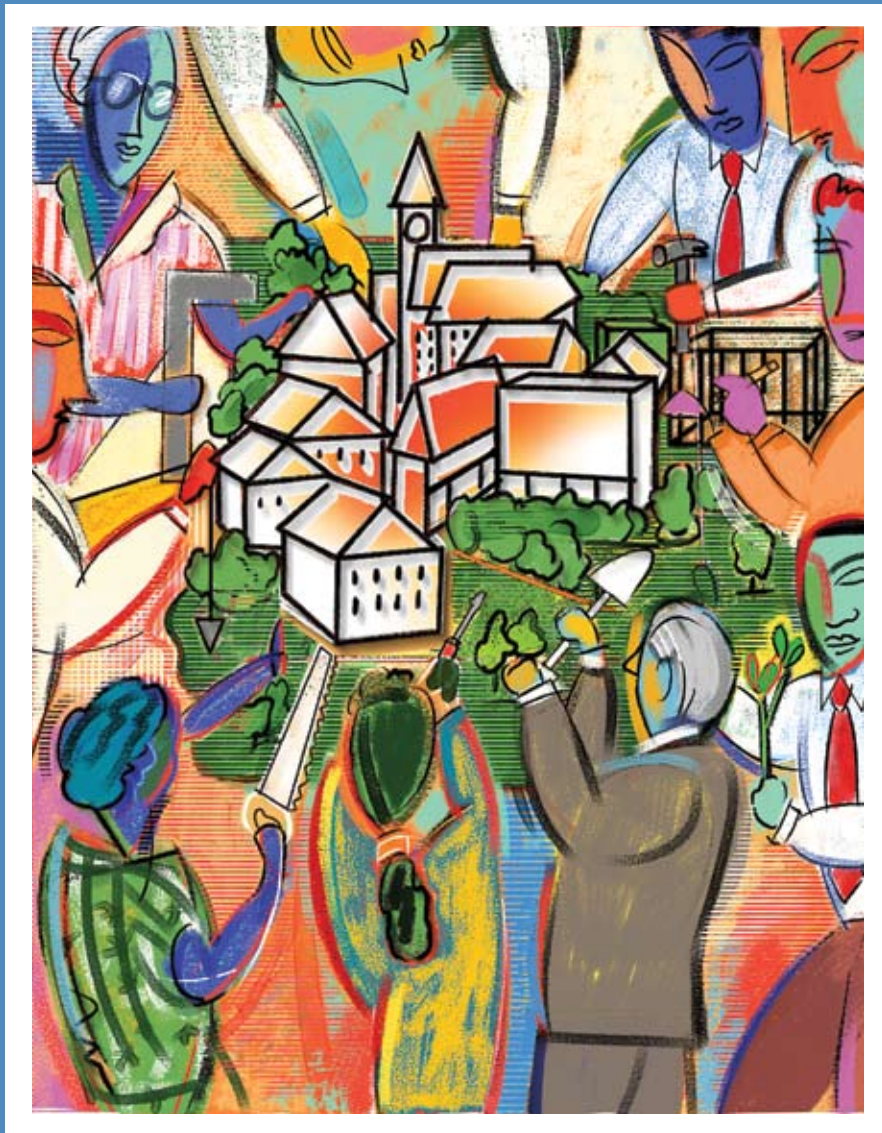


A Guide to Calculating the Cost of Quality Early Care and Education



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A Guide to Calculating the Cost of Quality Early Care and Education

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Preface

The early years of a child's development are critical to establishing a foundation for success in school and beyond. Research on early brain development reveals the importance of relationships and experiences in building the social, emotional, intellectual, and academic skills that individuals rely upon throughout their lives. As a result, ensuring that children enter school ready to learn is now a well-established national goal. Across the country, many states and localities, with support from an array of business, philanthropic, and community partners, are engaged in innovative efforts to expand and improve programs and systems of supports for young children and their families.

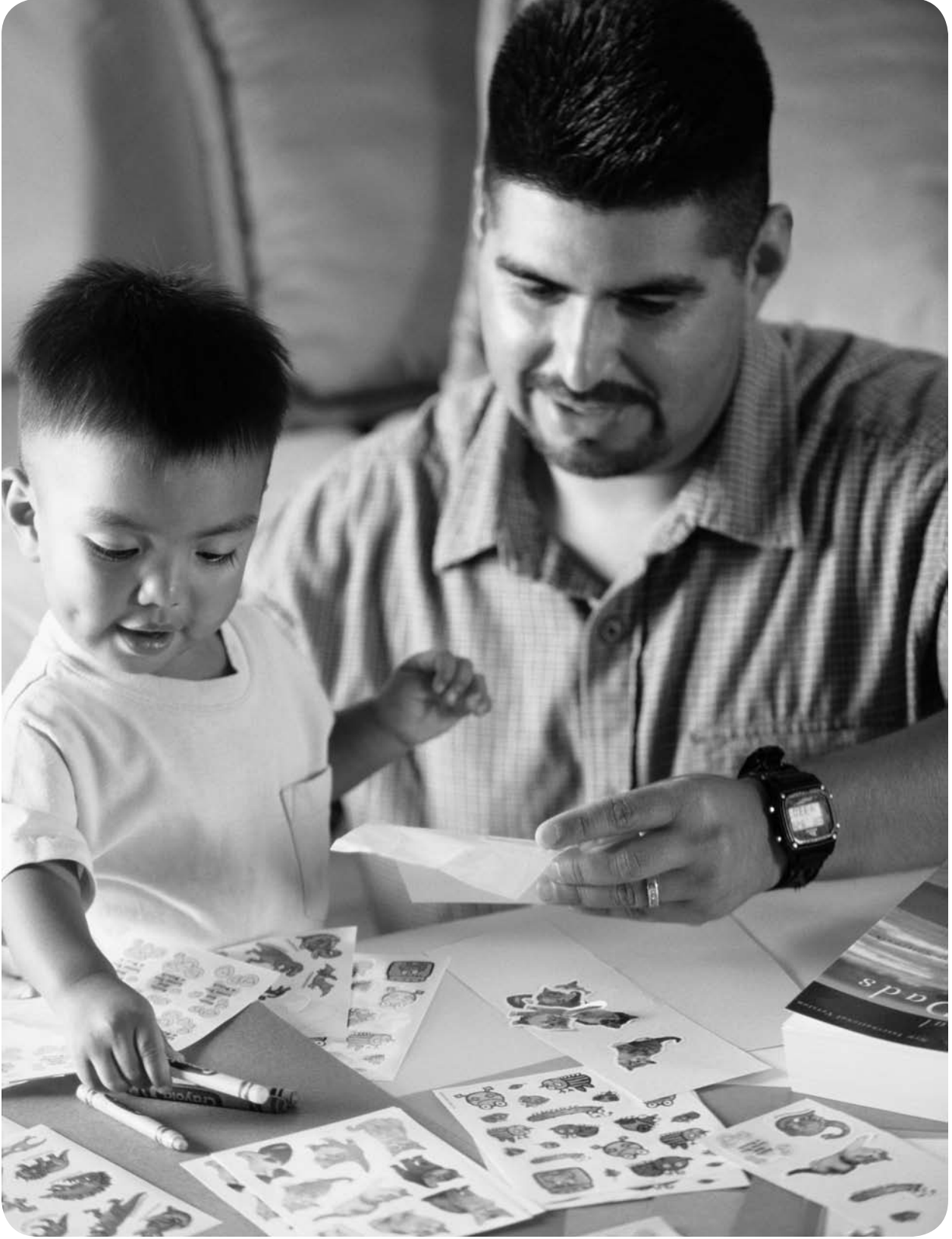
At the same time, there is growing concern about the quality of the early care and education that many children experience, and the effectiveness of these programs in preparing children to enter the formal education system. With three out of four children in care outside of their home by the time they turn four, the quality of these early learning experiences becomes paramount. A growing body of research points to effective approaches for creating quality programs and services that make a measurable difference in the lives of young children and their families. To implement such approaches, policymakers and program developers need to know what high-quality early care and learning costs and how such systems can be financed.

This strategy brief, *A Guide to Calculating the Cost of Quality Early Care and Education*, is intended to assist policymakers, community leaders, and program developers create accurate estimates of the cost of high-quality early care and education systems. The brief lays out a step-by-step process for helping users determine what they want to finance and what it will cost to achieve those goals. Throughout the brief, a case study of the cost modeling process The Finance Project facilitated in Kansas City illustrates how one locality calculated the cost of increasing the quality of early care and education services. The Finance Project is deeply grateful to Abby Thorman, the Mid-America Regional Council, and the Kansas City Partners In Quality for their contributions to refining this process.

This strategy brief continues The Finance Project's efforts to create useful tools for understanding the costs and financing of supports and services for children, families, and communities. It builds on significant work related to determining the costs of out-of-school time programs and the costs of professional development services for teachers in K-12 education. These resources are intended to be useful tools for policymakers, program developers, community leaders, and other decision makers who are looking for creative new ideas for policies, programs, and systems reforms, as well as practical information on how to implement them.



Cheryl D. Hayes
Executive Director



Introduction

During the initial years of life, children experience unparalleled growth and development. As knowledge increases about the importance of the first years, so does demand for public investments to promote healthy early childhood development.

- In the first five years of life, children build a sturdy or fragile stage for their future cognitive, social, emotional, and moral capacities. During this time, they develop “foundational capabilities on which subsequent development builds.”¹
- A majority of children are in care outside of their homes by age 4. In 1999, 76 percent of 3- and 4-year-old children were educated and cared for by someone other than their parents.²
- The quality of the care children receive makes a difference. Unfortunately, most child care is low quality, with high caregiver turnover, poorly designed programs, or inadequate preparation of staff. Poor quality care can potentially jeopardize a child’s health, safety, and development. Children that have warm, supportive caregivers develop greater social competence, fewer behavioral problems, and enhanced thinking skills at school age.³
- Children who are not ready to learn when they enter kindergarten are more likely to struggle in elementary school, and are more likely to become teen parents, engage in criminal activities, and suffer from depression.⁴

States and communities are responding to growing public demand for high-quality care for young children. Between 1988 and 2005, combined state spending in pre-kindergarten soared from \$190 million to \$2.8 billion.⁵ Even with relatively weak economies since 2000, many states are maintaining investments in early education, and some are even increasing funds. As pressure mounts for communities to strengthen their commitment to early care and education, policymakers and community leaders increasingly need tools and methods to accurately estimate the costs of high-quality systems and services and to better determine the return on investments in early and education services.

¹ National Research Council and Institute of Medicine, *From Neurons to Neighborhoods: The Science of Early Childhood Development* (Washington, DC: National Academy Press, 2000) Executive Summary, p. 5.

² Tabulations generated by the National Institute for Early Education Research, Rutgers University, based on data from the U.S. Department of Education, National Center for Education Statistics, National Household Survey, 1999.

³ W. Steven Barnett, Jason Hustedt, Kenneth Robin, and Karen Schulman, *The State of Preschool* (Rutgers, NJ: National Institute for Early Education Research, 2004); Suzanne W. Helburn, ed., *Cost, Quality, and Outcomes in Child Care Centers* (Denver, CO: University of Colorado at Denver, 1995); *Young Children Develop in an Environment of Relationships*, Working Paper No.1 (Waltham, MA: National Scientific Council on the Developing Child, 2004).

⁴ Executive Summary, *The Future of Children: Closing Racial and Ethnic Gaps*, vol. 15, no. 1, spring 2005.

⁵ A. Mitchell, *Prekindergarten Programs in the States: Trends and Issues* (Climax, NY: Early Childhood Policy Research, 2001). Available at <http://www.nccic.org/pubs/prekinderprogtrends.pdf>; W. Steven Barnett, et al., *The State of Preschool* (Rutgers, NJ: National Institute for Early Education Research, 2005).

Estimating the cost of high-quality early care and education programs and systems involves looking critically at three distinct cost categories:

- **Direct service costs** – the costs of specific programs or resources that children and their parents receive, such as child care services, parent education, health care, or other family support services.
- **Infrastructure costs** – costs related to the systems that enable programs to function effectively and allow families to connect to services they desire. These system-level costs include administration, evaluation, resource and referral functions, technical assistance and support, and planning and coordination.
- **Capital costs** – importantly for early care and education programs and systems, capital costs include the bricks-and-mortar costs of building, renovating, and maintaining facilities, and other capital expenditures such as transportation costs and equipment purchases.

Creating accurate cost estimates can be challenging. Federal, state, and local agencies govern separate early care and education funding streams, which were created in response to different priorities. As a result, parallel funding streams support different types of services, with different eligibility requirements, staff training, regulations, and reporting requirements. At the community level, this variation in funding characteristics creates multiple, fragmented programs and services. This fragmentation makes it difficult to estimate the costs of services

currently provided in a system, let alone the cost of raising the quality of care for young children.⁶ Moreover, most state and community leaders lack adequate data and data collection and analysis tools to determine the costs of services for young children.⁷

To help state and community leaders develop effective financing strategies to support early care and education services, The Finance Project designed a process and model for estimating the current cost of early care and education, and the marginal cost of raising the quality of the system. This strategy brief provides a roadmap of the process, as well as menus of items to consider in defining and estimating the cost of higher-quality systems of early care and education. The Finance Project developed this process while working intensively with the Mid-America Regional Council in Kansas City. Throughout the brief, a case study of Kansas City will be used to illustrate the process. Although this brief cannot include every assumption and calculation of the process, it is intended to provide a helpful overview of how to structure and undertake a cost estimation process. While the model was developed for a metropolitan area, it can be adapted for a state-level planning process as well.⁸

Process Overview

Creating accurate cost estimates for an early care and education system involves the following five steps.

Step 1: Determine Financing for What. The first step is to clearly define the types of

⁶ Margaret Flynn and Cheryl D. Hayes, *Blending and Braiding Funds To Support Early Care and Education Initiatives*, (Washington, DC: The Finance Project, January 2003).

⁷ Charles Bruner, *A Stitch in Time: Calculating the Costs of School Unreadiness*, (Washington, DC: The Finance Project, September 2002).

⁸ Cost estimation at the state level would follow a similar process, but the larger scope could require additional attention to regional cost differences and infrastructure.

services to include, the settings in which to deliver services, and characteristics of the population to receive services. This is a consensus-building step that requires decisionmakers to agree on how they define early care and education, and where they want to focus resources.

Step 2: Identify Quality Improvements. The second step defines the level of quality stakeholders seek to achieve within the system. This step requires looking at current levels of quality and determining the mechanism through which to improve quality.

Step 3: Create a Cost Model to Determine the Baseline Cost Estimate. The next step involves building a cost model to calculate the baseline costs of the current level of quality of care within the current system. This model answers the following question: What is the current cost of care at the current level of quality? It requires access to local data on cost factors and resources to collect data where it does not already exist.

Step 4: Estimate the Cost of Improving Quality. With the cost model in place, step 4 makes adjustments in



cost estimates based on the quality improvement goals identified in step 2, such as lower staff-child ratios or higher wages based on education requirements. The new estimate will reflect the cost of the higher-quality system. The difference between the estimates in step 3 and step 4 will be the additional resources needed to improve the quality of care defined in step 2.

Step 5: Determine Ramp-Up Assumptions. Depending on the current state of quality in the community, and the quality goals outlined in step 2, it will likely take many years to fully implement the higher-quality

requirements. The final step in the cost estimation process determines how quickly and with what benchmarks to phase in these quality improvements.

The analytic process described in this paper will be most useful when connected to a larger effort to create a strategic financing plan. While cost estimates are a critical step in any effort to create a financing plan, community leaders will also need to analyze existing funding streams to identify funding gaps and to design and implement a variety of financing strategies to secure needed resources. As described in the text box below, developing a strategic financing plan involves five key steps. This paper focuses on the first two steps of the process.

Creating a Strategic Financing Plan

- 1. Clarifying Financing for What.** What are you seeking funding for? What does the system look like? What are the range of supports and services to be included in the system (both direct services and infrastructure functions)? What quality standards must be in place?
- 2. Estimating Fiscal Needs.** What is the range of costs for your initiative? Costs include program-level costs as well as systems-level costs.
- 3. Mapping Existing Funding.** What funding is already in the system? What is it being used for? How flexible or fungible are these resources?
- 4. Identifying Gaps.** What gaps exist between your financing goals and current patterns of spending?
- 5. Developing Strategies to Fill Those Gaps.** What strategies can be employed to fill those gaps and meet the initiative's fiscal needs? Strategies may include the following: making better use of funding already in the system, maximizing federal and state revenue, creating greater flexibility in funding streams, creating public-private partnerships, and generating new sources of revenue.

For more information on developing a financing plan, see *Thinking Broadly: Financing Strategies for Comprehensive Child and Family Initiatives* and Module III: Creating a Strategic Financing Plan of the *Sustainability Planning Workbook*.¹

¹ Cheryl D. Hayes, *Thinking Broadly: Financing Strategies for Comprehensive Child and Family Initiatives* (Washington, DC: The Finance Project, March 2002); *Sustainability Planning Workbook* (Washington, DC: The Finance Project, 2003).

Getting Started: Create an Advisory Group

Developing a cost model requires making complex decisions about what to finance, where to target additional resources, and how to improve existing supports and services. To ensure that the effort to create reasonable cost estimates is more than an academic exercise, consider creating an advisory group of key stakeholders to assist in making and supporting these decisions. Members, both traditional and nontraditional, may include the following:

- **Individuals who have content knowledge of and expertise in early education supports and services**, such as providers of early care and education, state and local administrators of public funds for early care and education, parents, and child advocates.

- **Individuals who can help to raise the visibility of and lend credibility to your efforts**, such as business leaders, civic leaders, members of the faith community, and other respected members of the community.
- **Individuals who have the authority to make decisions and/or influence action** related to the implementation of your financing plan, such as program administrators, state legislators, and other elected or appointed officials.

Think carefully about who to include in the stakeholder group from the beginning. This will ensure that the estimates will have broad support and that the cost model can become an effective tool for change.

Kansas City's Advisory Group

In 2002, the Mid-America Regional Council (MARC) chartered the Early Learning Leadership Board to create a focused and coordinated point of accountability, and establish leadership for the implementation of an early learning system in Greater Kansas City. The Board's primary role was to lead and coordinate community efforts to increase public investment in early learning. The Board included prominent business executives and respected community leaders who would make the final decisions about how to increase funding for early care and education. MARC also engaged Partners in Quality (PIQ), a group of organizations that represented parents, business, child care, Head Start, public schools, foundations, and government. PIQ provided expertise in the field of early care and education, and made recommendations to the Leadership Board on how to improve the level of quality. Both groups existed before the cost-estimation process began.

Step 1: Determine Financing for What: Defining the Scope of Supports and Services



Step 1: Determine Financing for What: Defining the Scope of Supports and Services

The first step in estimating the cost of quality care is to answer the question *Financing for what?* Members of the advisory group will likely agree that improving the quality of early care and education is important, but their judgments may differ on what programs and services to improve, and how best to improve them. Access to state or local information may help the advisory group make decisions about where to focus attention (see Table 1). For example, it may be easier to improve the quality of care in licensed or regulated settings because they are a known entity. However, advisors may decide that because children outside of the regulated system receive little or no attention, it is important to focus their efforts here.

To help answer the question *Financing for what?* the advisory board should focus on three categories of costs: direct services, infrastructure, and capital investments.

Direct Services

Direct services are the specific programs or resources that children and their parents receive.⁹ They may include child care services, parent education, health care, or other family support services. The advisory group needs to determine what services they are seeking to improve, for whom, and where. Should the cost estimate include all children or just those most at risk of school failure? What is the age range of children who will receive services? Should the estimates target a specific geographic region, such as a metropolitan area, or the location where children receive care (e.g., child care centers and homes, resource centers, libraries, and health care facilities)? Will the estimates include licensed and unlicensed care? Does it make sense to target estimates to specific programs that serve young children (e.g., Head Start, Early Head Start, subsidized child care, family support programs, and Medicaid)?

Infrastructure and Capital Costs

Infrastructure is the foundation on which quality services and effective systems function. Infrastructure costs include administration, evaluation, resource and referral functions, technical assistance and support, and planning and coordination. Adequate infrastructure enables programs to function effectively and allows families to connect to services they desire. These costs occur at the systems level. They are generally ongoing costs related to effective service provision, and typically are related to the amount of direct services provided—the more families the system serves, the larger the infrastructure costs will be.

Capital costs refer to the larger expenditures, some of which are one-time outlays, others of which are on-going, that are also essential for programs and systems to operate.¹⁰ Importantly for early care and education programs and systems, capital costs include the bricks-and-mortar costs of building, renovating, and maintaining facilities. They may also include transportation costs and expenditures for equipment.

⁹ “Direct services” is defined here as the range of supports and services provided directly to children and their families. It includes the “direct costs” of providing services, such as salaries and supplies, as well as the “indirect costs” related to service provision, such as administrative and management costs.

¹⁰ Capital typically includes real estate capital, operating capital, and risk capital. For additional information, see Debbie Gruenstein Bocian and Aracelis Gray, *Enhancing Access to Community Development Capital: Strategies for Strengthening Low- and Moderate-Income Communities*, (Washington, DC: The Finance Project, January 2005).

Table 1. Financing for What?

To answer these questions...

1. Direct Services

- What types of services are you seeking to finance? (early learning, maternal and child health, parental support)
- For whom?
- Where? What geographic location? In what settings?

2. Infrastructure

- What capacities are needed to support the system? (e.g., workforce development/retention, training and technical assistance, evaluation, planning, coordination, licensing, resource and referral, transportation)

3. Capital Investment

- What expansion or improvements to facilities are needed? (e.g., new construction, renovation, emergency funds for repairs and replacements)
- What other types of capital expenditures are required? (e.g., equipment for early learning centers and family child care homes, vehicles, special equipment for children with special needs)

...it may help to have the following information:

- Annual births at the state and community level
- Number of children in Head Start, Early Head Start, Even Start, and public pre-kindergarten programs
- Number of children with special needs (birth to five)
- Number of children (birth to five) on Medicaid and/or the State Children's Health Insurance Program
- Number of uninsured children (birth to five)
- Number of children (birth to five) receiving subsidized child care
- Who and how many parents participate in family support or parent education programs
- Who and how many children/families receive home visits
- Number of licensed or regulated child care providers (centers and homes)
- Child care licensing regulations (which providers are exempt, minimum staff requirements, maximum group sizes, and staff-child ratios)
- The maximum capacity of the existing pool of child care providers
- The unmet need for subsidized child care (birth to five)
- Current supply of providers/state of facilities
- Current state of transportation services for staff and families
- Current level/capacity of system infrastructure

Infrastructure and capital costs can be expensive and may appear frivolous to some given the demand for additional resources to improve direct services. However, quality is affected not only by service delivery factors, but also by the quality of facilities and equipment used in the provision of services. Estimating the cost to improve the quality of direct services without considering the impact on infrastructure will not produce realistic estimates of the true cost of achieving a higher level of quality. Notably, if the demand for care exceeds the supply of excess or subsidized space in a community, or if the improvements in quality will increase demand beyond the maximum capacity of current providers, additional costs related to capital and infrastructure will be critical pieces of the cost estimates.

TIPS TO CONSIDER

- Answering the question *Financing for what?* requires significant time for consensus building. Consider hiring a local facilitator who can assist the group in building consensus regarding key goals of reforms and the parameters for achieving them. Support for these assumptions is critical—particularly as the process evolves to identify financing strategies that support efforts to improve quality.
- Define the scope of the services with care. Generally, the broader the scope of programs and services, the more complex the cost model, and the less precise the cost estimate

Kansas City: *Financing for What?*

After an intense process of multiple meetings over four months, PIQ recommended the following scope of programs and services be included in the cost estimates to the Leadership Board.

- Early learning services provided at licensed early learning centers and licensed or registered family child care providers that serve newborn to 6-year-old children and their families in the eight-county metropolitan area.
- Family support services for all families with newborn to 6-year-old children, including parent education and coordination of existing services available to families in the community.

PIQ made the following recommendations related to infrastructure and capital.

- Ensure an adequate system infrastructure that includes planning and coordination functions, evaluation capabilities, management information systems, technical assistance and training, public education activities, resource and referral functions, licensing systems, and career development services.
- No investment in capital. New facilities are not needed at this time in the eight-county metropolitan area. There is adequate supply to meet the demand for early care and education services. The initial focus will be on improving the capacity of existing programs.

because of the number of variables and assumptions it relies on. For example, states or communities estimating the cost of lowering staff-child ratios in licensed child care centers will have fewer variables in the cost model than communities seeking to lower ratios, raise teacher credentials, and provide parent education.

- Decisions made early in the process will likely evolve during the modeling exercise. In fact, preliminary cost estimates may change many of the decisions about what to improve, how, and how quickly. Stakeholders should be prepared for an iterative process of defining and then refining the scope of the project.



Step 2: Identify Quality Improvements: Defining the Changes in Quality

After the advisory group defines the scope of the programs and services to include in the cost estimate, it must make a second layer of decisions about how to improve quality. Strategies to improve quality might include lower staff-child ratios in child care settings, higher compensation and benefits, improvements in professional development, increased access to programs, better coordination among programs and public agencies, and evaluation or continuous improvement plans.

To help inform these decisions, begin by defining the current level of quality in the system that is relevant to the direct services, infrastructure, and capital (see text box). Then, stakeholders must make decisions about whether and how to raise one or more of these indicators of quality.

Examples of Quality Indicators for Early Care and Education

- Staff-child ratios by the age of the child and the setting of care
- Minimum credential requirements for child care providers
- Average salary and benefit levels of providers
- Professional development opportunities
- Quality ratings systems for care providers
- Monitoring or evaluation requirements
- Efforts to promote coordination among services to provide a seamless system of care

The following questions may help guide these decisions.

Direct Services

- For each of the direct services defined in step 1, what are the priority components of a quality program?
- What will it take to bring programs up to the improved quality standards?
- What is the demand for services now, and how will it change with improved quality?
- If demand exceeds capacity, what are the start-up costs for adding new programs?

Infrastructure

- Do the services defined in step 1 require new infrastructure, or is the existing infrastructure sufficient?
- If new infrastructure is necessary, can it build on existing systems, or does it require the design of new systems?
- What are the start-up and ongoing costs of new infrastructure?

Capital Investment

- Do facilities and/or equipment need to be added or improved?
- What are the start-up costs of building or renovating facilities and purchasing or leasing equipment?
- What are the ongoing costs for additional facilities and equipment maintenance and for emergency needs?

TIPS TO CONSIDER

- Defining desired changes in quality may require consultation with experts in the field. If these experts are not part of the existing advisory group, consider adding local and national experts to the group or convening a special meeting to seek expert input and advice.

- Every state or community effort to build a cost model will be unique, reflecting the variety of decisions the advisory group makes to answer the question *Financing for what?* Each model will be as complex or as simple as the decisions made and the range of variables involved. Because of the unique nature of this process, the advisory group may want to look at multiple examples of cost models to help tailor the process and approach. (See the Resource Section at the end of the paper for examples on estimating the cost of universal pre-kindergarten.)

Quality Improvements in Kansas City

PIQ recommended the following levels of quality for Kansas City.

- Staff-to-child ratios based on national standards: Staff-to-child ratios based on both current state and National Association for the Education of Young Children (NAEYC) standards, with the exception of ratios for infants, which was based on a higher Kansas standard.
- Increased provider compensation: Salary levels based on tenure, education, training, and professional responsibilities.
- Adequate staff benefits: Benefits package includes two weeks' paid vacation, one week paid sick leave, eight paid holidays, health insurance for the employee, and retirement benefits.
- Higher levels of staff education: For center-based programs, directors are required to have a bachelor's degree in the field; lead teachers must have an associate's degree in the field; and assistant teachers must have a Child Development Associate degree (CDA). Family child care providers are required to have an associate's degree.
- Increased staff training: All providers are required to complete 20 hours or two continuing education units of training per year.

Step 3: Create a Cost Model to Determine the Baseline Cost Estimate

Steps 1 and 2 help stakeholders reach consensus about what they seek to finance. The next step is to determine the cost of those financing goals by creating a cost model. Constructing a cost model requires identification of the cost factors associated with the defined programs and services (such as salaries or costs of supplies), and the quality variables that influence these costs (such as staff-child ratios). The model initially will generate a baseline estimate of the cost to provide the defined scope of programs and services at existing levels of quality. It can then be manipulated to determine the marginal cost to provide higher levels of quality.

Data Collection

Translating the data into a cost model is the heart of the estimation exercise. It will vary based on the availability of data, the goals of the advisory group, and the unique nature of the community or state. Begin by collecting local data on cost factors and reviewing information on the current status of programs you collected in Step 1. Essential data to collect will include the following:

- Total number of children and families served by setting (by age, by program type)
- Current wage data by position (e.g., director, lead teacher, assistant teacher)
- Current staff-to-child ratios and maximum class sizes
- Current tax requirements
- Typical fringe benefit rates
- Typical facilities costs
- Typical overhead or indirect rates
- Other typical costs, such as supplies, equipment, and food, that providers generally incur.

Create a Hypothetical Child Care Organization

A useful starting point is to specify hypothetical settings to create models that allow for adjustments in the various components of the program. Adjusting these components to reflect the quality changes the advisory group selects will help quantify the marginal cost of quality improvements.

1. Begin by constructing a budget for a hypothetical child care setting. Identify the average costs that a child care provider incurs to provide services to children and families in this setting, and create a hypothetical budget. These costs may include the following:
 - Salaries¹¹
 - Benefits (including sick leave, vacation time, and other benefits)
 - Taxes (including employment taxes such as FICA and business taxes for for-profit providers)
 - Facilities (rent, utilities, maintenance)
 - Food, equipment, and supplies

¹¹ Salaries will depend on current wage levels, staff-child ratios, and class sizes. If family or home-based child care providers are included in the model, use income data instead of salary data. Family child care providers are unlikely to pay for benefits.

- Training and professional development
- Administration

If possible, try to use local data to create the hypothetical setting—for example, typical benefit rates, local tax requirements, and local facilities costs. If local budget data do not currently exist, you may want to survey a sample of providers to determine reasonable averages for various budget components.

If local cost data are not available, seek national data on typical costs. The Bureau of Labor Statistics publishes State Occupational Employment and Wage Data. A 1995 comprehensive study of child care centers in four regions (California, Colorado, Connecticut, and North Carolina) produced average costs for child care centers. Table 2 shows the average budget costs from this study.

Table 2: Expenses as a Percent of a Total Budget for a Typical Child Care Center

	Nonprofit Center	For-profit Center	All Centers
Labor	78.87 %	61.79 %	70.33 %
Occupancy	7.37 %	20.24 %	13.8 %
Food	4.93 %	4.25 %	4.59 %
Other Operating	6.73 %	10.42 %	8.57 %
Overhead	2.03 %	2.91 %	2.47 %

Source: Suzanne W. Helburn, ed. *Cost, Quality, and Outcomes in Child Care Centers* (Denver, CO: University of Colorado at Denver, 1995) Table 8.1.
Note: Elements may not add to 100 percent because of rounding.

2. After creating a total budget for the hypothetical setting, divide the total by the number of children served in the hypothetical setting to determine an average cost per slot.

3. Multiply the average cost per slot by the number of children in the community (or state) who are served in that setting.
4. Repeat the process, if necessary, to create budgets for additional settings. For example, child care delivered in a center has different budget assumptions than care delivered in a home.
5. Add the total costs for each setting to arrive at a total cost for care.

Calculate Infrastructure and Capital Costs

Creating baseline estimates for the cost of infrastructure and capital may require gathering cost data on each element of infrastructure and capital costs. For example, what are the local costs of resource and referral functions or the current cost of evaluation activities?

Calculating the cost of infrastructure and capital as a percentage of direct services is a much simpler approach. Moreover, it logically assumes that, as direct services grow, the need for infrastructure and capital investments will grow as well. Unfortunately, there are no “industry standards” or national data on reasonable percentages to estimate infrastructure or capital costs. Based on our experiences, The Finance Project believes 10 percent of total funding is a reasonable assumption for infrastructure costs in the early care and education system.

However, the current level of investment in infrastructure may be significantly less or more than 10 percent. To create a more accurate estimate of infrastructure costs, consider collecting actual

levels of investment to create that baseline percentage.¹² Begin by contacting the managers of resources related to all of the infrastructure functions identified by the advisory group (such as the local licensing authority and the local resource and referral agencies). Make sure to consider the range of public and private funding sources that support infrastructure costs, such as in-kind contributions, voluntary assistance, or contributed or subsidized services. To determine a reasonable estimate of infrastructure as a percentage of direct services, divide the sum of the estimated expenditures for infrastructure functions by the sum of the direct services costs.

TIPS TO CONSIDER

- Keep it simple. Use spreadsheet software that is easy to manipulate and easy to explain.
- Keep perspective. The goal is to develop reasonable, defensible estimates, not dollar figures accurate to the penny.
- Clearly show the assumptions included in the model. This will help to ensure a common understanding of the parameters that went into the model as well as help to explain the details to external stakeholders.
- Separate the estimates into direct services, infrastructure, and capital costs.
- Separate costs for infants, toddlers, and preschool-age children. Because costs vary by age, it is more accurate to subdivide the center costs by child age. Typically, centers charge one price for infants and toddlers, and a lower price for preschool-age children.
- Remember that the vast majority of systems costs will be related to direct services. While infrastructure and capital costs are also important, they will not be significant cost drivers.

¹² For additional resources on mapping current investments in children and their families, including investments in infrastructure, see the Resources section at the end of this brief.

Estimating the Baseline Costs in Kansas City

Using the parameters defined by PIQ and the Leadership Board, The Finance Project developed a cost model for Kansas City that reflected baseline system costs of the existing levels of service and existing levels of quality. The cost model was divided into three parts: early learning services, family support, and system infrastructure.

EARLY LEARNING SERVICES

The baseline model created hypothetical child care settings to arrive at an average cost per slot. For ease of manipulation, the analysis created a hypothetical child care center serving infants and toddlers, another center serving preschoolers, and a hypothetical family child care home (see Table 3). To arrive at the average budget for operating these hypothetical settings, the model relied on current salary data in a sample of Kansas City centers and homes, and national and local budget information on expenses for center and family-based child care settings. The average center and home budgets assume the following:

- Centers and homes operate for 50 hours per week, on average.
- The percentages of the workforce who serve as directors, lead teachers, and other child care staff remain the same.
- Fringe benefits are 18 percent of salaries. This rate includes taxes of approximately 12 percent for FICA, unemployment insurance, and workers' compensation insurance, and 6 percent for current levels of benefits relating to vacation, sick leave, training, health insurance, and retirement (based on local data).

Dividing average costs by the number of children in each setting (infants, preschoolers, and family child care homes) produced the average cost per slot. Cost-per-slot numbers were then multiplied by the total enrollment data in the eight-county region, as determined by a survey of providers.



Table 3. Staffing Assumptions for a Hypothetical Child Care Center

	Rooms	Max Group Size	Number of Children	Adult:Child Ratio	Number of Teachers
INFANT-TODDLER CENTER					
Infants (<12 mo)	2	9	18	1 to 3	6
Toddlers (13 to 24 mo)	3	12	<u>36</u>	1 to 4	<u>9</u>
Total			<u>54</u>		<u>15</u>
PRESCHOOL CENTER					
2 to 3 year olds	2	12	24	1 to 6	4
3 to 5 year olds	3	20	<u>60</u>	1 to 10	<u>6</u>
Total			<u>84</u>		<u>10</u>

TEACHER COMPENSATION ASSUMPTIONS

	Baseline Hourly Salaries	Baseline Annual Salaries	Number of Teachers Required	
			Infant-Toddler Center*	Preschool Center*
Director	\$13.07	\$27,186	1.0	1.0
Asst. Director	\$10.83	\$22,526	1.0	1.5
Lead Teachers	\$9.43	\$19,614	8.8	6.6
Asst. Teachers	\$7.57	\$15,746	7.7	4.4

*The number of lead and assistant teachers represents a ten percent increase to account for the number employed 40 hours/week in order to provide 50 hours of care.

SYSTEM INFRASTRUCTURE AND FAMILY SUPPORT

The Finance Project estimated baseline infrastructure costs at 6 percent of total direct service costs based on an analysis of current public and private expenditures. Infrastructure costs include systems-level expenses such as planning, coordination, evaluation, data and management information systems, training and technical assistance, public education, licensing systems, and career development. Baseline family support costs were estimated to be 5 percent of total direct service costs based on an analysis of current public and private expenditures in similar initiatives in other communities.



Step 4: Estimate the Cost of Improving Quality

To estimate the cost of improved quality, run the model using the enhanced quality variables (such as lower staff-child ratios or higher wages). The difference between this cost and the baseline cost derived in step 3 is the marginal cost of improving the system. The marginal cost represents the additional dollars that must go into the system to raise the overall quality to the levels identified by the advisory group. There are two things to remember about this number.

1. It is an annual figure, not a one-time cost. This increase in funding must be sustained to maintain the improved quality.
2. It is the cost of increased quality at full implementation. Depending on the level of quality improvements, and the current level of quality in the system, it will likely take years to achieve full implementation. Step 5 produces an estimate of the incremental costs of moving from the current system to the improved system.

TIPS TO CONSIDER

- Estimating the cost of improved quality is an iterative process. A cost model allows stakeholders to revise the quality goals if the price tag is too high. In Kansas City, the Leadership Board considered three different sets of quality assumptions before selecting the one that was politically and programmatically acceptable for that community.
- Be careful what you wish for. The potential sticker shock may slow or even stop the momentum of the advisory group.
- Consider conducting a sensitivity analysis for each quality variable. Rerun the model changing one quality variable at a time. This allows stakeholders to see which changes in quality have the biggest impact on the final cost.

Improvements in quality may include increases in the following cost factors:

QUALITY ENHANCEMENTS

- Higher wages
- Better benefits
- Cost associated with achieving higher levels of education
- Changes in staff-to-child ratios

CAPACITY EXPANSION

- Additional administrative infrastructure
- Evaluation
- Facility renovation/expansion
- New construction

Estimating the Cost of Improved Quality In Kansas City

With the baseline model established, The Finance Project adjusted the quality parameters based on PIQ recommendations.

EARLY LEARNING SERVICES

Increased staff-to-child ratios: Used NAEYC standards, except the ratio for infants, which kept the higher Kansas standard.

Increased wages tied to higher credentials: Based on the attainment of higher education requirements for the child care workers, increase hourly wages for child care center employees as described in the table below, and increase annual income for family child care providers by 20 percent.

Staff Level	Education Required	Average Hourly Wage Increases From:
Director	Bachelor's degree in the field	\$13.07 to \$15.50
Asst. Director	Bachelor's degree in the field	\$10.83 to \$14.00
Lead Teacher	Associate's degree in the field	\$ 9.43 to \$11.00
Asst. Teacher	CDA degree	\$ 7.57 to \$ 9.00

Increased benefits package: The estimates include an improved benefits package that contained two weeks' paid vacation, one week paid sick leave, eight paid holidays, health insurance for the employee, and retirement benefits. The improved benefits package increases the total fringe rate from 18 percent to 32 percent. The new fringe rate includes 12 percent for taxes, 2 percent for retirement, 13 percent for health insurance (based on local average premiums of \$250 per month for employee-only coverage), and 5 percent for a leave pool to cover the costs of substitutes when employees take leave. Family child care home provider income was also adjusted 10 percent to reflect a corresponding increased cost of benefits.

SYSTEM INFRASTRUCTURE AND FAMILY SUPPORT

Increased infrastructure costs: Career development, public education, coordination, evaluation, and training and technical assistance will increase infrastructure costs by 4 percentage points of direct services costs (from 6 to 10 percent of direct services).

Increased family support costs: Family support costs will rise from 5 percent of direct service costs to 11 percent to account for increased costs related to education and information services for parents, support for center-based and family providers, technical assistance and training for business and local government, coordination mechanisms, and support for parent advisory councils.

Total Annual Cost at Fully Implemented Improved Level of Quality in Kansas City

Direct Services

	Number of Children	Cost per Slot	Total
Centers			
Infants	2,152	\$16,900	\$36,370,253
Toddlers	3,864	\$12,861	\$49,699,197
Preschoolers	29,630	\$6,943	\$205,734,448
Family Home Child Care			
Infants	1,516	\$8,361	\$12,678,222
Toddlers	2,777	\$7,433	\$20,639,862
Preschoolers	3,545	\$6,967	<u>\$24,697,009</u>
Direct Services Subtotal			\$349,818,990
Infrastructure (10% of Direct Services)			\$34,981,899
Family Support (11% of Direct Services)			<u>\$38,480,089</u>
Total Annual Cost at Full Implementation			\$423,280,978





Step 5: Determine Ramp-Up Assumptions

The marginal cost of improved quality—the cost derived by subtracting step 3 from step 4—is insufficient for several reasons. The difference between the two estimates is the total cost of full implementation if it could happen immediately. It overestimates the cost of raising the quality during the phase-in years, and it underestimates the future cost of full implementation by not adjusting for inflation and other cost increases. The final step in the cost modeling exercise is to make several decisions about how to phase in quality improvements taking into account the time required for implementation, the annual cost increases based on potential increases in demand, and other economic factors.

The following questions can help guide this process:

What is the phase-in period? The number of years to phase in the quality initiative relates directly to the scope of the project and the availability of resources. More ambitious efforts take time, and complex endeavors, such as system building, take even longer. There are also practical constraints. For example, raising staff credentials requires staff to go to school, and it can take four years or more to earn a bachelor's degree. The more pieces there are to coordinate, the harder it is to accurately estimate how long the effort will take. A rule of thumb is to limit cost estimates to the next five years, even if this means achieving only partial implementation. Forecasts beyond five years become increasingly unreliable.

How are costs distributed over this time period? Do you anticipate front-loading costs in early years or back-loading more costs in later years of your plan? Look at the components of quality that will change and consider how much change is reasonable to expect. For example, if one of the quality improvements is to raise teacher credentials, how many years of training are required to obtain the higher credential? And what percentage of teachers will likely achieve the higher standard each year? Breaking down the components may help refine the assumptions, but recognize that they will always be assumptions. When in doubt, assume a proportional rate of increase each year.

How will demand for services change and what impacts will that have on costs? Unfortunately, there is limited data on how quality improvements will affect demand. Conventional wisdom says improved quality will raise the demand for services, but demand is also affected by other factors, such as the economy, job market, and location of services.

How will inflation increase costs? Costs will likely be more expensive in the future, so cost estimates for future years should adjust for inflation. One option to determine future costs is to use the current rate of inflation and assume this rate will stay the same in the coming years. Another option is to use the average rate of inflation for the past several years. One source for obtaining current and historical information on inflation rates is <http://www.inflationdata.com/>.

Once stakeholders answer these questions, rerun the model for each year according to the ramp-up assumptions. Develop cost projections for each year to show how cost will increase on an annual basis during the phase-in period.

TIPS TO CONSIDER

- Small changes in the ramp-up assumptions—such as the rate of inflation or the phase-in timeline—can have a big impact on the total cost. Understanding how sensitive the cost is to the assumptions will help stakeholders make decisions about phasing in the plan.
- Be realistic about the ramp-up assumptions. Estimates beyond five years are increasingly unreliable. In Kansas City, stakeholders estimated how much of the plan they could implement in five years and developed corresponding cost estimates, recognizing that this might not represent full implementation.
- Clearly identify the phase-in assumptions when releasing the cost information. This will help explain changes in the cost if the implementation schedule changes or assumptions about the future are not accurate.
- Research local trends in wages and facilities costs when determining the escalators for future years. These costs may exceed typical rates of inflation in some communities.



Five-Year Ramp-Up Plan for Kansas City

PIQ and the Leadership Board agreed on the following assumptions for the implementation of the cost model.

- Estimate the costs to phase in a higher-quality system over the next five years.
- Staff will attain required levels of education at the following marginal rates (above and beyond those staff that already possess desired levels of education):
 - **Directors and Assistant Directors:** 5 percent per year in years one through three, 10 percent in year four, and 15 percent in year five
 - **Lead Teachers:** 20 percent per year
 - **Assistant Teachers:** 10 percent per year
 - **Family Child Care Providers:** 10 percent per year
- Increased costs for infrastructure and family support are distributed equally over the five-year time frame. Infrastructure costs increased to 6 percent of direct service costs in year 1; 7 percent in year 2; up to 10 percent in year 5. Family support costs increased to 5 percent of direct service costs in year 1; 6 percent in year 2; up to 9 percent in year 5.
- Demand will increase 10 percent over 5 years, distributed as 2 percent each year.
- The annual adjustment for inflation is 1.5 percent of total system costs per year.

PROJECTED RAMP-UP COSTS FOR KANSAS CITY EARLY LEARNING SYSTEM (ALL DOLLAR FIGURES IN MILLIONS)

	Year 1	Year 2	Year 3	Year 4	Year 5
Direct Services	\$309	\$318	\$327	\$336	\$346
Infrastructure	\$19	\$22	\$26	\$30	\$35
Family Support	\$15	\$19	\$23	\$27	\$31
TOTAL	\$343	\$359	\$376	\$393	\$412
LESS CURRENT INVESTMENT	\$314	\$314	\$314	\$314	\$314
ADDITIONAL ANNUAL FUNDS NEEDED	\$29	\$45	\$62	\$79	\$98



Using the Cost Estimates

The model produces baseline and marginal cost estimates to improve the quality of early care and education services, as well as annual cost estimates based on the advisory group's ramp-up assumptions. Think strategically about how best to use this information.

- Carefully consider when to disseminate cost information. Are community and policy leaders prepared to make increased investments? Do they understand the value of quality early care and education? Be sure there is a corresponding demand for quality before releasing the cost of improving quality.
- Carefully consider how to release cost information—by whom, to whom, and in what format. Think about the messenger and the message so that the cost information advances the goals of the stakeholder group. This may mean engaging unlikely messengers, such as business executives and other community leaders, who have credibility on issues related to cost.
- To maximize the impact of the cost estimates, connect them to a financing plan that identifies a range of financing strategies to secure necessary resources (for example, using existing resources in new or better ways, maximizing public funding streams, creating public-private partnerships, or developing dedicated revenue streams).¹³

¹³ For more information, see Cheryl D. Hayes, *Thinking Broadly: Financing Strategies for Comprehensive Child and Family Initiatives* (Washington, DC: The Finance Project, March 2002).

Conclusion

Improving the quality of early care and education is a common goal among policymakers, providers, and child advocates. While there is general agreement about the importance of quality, it is difficult to make the case for increased investments without having a good definition of quality and good data about what quality actually costs. This strategy brief describes one approach to provide this information and to improve knowledge and understanding of the costs of early care and education at various levels of quality.

A cost model is only as good as the inputs it relies on, and how closely these inputs reflect local needs, priorities, and realities. A collaborative process that builds consensus around the model's assumptions and the use of local data to quantify the costs will lend credibility to the estimates the model produces. But the numbers alone will not make the case for increased investments. Producing the price tag to implement the plan allows the real work to begin—building public will and securing the necessary fiscal resources to support the quality goals reflected in the model.

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Resources

Examples of Cost Studies for Early Care and Education Initiatives

R. Brandon, E. Maher, G. Li and J. Joesch. *Orchestrating Access to Affordable, High Quality Early Care and Education for All Young Children*. Seattle, WA: University of Washington, Human Services Policy Center, 2004. Available at: <http://www.hspc.org/Orchestrating%20Report.pdf>

S. Golin, A. Mitchell, and B. Gault. *The Price of School Readiness: A Tool for Estimating the Cost of Universal Preschool in the States*. Washington, DC: Institute for Women's Policy Research, 2004. Available at <http://www.iwpr.org/pdf/G713.pdf>

S. Golin, A. Mitchell, and M. Wallen. *The Cost of Universal Access to Quality Preschool in Illinois*. Washington, DC: Institute for Women's Policy Research, 2003. Available at <http://www.iwpr.org/pdf/preschoolIL.pdf>

Resources on Cost Data for Early Care and Education Services

Bureau of Labor Statistics, State Occupational Employment and Wage Data. State-by-state median and average wage data for child care and preschool workers compiled by the Center for the Child Care Workforce. Available at http://www.ccw.org/policy_yourstate.html

W. Steven Barnett, Jason Hustedt, Kenneth Robin, and Karen Schulman. *The State of Preschool*. Rutgers, NJ: National Institute for Early Education Research, 2005. Available at: <http://nieer.org>

Suzanne W. Helburn, ed. *Cost, Quality, and Outcomes in Child Care Centers*. Denver, CO: University of Colorado at Denver, 1995.

Other Resources on Early Care and Education from The Finance Project

Investments in Children's Services Clearinghouse. The Finance Project's clearinghouse provides links, data, tools, and examples of work focused on addressing two questions: how much are we investing and how effective are our investments. Available at financeproject.org/irc/cic.asp

Lynn R. DeLapp, *Supporting Early Childhood Initiatives: Legislative Strategies for Everyday People*, (Washington, DC: The Finance Project, June 2003).

Margaret Flynn and Cheryl D. Hayes, *Blending and Braiding Funds To Support Early Care and Education Initiatives*, (Washington, DC: The Finance Project, January 2003).

Charles Bruner, *A Stitch in Time: Calculating the Costs of School Unreadiness*, (Washington, DC: The Finance Project, September 2002).

Cheryl D. Hayes, *Thinking Broadly: Financing Strategies for Comprehensive Child and Family Initiatives* (Washington, DC: The Finance Project, March 2002).

Michelle Ganow Jones, *State Early Care and Education Initiatives*, (Washington, DC: The Finance Project, March 2002).

Amy Kershaw, *Making Space for Children: A Toolkit for Starting a Child Care Facilities Fund*, (Washington, DC: The Finance Project, October 2000).

Carol Cohen, Margaret Flynn & Hansine Fisher, *Federal Funding For Early Childhood Supports and Services: A Guide to Sources and Strategies*, (Washington, DC: The Finance Project, June 2000).

Sara Watson, *Think Global, Document Local: Using Data and Information Technology to Advance the Early Childhood Agenda*, (Washington, DC: The Finance Project, May 2000).

Barbara Hanson Langford, *Creating Dedicated Local Revenue Sources for Early Care and Education Initiatives*, (Washington, DC: The Finance Project, April 2000).

A Guide To Successful Public-Private Partnerships for Child Care, (Washington, DC: The Finance Project, July 1998)

About the Finance Project

Helping leaders finance and sustain initiatives that lead to better futures for children, families and communities

The Finance Project is an independent non-profit research, consulting, technical assistance and training firm for public and private sector leaders nationwide. We specialize in helping leaders plan and implement financing and sustainability strategies for initiatives that benefit children, families and communities. Through a broad array of products, tools and services, we help leaders make smart investment decisions, develop sound financing strategies, and build solid partnerships. To learn more, visit www.financeproject.org.

Resources for Calculating Costs

The Finance Project has developed a series of research and technical assistance resources for understanding the costs and financing of supports and services for children, families, and communities. This series includes resources on the costs of early care and education, out-of-school time programs, and professional development services for teachers in K-12 education. The Finance Project also offers technical assistance to state and community leaders in developing a strategic financing plan, including the cost estimation process described in this brief.



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