase in median prices (in percentage terms) was approximately 15%. Apart from the two outliers noted above, the percentage increase was not particularly different for younger versus older children. In general prices increased more in Regions 1 (Western Massachusetts) and 6 (Boston) than in the other regions.

Finally, we consider after school care. The median price of after school care fell by 3.70% in region 1 (Western Massachusetts). In the other five regions, it increased by amounts ranging from 12% in Region 2 (Central Massachusetts) to 25% in Region 5 (Southeastern Massachusetts, Cape and Islands).

Speaking very broadly, it appears that median prices of child care in Massachusetts have increased by approximately 15% since 2003.

Synopsis of Results

The following sentences summarize the detailed discussion above. They are not a substitute for that discussion, or for looking at the tabulated results.

1. Prices are generally higher for care in centers than for family child care.
2. For centers, prices are generally higher for younger children and lower for older children. That is, prices are highest for infants, then toddlers, then preschoolers. However, for family child care, prices do not vary substantially for younger and older children.
3. Prices for center care and for family child care are generally highest in Region 4 (Greater Boston) and lowest in Region 1 (Western Massachusetts).
4. Prices for after school care are generally lowest for Region 1 (Western Massachusetts) and highest for Regions 3 (Northeastern Massachusetts) and 6 (Boston)
5. Substantial numbers of kindergarten-eligible children are in child care, either in place of or in addition to public kindergarten.
6. Except for systems providers of family child care, current reimbursement rates are below the current median market prices. They are often below the current 25th percentile prices.
7. The 75th percentile prices are on average about 15% higher than the median (50th percentile) prices.
8. Prices in Massachusetts have increased about 15% between 2003 and 2006.