

## MEMORANDUM

**TO:** Boston Community Partnerships for Children  
**FROM:** Katey Connaghan and Corey Zimmerman, Boston EQUIP  
**RE:** The Demand for Full-time Subsidized Care and Education in Boston  
**DATE:** April 24<sup>th</sup>, 2006

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In an effort to address the question of the demand for full-time subsidized care and education in Boston, Boston EQUIP has analyzed data from the Census 2000 Public Use Microdata Sample (PUMS) and the Boston Public Health Commission birth records. The specific research question addressed was: *What is the demand for full-time subsidized care and education in Boston, as determined by calculating the number of preschool children with working parents who fall below 50%, 85%, 100% and 125% of the state median income (SMI)?*

The highlights from the results are found in the following tables.

**Table 1. Family income levels of Boston preschool age children relative to the SMI**

	<b>Less than 25% SMI</b>	<b>Less than 50% SMI</b>	<b>Less than 85% SMI</b>	<b>Less than 100% SMI</b>	<b>Less than 125% SMI</b>
<b>% of children</b>	27%	49%	74%	79%	88%
<b># of children</b>	5,055	9,175	13,856	14,792	16,477

**Table 2. Family income levels of Boston preschool age children with all parents working at least part-time and/or part-year**

	<b>Less than 25% SMI</b>	<b>Less than 50% SMI</b>	<b>Less than 85% SMI</b>	<b>Less than 100% SMI</b>	<b>Less than 125% SMI</b>
<b>% of children</b>	9%	24%	44%	49%	55%
<b># of children</b>	1,685	4,494	8,239	9,175	10,298

**Table 3. Family income levels of Boston preschool age children with all parents working full-time**

	<b>Less than 25% SMI</b>	<b>Less than 50% SMI</b>	<b>Less than 85% SMI</b>	<b>Less than 100% SMI</b>	<b>Less than 125% SMI</b>
<b>% of children</b>	.5%	9%	19%	22%	26%
<b># of children</b>	94	1,685	3,558	4,119	4,868

A full description of the methodology and additional results are provided in the accompanying report.

## The Demand for Full-time Subsidized Care and Education in Boston

Although seemingly simple, a pervasive question throughout the Boston early care and education community has been “what is the demand for full-time subsidized care and education in Boston”? Using the Census 2000 Public Use Microdata Sample (PUMS), Boston EQUIP is able to provide the data to estimate an answer to this significant question.

The *demand* for subsidized care is a critical piece of data for advocates and policymakers, because this allows them to estimate the *unmet need* for subsidized child care. The highest estimate of the demand for subsidized care is all children who meet the eligibility criteria. In Massachusetts, eligibility for a child care subsidy is determined by at least 3 factors: 1) age of child; 2) family income; and 3) the “service need” of the parent(s), or the number of hours parent(s) are working or in training. Different subsidy funding streams require families to demonstrate different combinations of these factors, and allow for exemptions to these criteria based on at-risk factors. Up to now, this demand data has been elusive because most public data sources report these three factors about children’s lives separately and do not allow for the cross-tabulation of the factors. Fortunately however, the PUMS files include these factors and allow interested parties to produce targeted tabulations.

This report provides a demand estimate for full-time subsidized early care and education by supplying an estimate of the number of all young Boston children (younger than school age) and of preschool age Boston children living in families of various incomes relative to the state median income and the working status of their families. This information will inform the question of the demand for full-time subsidized care in Boston.

### Methodology

The data for estimation of the demand for full-time subsidized early care and education in Boston was derived from two sources, the Census 2000 Public Use Microdata Samples (PUMS) and Boston Public Health Commission birth records. The PUMS are additional information to the US 2000 Census, available to the public for purchase. These files include individual records about each person and each housing unit sampled, obtained nationally by a subsample of the housing units of the full Census sample with a long-form questionnaire. The records are available in two collections, designated as either 5 percent or 1 percent, and weighted to reflect the desired population. The 5 percent records

afford a wider range of variables, including the desired variables for our analysis<sup>1</sup>.

The PUMS files are unique in allowing the cross-tabulation of a number of factors, and in particular the factors pertinent to estimating the demand for full-time subsidized care in Boston. Specifically, the 5 percent PUMS *person variables* permitted the calculation of the family income status of Boston children relative to the state median income (SMI), as well as the working status of their parents (full-time versus less than full-time versus not working). Once the data were aggregated for 2000, the proportion occurrences for the different variables were applied to the most recent Boston Health Commission birth records<sup>2</sup> to attain an up-to-date estimate for Boston.

Two sets of data are presented in this report. First presented is the number of children living in families at income levels relative to the SMI. Although these records do not include all of the eligibility requirements for state subsidies (i.e., parents working/training status), they do provide a thorough description of the family income of Boston's children. The second data set includes the number of children living in families at income levels relative to the SMI and parents working status. The figures are presented for all young children (birth to 5 years, 4 months) and for preschool age children only (3 years to 5 years, 4 months). Children up to the age of 5 years, 4 months were included because of Boston Public Schools Kindergarten cut-off of September 1<sup>st</sup>, resulting in one-third of 5-year-olds not eligible for Kindergarten and remaining in early care and education.

#### Family Income Levels Relative to the State Median Income

The 5 percent PUMS file *person variables* employed to determine the number of children living in families of varying incomes relative to the SMI were *family total income in 1999, number of people in family, and age*<sup>3</sup> for Boston<sup>4</sup>. The number of children falling under each income category (relative to SMI) was calculated separately for each family size, as the SMI varies by family size<sup>5</sup>.

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<sup>1</sup> Census 2000, Public Use Microdata Sample (PUMS), United States, Technical Documentation, prepared by the US Census Bureau, 2003.

<sup>2</sup> Birth record data was obtained from the Boston Public Health Commission's report Boston Natality 2005: A Review of 2003 Birth Data. Aggregated data included one-third of births from 1998 plus all births 1999-2003 to obtain a count of children ages birth to 5 years, 4 months.

<sup>3</sup> Sample included children under age 6 years. The resultant proportion was applied to birth records estimates for children up to the age of 5 years, 4 months.

<sup>4</sup> Public Use Microdata Areas 2503301-2503305, inclusive.

<sup>5</sup> State-median-income levels for 2000 for varying family sizes were calculated using the National Center for Children in Poverty's web-based Income Converter, found on their website at [www.nccp.org/income\\_converter\\_nopop.html](http://www.nccp.org/income_converter_nopop.html). Their estimates are based on those of the Low Income Home Energy Assistance Program (LIHEAP). To include SMI income levels for greater

For example, the family income cut-off for less than 25% of the SMI for a family of three was \$13,653 compared to \$21,454 for a family of six. The data from the cross-tabulation for each family size were aggregated and converted to a proportion based on the total number of children. The percentage of children living in each income category was subsequently applied to the Boston population of young children, estimated from the birth records.

Over the last few years in Massachusetts, the income criterion has not been raised to meet the increase in SMI. For instance, in FY06 the income eligibility was based on 2001 SMI levels, resulting in a stricter criterion than indicated by the SMI category (i.e., children eligible at 50% SMI actually fell at 42% of current SMI). However, this dynamic could not be captured in the current analysis which employed the 2000 SMI levels to 2000 PUMS files. Therefore, the current analysis may somewhat underestimate the number of children currently falling into each of the income categories.

#### Family Income Relative to SMI and Working Status of Caregivers

To further determine the potential demand for full-time subsidized care, the working status of the children's parents was considered using the variable *family type and work experience of householder* in addition to the variables previously discussed to determine income levels. The *family type and work experience of householder* variable includes various family categories (i.e., Married couple family, Other family: female householder, no husband present, Other family: male householder, no wife present) with varying work status categories. These categories included householder and/or spouse working full-time year-round in 1999, less than full-time year-round<sup>6</sup>, or did not work in 1999.

## **Results**

#### Family Income Levels Relative to the State Median Income

Table 1 reflects the estimated number of young Boston children living in families of various income levels relative to the SMI. Of all Boston young children, 26%

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than 5-person families, adjustments were made according to the LIHEAP guidelines, found on their website at

[www.acf.dhhs.gov/programs/liheap/guidance/information\\_memoranda/im05-07.html](http://www.acf.dhhs.gov/programs/liheap/guidance/information_memoranda/im05-07.html)

<sup>6</sup> Full-time year-round work refers to a minimum of 35 hours per week for 50 weeks of year.

Source: Public Microdata Use Sample Technical Documentation (2005), p.347 at

<http://www.census.gov/prod/cen2000/doc/pums.pdf>

(11,122) live below 25% of the SMI. Almost double, or 48% of all Boston young children live below 50% of the SMI. Table 2 provides similar income level information for preschool age children. For just preschool age children, 27% live below 25% of the SMI and 49% live below 50% SMI.

**Table 1. Family income levels of young Boston children (0-5 years, 4 months) relative to the SMI**

	<b>Less than 25% SMI</b>	<b>Less than 50% SMI</b>	<b>Less than 85% SMI</b>	<b>Less than 100% SMI</b>	<b>Less than 125% SMI</b>
<b>% of children</b>	26%	48%	71%	77%	85%
<b># of children</b>	11,122	20,533	30,372	32,938	36,360

**Table 2. Family income levels of Boston preschool age children (3 years-5 years, 4 months) relative to the SMI**

	<b>Less than 25% SMI</b>	<b>Less than 50% SMI</b>	<b>Less than 85% SMI</b>	<b>Less than 100% SMI</b>	<b>Less than 125% SMI</b>
<b>% of children</b>	27%	49%	74%	79%	88%
<b># of children</b>	5,055	9,175	13,856	14,792	16,477

### Family Income Relative to SMI and Working Status of Caregivers

The data describing the relationship of income levels to working status of caregivers is presented from the least restrictive work status (i.e., no parents working) to the most restrictive (i.e., all parents working full-time).

Analysis of the PUMS files revealed that 18% of young Boston children and 19% of Boston preschool age children live in families with **no** parent working. Table 3 provides these data for children ages birth to 5 years, 4 months and Table 4 provides these data for preschool age children in Boston. Although there is a slight (1%) increase in the number of families with no working parents between families with incomes less than 50% SMI and less than 85% SMI (for all young children), there is no change in families with greater incomes.

**Table 3. Family income levels of young Boston children (0 - 5 years, 4 months) with no parent working**

	Less than 25% SMI	Less than 50% SMI	Less than 85% SMI	Less than 100% SMI	Less than 125% SMI
<b>% of children</b>	14%	16%	17%	17%	17%
<b># of children</b>	5,989	6,844	7,272	7,272	7,272

**Table 4. Family income levels of Boston preschool age children (3 years-5 years, 4 months) with no parent working**

	Less than 25% SMI	Less than 50% SMI	Less than 85% SMI	Less than 100% SMI	Less than 125% SMI
<b>% of children</b>	14%	17%	19%	19%	19%
<b># of children</b>	2,621	3,183	3,558	3,558	3,558

The data were also analyzed with respect to the number of children living in families with *at least* one parent **not** working. This parent work status situation occurred for 35% of the young children and 34% of the preschool age children. The values are shown in Tables 5 and 6.

**Table 5. Family income levels of young Boston children (0 - 5 years, 4 months) with at least one parent not working**

	Less than 25% SMI	Less than 50% SMI	Less than 85% SMI	Less than 100% SMI	Less than 125% SMI
<b>% of children</b>	17%	24%	30%	31%	32%
<b># of children</b>	7,272	10,266	12,833	13,261	13,689

**Table 6. Family income levels of Boston preschool children (3 years - 5 years, 4 months) with at least one parent not working**

	Less than 25% SMI	Less than 50% SMI	Less than 85% SMI	Less than 100% SMI	Less than 125% SMI
<b>% of children</b>	18%	25%	30%	31%	32%
<b># of children</b>	3,370	4,681	5,617	5,804	5,992

Nineteen percent of young Boston children have all parents working part-time and/or part-year<sup>12</sup>, as can be seen in Table 7. Table 8 provides the percentage and number of preschool age children with all parents working part-time and/or part-year.

**Table 7. Family income levels of young Boston children (0-5 years, 4 months) with all parents working part-time and/or part-year**

	Less than 25% SMI	Less than 50% SMI	Less than 85% SMI	Less than 100% SMI	Less than 125% SMI
<b>% of children</b>	8%	12%	16%	17%	18%
<b># of children</b>	3,422	5,133	6,844	7,272	7,700

**Table 8. Family income levels of Boston preschool age children (3 – 5 years, 4 months) with all parents working part-time and/or part-year**

	Less than 25% SMI	Less than 50% SMI	Less than 85% SMI	Less than 100% SMI	Less than 125% SMI
<b>% of children</b>	9%	13%	18%	18%	20%
<b># of children</b>	1,685	2,434	3,370	3,370	3,745

In Boston, 65% of young children (66% of preschoolers) live in families with all parents working *at least* part-time and/or part-year. In other words, 65% of young children live with all parents working, though this may be part-time, part-year, or full-time employment. Tables 9 and 10 demonstrate the number of Boston children living in families with all parents working *at least* part-time and/or part-year at various income levels relative to the SMI.

**Table 9. Family income levels of young Boston children (0 - 5 years, 4 months) with all parents working at least part-time and/or part-year**

	Less than 25% SMI	Less than 50% SMI	Less than 85% SMI	Less than 100% SMI	Less than 125% SMI
<b>% of children</b>	9%	23%	41%	46%	53%
<b># of children</b>	3,850	9,839	17,539	19,677	22,672

<sup>12</sup> Working part-time and/or part-year is equivalent to the “less than full-time” category in PUMS *family type and work experience of householder* variable. This category is defined as parents working less than 35 hours per week for 50 weeks per year. Source: [Public Microdata Use Sample Technical Documentation](http://www.census.gov/prod/cen2000/doc/pums.pdf) (2005), p.347 at <http://www.census.gov/prod/cen2000/doc/pums.pdf>

**Table 10. Family income levels of Boston preschool age children (3 years - 5 years, 4 months) with all parents working at least part-time and/or part-year**

	<b>Less than 25% SMI</b>	<b>Less than 50% SMI</b>	<b>Less than 85% SMI</b>	<b>Less than 100% SMI</b>	<b>Less than 125% SMI</b>
<b>% of children</b>	9%	24%	44%	49%	55%
<b># of children</b>	1,685	4,494	8,239	9,175	10,298

Whereas 65% of young Boston children (66% of preschoolers) live in families with all parents working at least part-time and/or part-year, 30% of young children and 31% of preschoolers live in families with all parents working full-time. Tables 11 and 12 indicate the number of young and preschool age Boston children respectively living in families with all parents working full-time at various income levels relative to the SMI.

**Table 11. Family income levels of young Boston children (0-5 years, 4 months) with all parents working full-time**

	<b>Less than 25% SMI</b>	<b>Less than 50% SMI</b>	<b>Less than 85% SMI</b>	<b>Less than 100% SMI</b>	<b>Less than 125% SMI</b>
<b>% of children</b>	.75%	8%	17%	20%	24%
<b># of children</b>	321	3,422	7,272	8,555	10,266

**Table 12. Family income levels of Boston preschool age children (3 - 5 years, 4 months) with all parents working full-time**

	<b>Less than 25% SMI</b>	<b>Less than 50% SMI</b>	<b>Less than 85% SMI</b>	<b>Less than 100% SMI</b>	<b>Less than 125% SMI</b>
<b>% of children</b>	.5%	9%	19%	22%	26%
<b># of children</b>	94	1,685	3,558	4,119	4,868

## Conclusion

This report provides novel information regarding both family income levels for Boston children and the relationship of children at different income levels and the working status of their parents. Refined estimates of the number of children falling under income levels relative to the SMI were obtained by employing the Census 2000 PUMS. Previously, a frequently cited method to determine the

number of children with a family income below 50% of the SMI was to simply double the number of children living in families with an income below 25% of the SMI, information that was easily obtained from the 2000 Census. Tables 1 and 2 demonstrate the more precise and broader range of figures obtained using the Census 2000 PUMS records.

Analysis of the Census 2000 PUMS in combination with Boston birth record data has allowed us to obtain information specific to state subsidy requirements that has previously eluded us. These data inform our questions regarding the demand for full-time and subsidized early care and education in Boston. For example, **1,685** (9%) of preschool age children live in families with incomes less than 50% of the SMI and have all parents working full-time. This figure jumps to **3,558** (19%) of preschoolers when evaluating the number of children living in families with incomes less than 85% of SMI and all parents working full-time.

Moreover, these data reveal the number children potentially affected by changes to subsidy income requirements. For instance, an estimated 3,422 young children live in families with all parents working and with incomes less than 50% of the SMI, whereas 7,272 young children live in families with all parents working and with incomes less than 85% of the SMI. An alteration in subsidy income criterion from less than 85% to less than 50% of SMI would result in loss of subsidy eligibility to **3,850** young children. It should be noted that this number reflects only those young children with parents working full-time. The gap is much greater if all young children are considered (9,839).

To determine the current effectiveness of the Massachusetts state subsidy system in Boston, an essential next step is to determine the relationship between this demand for full-time subsidized early care and education and the number of full-time subsidies available. With future data regarding parent's wants and needs for early care and education in Boston, we anticipate that a similar relationship can be determined for families seeking part-time subsidized early care and education as well.