The Price of School Readiness:

A Tool for Estimating the Cost of Universal Preschool in the States

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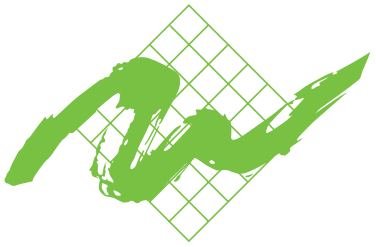

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Executive Summary

This report details our approach to estimating the cost of a state-based, high-quality, universally accessible preschool program for children aged three through five. Our model is based on the assumption that a preschool system must be built from existing early childhood education arrangements and that a major factor contributing to quality is the presence of adequately trained and compensated teachers. The model also assumes that substantial investments would be needed in a number of infrastructure supports such as technical assistance and monitoring, professional development, assessment and evaluation, and facilities renovation and construction.

The model is meant to serve stakeholders in a number of ways. It is a tool to examine policy proposals that seek to either expand or universalize preschool service. It allows users to perform cost estimates in a timely manner by relying on secondary data sources and other readily available information. It is also a means for examining the relationship between service standards, quality, and costs.

The report first summarizes research on the benefits of high quality early childhood education for children, families, and communities. We then demonstrate how our model incorporates recognized components of quality and describe the model's key components. The model assesses total costs by estimating program need and participation, direct service costs including teacher salaries and benefits and nonpersonnel costs such as occupancy and food, and infrastructure costs. The model accounts for costs in a range of possible service settings. We also suggest data sources where appropriate and point out alternative strategies for entering assumptions into the model. We conclude the report with a demonstration of how our model could work, using a fictitious state.

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Chapter One: Introduction

Families and communities throughout the United States are embracing early childhood education as an important and beneficial experience for children. Policymakers are beginning to view children's access to early education as a public good, and are debating ideas such as universal preschool—even in this environment of fiscal uncertainty. However, there is still a lack of knowledge about the cost of preschool programs that would facilitate quality service delivery and positive outcomes for children and families.

The Institute for Women's Policy Research (IWPR) and Early Childhood Policy Research (ECPR) have designed a model to estimate the cost of implementing a state-based, voluntary, universally accessible program that provides quality early childhood education (ECE) to preschool-aged children.[1] This report includes a detailed explanation of the model's components and an example of how stakeholders can apply this tool to meet their specific needs.

The model is designed to be flexible, allowing users to estimate the costs of various program parameters, implementation scenarios, and participation rates. The components are based on a variety of assumptions informed by research findings pointing to indicators of early childhood program quality, including well-trained and compensated teachers in every classroom, adequate staff-to-child ratios, funds for professional development, and significant investments to ensure proper oversight, assessment, and capacity. We also assume that a comprehensive preschool system can be built from existing early care and education arrangements such as those delivered by Head Start, public schools, and community-based child care programs. Thus, the model can be used as a tool for integrating a number of existing ECE arrangements into one system, maximizing available resources and creating incentives to standardize and improve the quality of all programs providing early childhood education.

The Growing Presence of Preschool in the States

As of this writing, most states have implemented some type of early childhood education program for preschool-aged children. These programs, referred to as preschool or prekindergarten, can be defined by the following characteristics. They are "1) supported by state funds, 2) focused on early learning for school success or school readiness, 3) aimed at pre-kindergarten aged children (under 5 years old, usually 3- and 4-year-olds), and 4) designed to deliver group learning experiences at least several days a week" (Mitchell 2001a). Beyond these features, however, preschool or prekindergarten programs vary. They can be delivered as part of a public school program or a community-based child care program. They can be delivered for part of the day or for the full day, for the school year, or full year. Many states require that teachers have a bachelor's degree in early childhood education and be certified while others require staff to have a Child Development Associate (CDA) credential (Mitchell 2001a). Nine states require

[1] Amy Kershaw of Strategies for Children in Massachusetts and Margery Wallen of the Illinois Governor's Task Force on Universal Access to Preschool also played important roles in the development of this model.

that prekindergarten programs become accredited through national professional organizations, such as the National Association for the Education of Young Children, or adhere to Head Start Performance Standards (Mitchell 2001a).

It is important to note that universal preschool alone does not fully address the serious shortage of affordable, quality early care and education. Preschool is not geared toward infant or toddler care, where there is a larger gap between the need for service and the availability of affordable, high-quality arrangements. Nor do preschool programs address the needs of parents who work at night or on the weekends.

Investment in preschool (or prekindergarten), however, and the programmatic criteria that often come with it, holds the potential to standardize and increase the overall quality of services for all children. As we mentioned above, many states stipulate a number of quality standards as part of their prekindergarten programs. Specifically, those that require programs to be accredited affect all age groups served because accreditation applies to the whole program, not just specific classrooms. Further, state programs that implement stricter regulatory guidelines for preschool also reimburse those programs at higher rates than current child care subsidy reimbursement scales, allowing programs to use the additional funds for across-the-board improvements.

As of 1999, 42 states had implemented some form of prekindergarten or preschool initiative (Blank, Schulman, and Ewen 1999). From fiscal years 1991-92 to 1998-99, the number of dollars allocated to prekindergarten services increased by two and one-half times, from 700 million to 1.7 billion (Blank, Schulman, and Ewen 1999). The number of children in such programs grew "from approximately 290,000 to nearly 725,000" (Blank, Schulman, and Ewen 1999). As of 2001, 40 states had created a "distinct program for children younger than kindergarten age" (Blank and Mitchell 2001). By the end of 2001, only six states did not invest Temporary Assistance to Needy Families (TANF) block grant dollars or their own funds in a prekindergarten initiative or to expand Head Start (Blank and Mitchell 2001).

Expanding to Universal Preschool

Support for universal preschool has grown since the implementation of Georgia's Universal Prekindergarten program in the mid 1990's.[2] In light of mounting research evidence pointing to the relationship between high-quality early care and education and better child outcomes, many policymakers are embracing universal preschool, or at least expanded preschool, as a desirable policy goal. Currently, Georgia still provides the most comprehensive universal program, offering free service for 180 days, 6.5 hours per day, and serving 70 percent of all four-year-olds in either Pre-K or Head Start (Schumacher, Greenberg, and Lombardi 2001). New York, Oklahoma, and the District of Columbia also have some form of universal program.

[2] The term "universal" has been defined in a number of ways by state policymakers. In some states, "universal" is defined as providing all families access to the program if they want to participate (Mitchell 2001b). In other states, "universal" means that communities must provide the program but participation is voluntary, like kindergarten (Mitchell 2001b). No state as of this writing has defined universal to mean a compulsory program for children.

Texas mandates that public schools must provide prekindergarten to four-year-olds if at least 15 children are eligible (defined as "poor, homeless, or unable to speak or comprehend English") (Mitchell 2001b). In Kentucky, school districts are required to provide prekindergarten to children who qualify for the free lunch program (Blank and Mitchell 2001). Florida, West Virginia, Illinois, and Los Angeles County in California have passed initiatives to implement universal preschool for four-year-olds, and in the case of Los Angeles and Illinois, three- and four-year-olds (National Child Care Information Center 2003; Office of Governor George H. Ryan 2002). New Jersey and North Carolina have been mandated by the courts to provide preschool for four-year-olds at-risk or in low-income school districts (Mitchell 2001b). A recent publication by the National Institute for Early Education Research provides detailed state-by-state information on early education quality standards, spending, and the percent of children served (Barnett et al. 2003)

Articulating the Cost of Quality Preschool Essential for Effective Implementation

As policymakers continue to debate how to incorporate preschool programs into their jurisdictions, there is a lack of knowledge about how much it really costs to deliver preschool to include components that foster quality service. How much does it cost to ensure that all preschool providers adhere to recognized standards of quality, such as the presence of qualified teachers in every classroom? How much does it cost to ensure systemic supports such as assessment and professional development? Little is known about the cost of providing a universal preschool program that is beneficial for three- and four-year-olds as well as their parents. How much does it cost to set up a publicly funded system that would ensure equal access for all within a variety of early care and education arrangements?

Current public programs such as those mentioned above are indeed promising, but most still lack key components that could allow children to fully benefit from a preschool experience. As of this writing, no existing program has enough funds to ensure that all preschool teachers are educated and compensated at levels comparable to their public kindergarten though grade 12 counterparts. Full-day, full-year, universal preschool programs that are free or greatly discounted are rare.[3]

Almost no existing programs or initiatives have dedicated funds for facilities investment. The one exception is Connecticut. When the Connecticut School Readiness program was launched in 1997, the legislature included provisions for using federal tax-free bonds and state-guaranteed loans for facility improvement and expansion.

To have a large-scale impact, preschool programs must be expanded in terms of duration of service, staff compensation and development, and responsiveness to parents' and children's needs. Programs must be able to attract and retain qualified staff. If families need or want it, programs must serve children for the full day and the full year. To reach these goals, policymakers, advocates, and communities need information about the costs of expanding preschool programs to serve all families' needs.

[3] Parents participating in Georgia's Pre-K program, however, can receive a child care subsidy for the hours their children are not covered by the state program.

Efforts to Estimate the Cost of Early Childhood Education and Implications for Policy

Strategies to estimate the cost of universally accessible, high-quality early care and education—including preschool— are under way throughout the country (Brandon, Kagan, and Joesch 2000). These cost estimate models and strategies are likely to influence the ECE financing debate. Policymakers, advocates, and other stakeholders must continue to take advantage of these tools to ensure that important components of both quality and affordability are embedded within the growing number of preschool proposals around the country.

In the past, researchers have measured the cost of specific early care and education programs, using these data to then estimate the cost of quality improvements. The most widely recognized example was the Cost, Quality, and Outcomes study, which provided detailed costs of a number of child care centers in four states, and then estimated the cost of improving the quality of those programs (Helburn 1995). States such as Massachusetts have used a similar approach to measure the relationship between cost and quality in their communities (Marshall et al. 2001). In addition, the National Association for the Education of Young Children (NAEYC) has developed a model budget to help program directors estimate the cost of implementing a high-quality program (Willer 1990). Localities such as Kansas City have used the NAEYC model to examine how their programs can improve their services to children (Metropolitan Council on Child Care 1998).

Recently, there has been an increase in the number of efforts to estimate the cost of improving the quality of ECE programs on a wide scale. For example, Suzanne Helburn and Barbara Bergmann estimated that it would cost $50 billion nationally to provide families with a substantial voucher to buy quality child care, as well as fund higher reimbursement fees to providers serving subsidized children (Helburn and Bergmann 2002).[4] Their model assumes that while states should continue as the lead regulatory agencies for child care, the federal government must take the lead funding role. Providing families with assistance to buy better care, in conjunction with a national resource and referral system that would help families identify quality programs, would increase the supply of improved quality programs around the country. Richard Brandon and Sharon Lynn Kagan are working in states to estimate the costs and benefits of various financing strategies for universally accessible early care and education services for children ages zero through five (Brandon, Kagan, and Joesch 2000). Basing their estimates on primary data, they engage their partner states in an extensive fact-finding process that includes a series of community meetings and a household demand survey. They enter this information into a comprehensive simulation model that allows policymakers to estimate the financial outcomes of various program options and family choices, examining how program quality and costs fluctuate based on various financing strategies. Systemic supports such as governance and professional development are also included in their model.

[4] Helburn and Bergmann also estimate the cost to provide systemic supports such as increased monitoring, program technical assistance, funds for professional development and program accreditation, and a comprehensive resource and referral system.

Anne Mitchell has estimated the costs of extending prekindergarten in New York by blending new funds with existing early care and education dollars, demonstrating how policymakers and practitioners can maximize existing resources to serve more children while increasing quality (Mitchell 1998). The National Institute for Early Education Research has used a number of existing data sources to estimate the cost of universal preschool on a national scale, which they determine to be about $70 billion dollars—including funds for structural supports (National Institute for Early Education Research 2003).

Thoughtful cost estimates of a universally accessible program for preschoolers can have major impacts on state policy, allowing stakeholders to estimate numerous programmatic scenarios by modifying program components and assessing the potential impacts on quality. While cost estimate models need not be used as blueprints for implementation, they ensure that funds for the important elements (professional development, adequate wages, oversight, and community planning) are embedded in program proposals. Such considerations have often been absent in funding negotiations for early childhood services.

The Purpose of this Report

The purpose of this report is to provide policymakers, advocates, researchers, and other stakeholders with a tool to estimate the cost of a universally accessible preschool system, including costs of improving the quality of services, and infrastructure supports such as professional development, monitoring, assessment, and facilities investment. A model is presented that instructs users on estimating these costs by:

- Using readily available state-specific data, allowing stakeholders to make timely policy decisions based on their states' circumstances;
- Including model components to estimate the cost of facilities investment, professional development, monitoring, and assessment;
- Estimating the additional program costs to existing early childhood service providers beyond current expenditures, thereby accounting for current investments such as existing government funding and parent fees;
- Estimating a range of direct program costs based on a number of potential service providers, ensuring that parents have choices for their child's preschool arrangement; and
- Allowing for a range of usage scenarios such as varying take-up rates and final participation projections.

As more states debate the merits of universal preschool, this model can be used to help answer questions about program funding needs and possible implementation strategies. It can also be used to assess existing preschool programs to determine if additional funds are needed to improve service delivery or access. For example, is more investment needed for professional development or assessment? Is there a need to renovate or build more facilities? For those working in states that are moving toward universal service, this model will allow stakeholders to estimate the costs of expanding current programs (for example, expanding to full-day, full-year, or integrating additional age

groups). For those working in states that have yet to adopt an initiative, this model will allow them to estimate the cost of program implementation, including serving particular sectors of the population, investing in infrastructure, and program phase-in. Our example at the end of this report demonstrates how the model can be used in one program scenario, but throughout the report we also highlight how the model can be changed to accommodate a number of possible scenarios.

The Organization of the Report

Chapter Two of this report reviews research pointing to key components of quality early childhood education and summarizes the benefits or high-quality ECE to children, families, and communities. Chapter Three describes how we incorporated indicators of quality into the model, components of our approach, and suggested data sources and other strategies for users. Chapter Four provides an example of how the model could be adopted, using a fictitious state as an illustration. Chapter Five includes a general conclusion and discussion of next steps for building on the model.

Chapter Two: Existing Research on the Benefits of High-Quality Early Childhood Education

A growing number of research findings point to the important relationship between early childhood education quality and outcomes for children, families, and communities. Models used to estimate the cost of universal preschool must ensure that factors contributing to quality are accounted for in their assumptions. Below is a brief synopsis of evidence indicating that early childhood education programs provide both individual and societal benefits. As we will address in the next chapter, many of the necessary ingredients of early childhood program quality are embedded in our model.

The Benefits of Early Childhood Education for Children

Increasingly, researchers are concluding that high-quality early childhood education has positive effects on children's social, emotional, and cognitive development. Data from large-scale studies including the Cost, Quality, and Outcomes Study and the National Institute of Child Health and Human Development's (NICHD) Study of Early Child Care have led investigators to conclude that children in better quality programs score higher on language and cognitive tests, have better math skills, and more positive relationships with their teachers (NICHD Early Child Care Research Network 2000; Helburn 1995). Research following up on the Cost, Quality, and Outcome study suggests that the effects of high-quality service last into children's elementary school years (Peisner-Feinberg et al. 1999).[5]

Long-Term Benefits

Researchers have also found that high-quality early education can produce long-term benefits lasting until adulthood. High-quality services are particularly important to low-income children. Evaluators of the Abecedarian Project, a program that provided full-day (8 hours), full-year (5 days per week for 50 weeks) early childhood services to high-risk children ages zero through five years between 1972 and 1977, found significant, sustained positive effects on scholastic achievement and cognitive ability. Researchers reported that children in the program scored significantly higher in math and reading than those who did not participate, with effects observable at age 21, the last year monitored (Campbell et al. 2002). Furthermore, children who participated in the Abecedarian Project were significantly more likely to finish high school, and to attend a four-year college than those in the control group.[6]

[5] The Cost, Quality, and Outcomes Study was a large-scale study of child care centers' quality and cost, and the relationship between the two, in four states (North Carolina, Colorado, Connecticut, and California). Data collection and analysis took place between 1993 and 1994 and included 401 centers and 826 preschool-age children (Helburn 1995). The National Institute of Child Health and Human Development's Study of Early Child Care is a longitudinal study of a group of socially and economically diverse children in 10 locations throughout the United States (NICHD Early Child Care Network 2000). Researchers have been following the sample since 1991, and 1,364 mothers and newborns were originally enrolled in the study.

[6] It should be noted that researchers implemented an experimental research design, with randomly selected control and treatment groups. The sample size for the treatment group ranged from 57-48, while the control groups ranged from 54-43 (varying by years in the study) (Campbell et al. 2001).

Evaluators of the High/Scope Perry Preschool Project (a part-day program for at-risk three- and four-year-olds) and the Title I Chicago Child-Parent Centers (an intervention for children as young as three, and extending for as long as six years) found that children in these programs demonstrated higher general literacy, school achievement, reading and math test scores, and lower rates of grade retention and special education placement (Schweinhart, Barnes, and Weikart 1993; Barnett 1996; Reynolds et al. 2000).[7] Findings also indicated that children who participated in these programs experienced benefits as adults that could mean the difference between poverty and self-sufficiency, including increased monthly earnings, rates of home ownership, and school attainment, as well as decreased rates of contact with the criminal justice system (particularly as juveniles) or social services. As we will discuss below these findings have both economic and social benefits for communities as well as for the individuals receiving preschool services.[8]

The Benefits of Prekindergarten

Researchers are also beginning to investigate the benefits of large-scale, state sponsored prekindergarten. RAND researchers found that children in public school prekindergarten programs scored higher on National Assessment of Educational Progress (NAEP) tests compared to other children (Grissmer et al. 2000). Gilliam and Zigler (2001) conducted a meta-analysis of 13 state prekindergarten evaluations. The authors found higher overall developmental competence and lower incidences of grade retention among prekindergarten participants in most of the studies, with effects lasting in some cases until middle school.

The Benefits of Early Childhood Education for Families and Communities

Family Benefits

While investing in early childhood education provides children with a number of important benefits, it also translates into substantial support for working families. In the year 2001, 69 percent of women with preschoolers aged 1-5 participated in the labor force (Lovell 2003). Finding affordable child care and early education increases parents' labor force participation (Blau and Tekin 2001; Henry, Werschkul, and Rao 2003), leading to real wage growth (Boushey 2002). The quality and stability of early education are also important. Analysis conducted by researchers for the National Bureau of Economic Research suggested that mothers transitioning from cash assistance programs are less likely to work when the stability and quality of their children's early care and education arrangement are low, and are more likely to work when their children have access to full-day, full-year kindergarten (Lemke et al. 2000).

[7] The evaluation of the Child-Parent Center program was a "quasi-experimental" design with an original sample size of 989 children in the preschool program and a comparison group of 550 (Reynolds et al. 2000). The High Scope Perry Preschool evaluation was an experimental design, with an original total study sample of 123 children (Schweinhart, Barnes, Weikart 1993). Both of these programs included a large parental component.

[8] When deciphering the effects of these programs, it is important to note that effects measured in long-term studies are not necessarily present at every age of the participant and that some effects "fade-out" while others increase. In this review, we tried to highlight those benefits that are still observable in the adult years.

Community Benefits

Beyond providing support to employed parents with young children, stable early childhood education also contributes to the economic development of communities and states. Researchers found that investments in licensed child care in Santa Cruz County in California created economic benefits for the region as a whole. For every one million dollars invested in a child care program, 56 jobs were created. This included 32 direct jobs in the child care program itself and 24 indirect jobs in other industries, including construction and retail (Stokley at al. 1997). A recent study in Kansas found that child care is a $500 million industry that directly employs over 14,000 workers. Kansas families using child care earn over $1.98 billion annually. Every dollar of state public investment in child care leverages $3 in federal funds and in turn generates another $2 in economic activity in Kansas (Stoney et al. 2003). Child care as an industry makes a significant contribution to state and regional economies, a finding that has been replicated in more than 34 state and local studies of the economic contributions of the child care industry. An interactive database that includes all studies is available at http://economicdevelopment.cce.cornell.edu. The studies quantify, for example, the large numbers of workers employed by the child care industry, the dollars these programs bring into state economies through worker spending, and federal funds leveraged through state child care investments (Stoney et al. 2003, Cornell University Department of City and Regional Planning 2004). When programs pay qualified staff livable wages, workers contribute to their local economies by buying goods and paying taxes. Greater purchasing power in the housing market increases property tax revenues for local school districts. Programs infused with adequate funding are also able to buy goods and services, such as food and maintenance, contributing to the amount of local circulating dollars. Sustainable early childhood education programs provide local and state governments with additional tax revenue. When high-quality early childhood programs are able to operate at capacity, they substantially contribute to the economic development and stabilization of the communities they serve.

As we continue to learn about the benefits for children and families who utilize high-quality programs, we also begin to observe how such services can contribute to the overall quality of life for citizens regardless of age, and the value of early childhood education as a public good. Children who benefit from early childhood education may sustain higher earnings later in life, thus contributing to their communities in the form of higher tax contributions and higher rates of homeownership. As mentioned above, increases in homeownership also contribute to the tax base and to school systems.

Using data from the High/Scope Perry Preschool study, W. Steve Barnett (1996) estimated that for every dollar invested in the program $8.74 was returned to "society as a whole" (85). Of that total $7.16 was attributed to cost savings related to reduced crime and public welfare spending (Barnett 1996). A similar analysis of the Chicago Child-Parent Centers estimated that:

> "For every dollar invested in the preschool program, there was a four to seven dollar benefit in terms of savings due to reduced school remedial services and reduced crime costs, and to increases in projected earnings and tax revenues as a result of higher levels of education. These estimated effects are

largely the result of the links between preschool participation and higher rates of school completion and lower rates of crime" (Reynolds et al. 2000).

The Characteristics of Quality Programs

Perhaps just as important as measuring the benefits of early childhood education, researchers have been able to identify specific characteristics that contribute to program quality and children's outcomes. Experts point to three main indicators of quality in early childhood settings: structural (i.e., staffing ratios, group sizes, teacher and director education, training, and experience, and space per child), process (i.e., the actual services provided and how teachers and other staff relate to children and parents), and child outcomes (discussed above) (Helburn 1995).

The Importance of Ratios, Groups Size, and Staff Education and Training

To reach higher levels of process quality, a number of structural factors must be in place. For example, Cost, Quality, and Outcome study investigators found that low child-to-staff ratios, higher staff wages, education, experience and special training, and higher director child care-related experience positively contributed to the quality of service provided in a child care center (Helburn 1995). The same investigators found that teaching staff with college degrees or advanced training in early childhood education produced the highest process quality in their classrooms (Howes 1995).

Similarly, a study of a state initiative to improve Florida's child care programs found that the presence of teachers with a Child Development Associate credential led to higher quality classrooms (Howes, Smith, and Galinsky 1995). Classrooms with teachers with a bachelor's degree and advanced training related to early childhood education produced the highest quality.

The NICHD investigative team found that when child care programs adhered to professional standards of structural quality, such as lower staff-to-child ratios, smaller group sizes, and staff with more appropriate education, children (at 36 months of age) had fewer behavioral problems and displayed higher rates of school readiness and language comprehension (NICHD Early Child Care Research Network 1999). The more standards the programs met, the more positive the child outcomes.

Quality and Cost

Researchers have also found that quality is related to cost. The Cost, Quality, and Outcomes Team found that child care staff wages were the second most important predictor of program quality, with child-to-staff ratios the most important (Helburn 1995) The team also found that there was a 12-to 16-cent per-child-hour cost differential between those centers rated average quality and those rated good quality (Helburn 1995). Programs with higher paid teachers also had lower turnover (Helburn 1995). The Institute for Women's Policy Research reviewed evaluations of programs that link wage increases with teacher education and found that many such programs increase teacher retention (Golin, Park-Jadotte and Gault 2002). Researchers at the Frank Porter Graham Child Development Center, who are currently evaluating North Carolina's Smart Start program (an initiative that allocates state funds to local councils charged with building early education and care quality enhancement programs), found that targeted increased

financial support improved child care quality. Data from this ongoing evaluation, which has followed programs participating in Smart Start since 1994, suggest that programs funded through Smart Start improved the quality of their services, leading to improved social, cognitive, and language skills for children in child care programs participating in Smart Start activities (FPG/UNC Evaluation Team 2000).

Thus, while money may not be the sole ingredient needed to build high quality, it is a major factor. More generous, stable funding allows programs to attract and maintain qualified instructors, buy developmentally appropriate supplies, and build activities that enrich children's experiences. Nevertheless, parents continue to struggle to find high-quality affordable early childhood education, and providers continue to struggle to pay the high operational costs. Studies conducted by the Census Bureau and the Urban Institute both have found that families pay a large percentage of their monthly income towards child care (U.S. Census Bureau 2003; Giannarelli and Barsimantov 2000). The Census Bureau found that families below the poverty line allocated 30 percent of monthly incomes to their child care expenses (U.S. Census Bureau 2003). A universal government-funded initiative can help families access affordable programs while encouraging providers to deliver quality services that produce positive child outcomes.

Chapter Three: Estimating the Cost of Universal Preschool in the States, Our Approach

Our goal for this model was to design a straightforward, user-friendly method, which could be implemented in a reasonable amount of time using available data sources, to estimate the cost of a state-based universally accessible preschool program of high quality. The first part of the chapter addresses how we incorporate indicators of early childhood education quality, using certain program criteria reflected by our understanding of prior research. While states would likely differ in their approaches to preschool, we argue that there are certain components that must be standard in order to achieve quality service. We then present the questions we considered in the design of our approach and provide an overview of the model. Finally, we take the reader through the model's various components, suggesting data sources when appropriate.

Fundamental Model Assumptions

Our model incorporates a number of factors that researchers have attributed to high-quality early childhood education. Given what we know about program characteristics and quality, we believe that certain criteria should be met by every early childhood program serving children ages three through five. We therefore assume the following structural and process criteria for a universal preschool program:

- Teachers would minimally have a bachelor's degree in early childhood education, and there would be at least one bachelor's-level teacher in every preschool classroom. To further mirror public school requirements, many states would also require certification in early childhood education.
- Program child-to-staff ratios would adhere to professional standards of the National Association of the Education of Young Children. For preschool-age children, this means a minimum of one staff person for every 10 children, with a maximum group size of 20 (Bredekamp 1990).
- Developmentally appropriate materials would be available to children.
- Adequate funds would be available to preschool providers to maintain facilities to ensure proper health and safety.
- Adequate funds would be available for professional development to ensure the availability of qualified teachers for preschool classrooms.
- Adequate funding would exist to ensure proper monitoring of programs.
- Adequate funds would be available to provide preschool programs with technical assistance for curriculum development and teacher-child interactions.
- A family resource coordinator would be available at every preschool program to help staff meet children's physical and emotional needs.
- Adequate funds would be available to conduct both school readiness assessments and third-party evaluations to monitor quality through a number of measurement scales such as the Early Childhood Environmental Rating Scale (ECERS).

We also assume that such programs would be voluntary, meaning that parents could choose not to place children in the program.

Underlying Questions

In order to estimate the cost of providing universally accessible, voluntary, and quality early childhood education for preschoolers in a specific state, we constructed a model that addresses three main questions and accompanying sub-questions:

❶ **What is the need for quality early childhood education for preschoolers in a given state?**

a. What age groups would the state serve?

b. What would the likely participation rate be for total target population? How would participation vary by age?

c. What would be the likely annual take-up rate? In other words, how many children would likely be served in the preschool program each year and how many children would be included if a program was implemented over a number of years?

d. How many hours per day and days per year would participating children need preschool, in relation to the parameters of a given state's proposed program?

❷ **How much does it cost to provide quality preschool for children in a given state?**

a. How much would it cost to serve one child in a quality early childhood education program for one hour? Assuming that preschool will be provided in a number of settings, how would costs vary?

b. How much financial support would be needed to help programs meet quality standards associated with a statewide universal preschool system, particularly related to professional development for staff?

c. How much would it cost a state to administer and monitor the program?

d. How much would it cost programs to create new spaces or renovate existing spaces or classrooms to serve the additional preschool-age children that will participate in a generous universal program?

e. How much would it cost to assess the effectiveness of the program?

❸ **How would program costs vary in light of specific characteristics? For example:**

a. How much would it cost to phase in the program over a certain number of years?

b. How much would it cost to phase in the program by age group?

c. How much would the costs vary with differing participation rates?

d. Would communities or institutions need additional funds for planning?

The Model

The general model is composed of two cost categories, direct service costs and indirect or infrastructure costs. These are added together to provide an annual total cost for a state to deliver preschool.

Direct service costs include the following components:

- The per-child-hour cost to programs to deliver preschool, including the cost of employing teachers with credentials and providing compensation comparable to public schools, as well as occupancy costs (i.e., rent) and other non-personnel program items related to direct service
- The per-child material costs, including developmentally appropriate classroom supplies and furniture

The direct service formula also includes variables representing the number of estimated children served, the number of hours of service per day that children would receive the program, and the number of days per year. This formula is shown in Calculation 1.

CALCULATION 1. TOTAL ANNUAL DIRECT SERVICE COSTS

(Total number of participating children x per-child-hour cost x number of hours per day x number of days per year) + (total number of participating children x per-child material cost)
= Total Annual Direct Service Costs

As we will demonstrate below, the formula can be adapted to estimate the cost of phasing in a program over a certain number of years by percentage of participating children, age group served, or both. If certain data sources are used, estimating the cost phase-in by income level is also possible. Users can also calculate a grand annual total, assuming full participation. The amount of service can also be adjusted to estimate the cost of various service options, including full-day, full-year; part-day, part-year; or a mixture of the four in cases where users are working in states that want to provide more options to parents or are constrained by limited funding. The formula can also be adjusted to estimate the cost of providing preschool in a number of early childhood program settings or, if desired, one type of setting.

To estimate indirect or infrastructure costs, we have identified six main areas where local preschool programs would need support:

- Technical assistance and consultation
- Monitoring for quality assurance
- Professional development
- Assessment and evaluation
- Facilities renovation and/or construction
- Governance

We then assumed that some of these components could be calculated on a per-child, per-year basis. Other item costs would be stretched over a set number of years. Items calculated on a per-child basis include:

- Program technical assistance and consultation
- Monitoring and quality assurance

Items with total costs stretched over a number of years include:

- Financial support for professional development, including community and higher education planning funds
- School-readiness assessment and third-party evaluation, with each item estimated as a separate cost in the model
- Facilities renovation and/or construction

The costs of governing a state preschool system would have to be paid in full every year. The general formula to estimate indirect or infrastructure costs is expressed as Calculation 2.

CALCULATION 2. TOTAL ANNUAL INDIRECT OR INFRASTRUCTURE COSTS

(Per child technical assistance costs x number of participating children) + (per child monitoring costs x number of participating children) + annual portion of total spending on professional development + annual portion of total spending for evaluation + annual spending for children's school readiness assessment + annual portion of total spending on facilities + annual cost of governance)
= Total Annual Indirect or Infrastructure Costs

This formula can also be adapted to include other types of supports or tools like in-class curriculum assessments. In addition, users may want to provide services in some years and not in others. For example, any planning funds for professional development might be allocated in early years and not in later years. As we will discuss in more detail below, technical assistance might be provided to new programs in the beginning years and not in later years.

Below is a series of suggestions for estimating the cost of these various components, along with potential data sources and program assumptions. Readers should note that our suggestions assume that users would estimate the cost of state-based universal preschool but the model can also be used to expand a targeted preschool program (such as for at-risk children).

STEP 1: ESTIMATING PROGRAM NEED AND PARTICIPATION

The logical first step in conducting the cost estimate is to determine the target population, the participation rate, and the duration of services offered. In other words, which age groups would a program serve? Of those age groups, what percentage would most likely participate? Would participation vary by age? How many hours per day and how many days per year would children attend preschool?

Step 1A. Determining the Target Population and Estimating Its Size

A number of existing state prekindergarten programs (e.g. North Carolina and New York) serve children only at age four, although many are rethinking this strategy. Many of the studies we highlighted in the last chapter conclude that children benefit more from preschool if they receive the service for a number of years. We recommend that model users consider including both three- and four-year-olds in the target population, providing most children at least two years of preschool. In addition, five-year-olds not yet eligible for kindergarten should also be considered.

To estimate the total number of three- four- and, five-years-olds in a given state, users have a variety of data options including state birth records, the U.S. Census Bureau's decennial census data or Current Population Survey, and the Urban Institute's National Survey of America's Families. All of these data sources could be used to estimate the number of children accessing the program. If users want to phase-in the program using economic indicators, however, birth records will not account for parents' income or workforce participation. Birth records also do not account for migration or infant mortality. While the National Survey of America's Families does include state-specific data on children in ECE arrangements by a variety of family and economic indicators, the data set provides state-specific analysis for only 13 states, and does not provide information on all children in a given household. While many would opt to use Decennial census data to estimate the number of children, it can be more complicated to use these data to get detailed information on parents' economic status and workforce participation. To do this one would need to analyze data from a subset of decennial census data called the Public Use Microsample. In addition, depending on the time lapse since the last decennial census, income and workforce participation estimates using this data source could be out of date.

To estimate the number of children, we recommend using the Current Population Survey (CPS), a monthly survey that collects information about household and family characteristics in the states. During the March Demographic Supplement survey information is gathered on various economic characteristics. If necessary, researchers can use a number of years of the CPS March Demographic Supplement in order to build a large enough sample size that will yield reliable estimates of eligible preschool-aged children by parents' work status and income. To account for population changes that might occur, users can examine prior years of the CPS March Demographic Supplement for the target population, then assume that changes of a similar magnitude would occur in the coming years. If users are not going to phase-in service by economic indicators, they can use the decennial census population estimates. The decennial census also provides population projections, which could be used to approximate future population change.

Step 1B. Estimating the Participation Rate

Although participation rates in most states will likely be high, they will not be 100 percent. Not all parents will want their children in preschool. There are a number of ways to estimate how many children would participate in the program. One is to look at current preschool program participation information in states with good preschool access. As mentioned in Chapter 1, 70 percent of all four-year-olds in Georgia are in Head Start or the state Pre-K program. Users could assume that once a universal preschool program was fully operational in their state, participation among the target population would reach 70 percent.

Another option is to look at nationally collected data. For example, the U.S. Department of Education's National Center for Education Statistics reported that in 2000, 39 percent of three-year-olds, 65 percent of four-year-olds, and 88 percent of five-year-olds were in a "preprimary" program, meaning either nursery school or kindergarten (2001). The Department of Education also reported that in 1999, about 62 percent

of three-year-olds, 86 percent of four-year-olds, and 93 percent of five-year-olds were in either non-relative, non-parental child care or a child care center (U.S. Department of Education, National Center for Education Statistics 2001).[9] These estimates are useful because they demonstrate that different age groups might have different participation rates. In particular, these data suggest that a smaller proportion of three-year-olds would participate compared to four-year-olds.

A third option is state collected data. Child care resource and referral agencies collect data on the types of child care that parents select for their children. These data are limited because they are normally obtained from parents who contact the agency and not a randomly selected sample. Head Start Public Information Reports also detail participation information. Many public school boards collect information on the number of children in prekindergarten. When looking at these data, however, it is important to note that children may be participating in more than one arrangement, and thus the total number of children participating in early childhood education activities might be overestimated.

We recommend using all of these kinds of data, and then making educated estimates. For example, based on the information from the Department of Education mentioned above, we could estimate that about 65 percent of three-year-olds and 85 percent of four-year-olds would participate in a universally accessible preschool program that was delivered in a given state. Because the "cut-off" date for kindergarten is usually in September, we could assume that about 25 percent of five-year-olds would not qualify for kindergarten, and those children would most likely participate in preschool.

Step 1C. Estimating the Number of Children Needing Full-day, Full-Year Preschool and Other Service Options

Because the model calculates direct service costs using the number of hours per day and the number of days per year, users can estimate the number of children who will need full-time and part-time service in very specific ways. For example, in some states, full-year, full-time service would be available 262 days for 10 hours each day. In other states, full-year would equal 248 days and 11 hours. Part-day, part-year programs can also be specifically defined. For example, some states, such as Illinois, have defined part-day services as 2.5 hours, 180 days per year (Golin, Mitchell, and Wallen 2003). Some programs such as Georgia define the program duration as a school-day, school-year arrangement— 6.5 hours per day, 180 days per year.

In an atmosphere of state budget deficits, it is likely that state policymakers will decide not to provide full-day, full-year preschool, at least in the early years of a program. It is also unlikely that all participating parents would want their child in a full-time arrangement. To determine how many children need full-day, full-year preschool, users need to make assumptions about which children absolutely need a full-day, full-year arrangement, and which would be sufficiently served with a part-day, part-year arrangement. Alternatives such as part-day, full-year should also be included. For example, some states are debating serving children for four hours per day for a full year. Children would receive those four hours in a full-time setting such as a child care center.

[9] It is important to note that some children spend time in more than one non-parental arrangement. These figures, therefore, may include children that are in more than one group.

One option for estimating which children need a full-day, full-year arrangement is to look at current state-level early care and education participation data and assume that current usage patterns represent the need. Head Start data can be accessed through Program Information Reports. Child care resource and referral agencies collect information on the type of care their clients choose. State boards of education often have data on Pre-K participation. Through this method, users might assume that those children in full-time, full-year child care need a full-day, full-year arrangement. In those states where existing public Pre-K is part time, those in public Pre-K may be sufficiently served by an ongoing part-day, school-year arrangement. Those in Head Start might be assumed to be sufficiently served in a part-day, school-year arrangement.[10]

There are several limitations to using only existing usage patterns to estimate the need for part-day versus full-day, and part-year versus full-year arrangements. First, as we mentioned above regarding state data, these types of data rarely account for children who are in more than one arrangement. This is important because while some children may be in public school Pre-K, they may actually spend the rest of the day in a child care program. Second, some children may only be in a part-day, part-year program due to limited program availability. Thus many children may really need a full-day, full-year arrangement. Using current participation rates cannot account for this.

We suggest that users look to parents' employment patterns to make estimates about program duration categories. For example, children would need full-time service if all present parents work or go to school full-time. Children could be sufficiently served in part-time, school-year arrangements if at least one parent in the household is not participating in the labor force or not attending school full-time. Again, the Current Population Survey March Demographic Supplement allows users to estimate these patterns. The CPS also includes additional supplements about parents' work schedules.[11] If data sample sizes allow, analysis of parents' employment data can also examine whether parents work part-time or full-time, or irregular shifts like weekends.[12] For example, children could probably be sufficiently served with a part-day, full-year arrangement if a parent worked part-time. If reliable estimates of the number of foster children are discernable from the data, foster children should be considered to need full-time service. Once assumptions are made, children can be assigned to various service duration categories. Table 1 summarizes our recommended service duration options.

If estimates are being performed in small localities where the CPS is unlikely to generate accurate employment information because of small sample sizes, we suggest using state-based participation data described above.

[10] We acknowledge that many Head Start and public Pre-K programs offer wrap-around services. However, these programs have traditionally been offered as part-day programs.

[11] For example, see the CPS February 1997 Supplement on Work Schedules.

[12] We acknowledge that the number of families needing full-day, full-year service might increase if the availability of high-quality affordable preschool increases (thus more parents will work full-time or in some cases, unemployed parents will work part-time). In future analyses, we will attempt to incorporate these scenarios into the model.

TABLE 1

Potential Service Duration Options

Options	Eligibility
Full-Day, Full-Year	Foster children
	Children living with families in which all parents are present and work or go to school full time
	Children living with families in which one parent is present and works or goes to school full time
Part-Day, Part-Year	Children living with families in which at least one is parent is present and does not work and/or go to school
	Children living with families in which one parent is present and does not work or go to school
Part-Day, Full-Year	Children living with families in which all parents are present and work irregular shifts
	Children living with families in which all parents are present and both work or go to school part-time
	Children living with families in which one parent is present and works or goes to school part time

Institute for Women's Policy Research.

Step 1D: Accounting for Program Implementation

Once final participation rates are determined, users should incorporate assumptions about how to implement the program and how long this process would take. Users should consider that creating large-scale initiatives amid a dearth of funds would contribute to slow program implementation. In such cases, policymakers might prefer a beginning pilot project and then a statewide ramp-up. States and communities also need to plan the steps involved in adopting universal preschool. Time must be allotted for educating parents about the program, bringing teachers and programs up to new standards, and implementing governing and assessment systems.

To account for these factors, we suggest that users assume that it will take at least ten years to implement a statewide universal preschool program that incorporates and improves all early childhood arrangements and serves all children. In most states, a pilot program and a slow ramp-up would be effective strategies. There are most likely some early childhood programs that would already be qualified to deliver preschool, and those programs could provide service while others come up to standard.

As part of the phase-in strategy, users must also decide which children would be served first. One scenario could be to serve children in low-income communities first. Another scenario could be to phase in children by age. We recommend that users phase in the program by a proportion of children annually, such as 10 or 20 percent. During actual implementation, program administrators could still phase in the program by targeting lower-income communities using this strategy.

STEP 1E: ADAPTING THE FORMULA TO INCORPORATE PARTICIPATION RATES AND SERVICE DURATION

With the assumptions made above, users can adapt the participation components of Calculation 1 (the Direct Service Cost formula) to serve their state's specific needs. Calculation 3 provides an example of a full-day, full-year arrangement serving 10 percent of the total population, assuming that a full day equals 10 hours and a full year equals 260 days.

CALCULATION 3. EXAMPLE OF FULL-DAY, FULL-YEAR PARTICIPATION SERVING 10 PERCENT OF POPULATION

(0.1 x total estimated number of participating three-, four- and five-year-olds needing full-day, full-year service x per-child-hour cost x 10 hours per day x 260 days per year)
+ (0.1 x total number of three-, four- and five-year-olds needing full-day, full-year service x per-child material cost)
= Total Annual Direct Service Costs

STEP 2: ESTIMATING DIRECT SERVICE COSTS

Once users estimate participation, the next step should be to determine the cost to local early childhood programs to deliver preschool. To estimate this cost, we suggest looking at operational costs, including labor, classroom materials, and administration. Most states already have a number of operating early childhood education programs. Cost estimates should assume that a universal preschool program would be built from the existing capacity of early childhood programs such as child care, Head Start, or public school prekindergarten. The new preschool program would then add new capacity, when additional preschool spaces were needed.

There are two principal questions to consider when estimating direct program costs: 1) What is the total cost of a preschool space or slot? 2) What part of the cost will a state incur? In some cases, states will incur the total cost of a preschool program space. In some cases, states would pay the full cost of new preschool for new spaces, but pay an "upgrade" cost for spaces that already exist in operating early childhood programs. Thus, the direct program cost of universal preschool would be the **difference** between the full cost of the new preschool standard of quality and service coverage, and the cost of the current program with existing standards. Our model allows users to either use the full cost of a preschool space or the cost to upgrade an existing space in an established early childhood education program. We do suggest, however, that users always use the full cost of one space when estimating the cost of a new preschool space or slot.

Options for Estimating Direct Service Costs

Estimating the cost of high-quality early education is difficult using existing data sources. Child care market data do not account for costs per se, but rather the rates that programs are able to charge parents. The Survey of Income and Program Participation and the National Survey of America's Families track child care payments, but neither account for the full cost of care. Per-capita expenditure data from public school districts do not take into account that early education programs may last beyond the school year, and often these data do not include occupancy costs.

The Cost, Quality, and Outcomes Study (Helburn 1995) is a particularly useful source of early care and education cost data. But the study only included four states, and not all states have implemented their own cost/quality study. Another strategy is to use costs reported by well-regarded early care and education programs. Because most programs do not track expenses in a standardized manner, this method also is unreliable. The National Association for the Education of Young Children's model can help program directors construct a realistic budget for a high-quality program (Willer 1990). Our model uses a similar strategy by developing proxy budgets to estimate costs, although we narrow our focus to preschool-age classrooms.

Step 2A. Estimating Per-Child-Hour Costs Using Proxy Budgets

As mentioned above, in most states, high-quality preschool can be delivered in existing settings serving preschool-age children, such as child care centers, Head Start programs, and public schools. We recommend, therefore, formulating two proxy budgets for a number of settings that could deliver preschool. This strategy will provide users with a likely range of costs, which will differ slightly based on the early childhood setting selected by parents.[13]

The first budget should estimate the current annual program cost. The second budget should estimate the whole annual cost of delivering preschool standard service in that setting. The difference between the two budgets (budget two minus budget one) represents the cost of upgrading a program to deliver preschool. Dividing the annual cost of each budget by the number of children served per year and then the number of preschool service hours per year will yield the whole costs in the form of a per-child-hour cost for each type of program. Subtracting the budget one per-child-hour cost from the preschool (budget two) per-child-hour cost will yield the additional per-child-hour cost, which users can input into the direct service cost calculation (Calculation 1). The main difference between the "current" program budget and the "preschool" program budgets will be the increased cost of compensating qualified teachers. **It is important to note that this exercise is meant to capture the potential range of preschool costs. It is not intended as a mandate for program implementation.**

To construct each budget, users should take into account salaries and benefits (such as medical, dental, and retirement) for staff; non-personnel items such as occupancy and food; and staffing patterns for teachers, directors, teaching assistants, and substitutes. To account for a range of potential service providers, users should include budgets for at least a Head Start, public school prekindergarten, and child care center program. Each setting will have different staffing patterns and hours of operation, and thus represent both full-day, full-year and part-day, part-year programs. Other types of programs such as nursery schools could also be included.[14]

We suggest that users look for the following data sources for information about salaries and benefits for constructing a "before preschool" budget:

[13] Differences in cost by setting would include various staffing and administration, as well as class size.

[14] We believe that family child care providers can also acceptably deliver preschool, as long as they meet standards of quality.

To create a budget for a typical child care program, look for state-specific market rate studies and child care staffing studies. If neither exists, the U.S Bureau of Labor Statistics reports salary data for child care workers and preschool teachers, although these data are problematic because the categorization of these job positions does not take into account that the functions of child care workers and preschool teachers overlap.

To create a budget for a Head Start program, look for state-specific Head Start Program Information Reports and child care staffing surveys.

To create a budget for a public school prekindergarten program, look for state-specific data on public school salaries from the state department of education, the U.S. Department of Education's National Center on Education Statistics, and the U.S. Bureau of Labor Statistics. Teachers' unions will also have information on salaries and benefits for those teaching in the public system.

When available, users should include average or median salaries for various positions to capture a "typical" program in their state. Mandatory payments for unemployment insurance, FICA, Medicare, and worker's compensation should also be included.

Users should also include non-personnel costs. Based on information from the Cost, Quality, and Outcomes Study, labor costs for non-profit child care centers averaged between 75 and 83 percent of total costs (Helburn 1995). Assuming this is true for other early childhood education settings, the total of all non-personnel items would amount to no more than about 20-25 percent of an early childhood program's overall expenses. To simplify the calculation of estimating non-personnel costs, users can estimate a non-personnel expense to apply across all settings. Non-personnel items should include equipment, food, supplies, modest in-service training, occupancy, maintenance, audit, insurance, phone, and miscellaneous expenses.[15] Our non-personnel cost estimate was constructed using budgets developed by Anne Mitchell for teaching purposes (Mitchell 2002). Using our information, we estimate non-personnel costs to be about $2,000 per child per year. Because of variations in cost based on regional differences, users may want to make their own non-personnel estimate using the 20-25 percent rule or the non-personnel budget method. Table 2 demonstrates how we arrived at our non-personnel costs.

We do not include in-kind donations as part of our non-personnel costs. Instead, we assume that a typical program will have to pay market rates for rent and full prices for toys and other equipment. Although we suspect that a large number of early childhood programs will receive in-kind donations or reduced rent of some kind, there may not be reliable information in a user's state to say how many programs receive this kind of help. In some cases, such donations and discounts would lead to large differences in cost. In the Massachusetts Cost and Quality Study, researchers found that the majority of programs in their sample received reduced rent, which, if not reduced, would have increased program costs by about 21 percent (Marshall et al. 2001). Thus, if users were to adjust rent costs based on established patterns of rent reduction, such adjustments would not necessarily be associated with a quality reduction.

To estimate the full cost of a program at preschool standards, the personnel costs in each setting should be set at the equivalent of public school teacher compensation

[15] Transportation costs, however, are not included.

TABLE 2

Basic Budget for Non-Personnel Expenses for One Early Education Setting

Non-Personnel Items	Annual Costs	
Rent (1,620 sq. ft. x $2 x 12 months)	$38,880	
Utilities	$6,000	
Maintenance/Repair	$3,000	
Food	$9,600	
Kitchen Supplies	$600	
Education. Supplies	$1,200	
Education. Equipment	$2,500	
Consultants/Training	$1,000	
Office Supplies	$960	
Audit	$2,500	
Insurance	$2,750	
Telephone	$1,200	
Postage	$600	
Advertising	$500	
Fees/Permits	$200	
Miscellaneous	$500	
Total Non-Personnel	$71,990	$1,999.72 per child

Estimated non-personnel expenses for a 36 child center, assuming space for 2 classrooms, kitchen and office.
Mitchell (2002)

(assuming that equivalent qualifications are required for preschool teachers), including benefits for all employees. Data on these wages would most likely come from the state Department of Education or local union contracts for public school teachers. We assume that lead or master teachers in preschool programs should have at least a bachelor's degree in early childhood education and would receive benefits such as medical, dental, and retirement. States may require a certification in early education as well. A family resource coordinator should also be included in each budget because teachers and children should have access to a professional to help coordinate or access any special needs a child or family may have. We recommend that a family resource coordinator have a Master's of Social Work or similar education.

While we argue that most cost increases for programs will be in the cost of compensating qualified teachers, in some cases, costs would also rise if staffing patterns were changed to meet preschool standards. For example, a public school prekindergarten program might pay teachers the same wages as elementary schoolteachers and those teachers most likely have comparable credentials, so costs in that area would not change to include universal preschool. But the staff-to-child ratio might be too high to meet preschool standards and lowering the ratio would increase the cost per child.

Table 3 provides an example of a budget we constructed for Illinois' proposed universal preschool program, in which stakeholders decided to use the cost of upgrading programs to deliver preschool as the unit cost.

We argue that converting the direct cost into per-child-hour units allows for the most flexibility in calculating costs. As we mentioned above, in order to estimate a per-child-hour unit, users must divide the annual cost of the program per child by the total number of preschool hours delivered each year. In the case of Illinois, stakeholders determined that Illinois Preschool would offer children 2.5 hours per day, up to 248 days a year, for children needing a full-day, full-year arrangement. We arrived at the **"upgrade"** per-child-hour cost by dividing the difference in cost per child by the total number of possible preschool hours in that setting (2.5 x 248= 620). Once users calculate a per-child-hour cost for each preschool setting, a unit cost should be assigned to each child based on the type of arrangement. For the purposes of calculating costs, we recommend that children needing full-year service should be assigned to a child care setting. Children needing school-year service should be divided evenly between Head Start and public prekindergarten settings. In Calculation 4, we use the **"upgrade"** per-child-hour cost of delivering Illinois Preschool in a child care center setting to demonstrate how to incorporate the per-child-hour unit cost in the direct service formula. In this example, we assume Illinois Preschool's criteria of providing 2.5 hours of preschool, 248 days per year, and a 10 percent phase-in rate.

CALCULATION 4. INCLUDING PER-CHILD-HOUR COSTS IN A CHILD CARE SETTING

(0.1 x total estimated number of participating three-, four-, and five-year-olds needing full-year service x 2.5 hours per day x 248 days per year x $4.72 per-child-hour)
= Annual Direct Service Costs (to serve 10% of population of those needing full-year service, assuming a child care setting, excluding materials costs)

The cost of children needing a school-year arrangement would be added accordingly.

Step 2B. Estimating Per-Child Materials Costs

In some cases, users may want to include additional materials costs to account for the cost of outfitting new classrooms or changing classrooms designed for other age groups into preschool classrooms. To determine a per-child materials cost, users should consider the cost of supplies and furniture for a preschool classroom. One way to make this estimate is to examine classroom supply catalogs, such as those supplied by Kaplan School Supplies. When we used this strategy in Illinois, we estimated that materials cost for an existing classroom would be about $250 per child and $900 for a new classroom. Because some of the costs for classroom materials are accounted for in the non-personnel costs, and since there will probably be enough existing classrooms for at least the first few years of the program in most states, we estimated that about $100 per child would be sufficient. These types of decisions would depend on existing early education capacity for each state and available funding. To add materials costs per-child to Calculation 4 would look like Calculation 5 below:

TABLE 3

Estimated Cost of Changing One Child Care Center to Include Illinois Preschool

Budget Item Salaries	Annual Expense as Child Care (open full day, 12 months)	Annual Expense as Child Care/Illinois Preschool (open full day, 12 months)
1 Director	$35,266	$58,147
1 Administrative Assistant/Bookkeeper	$26,450	$43,610
4 Teachers	$80,184	$111,155 (2 @ ISBE wages) $55,578 (2 @ 50 percent ISBE wages)
6 Assistant Teachers	$92,084	$92,084
1 Family Resource Coordinator		$45,000
Substitutes	$10,000	$10,000
Subtotal Salaries	$243,984	$415,573
Mandatory Benefits @ Percent of Salary		
FICA @ 6.2 percent	$15,127	$25,766
Medicare @ 1.45 percent	$3,538	$6,026
Unemployment @ 2 percent	$4,880	$8,311
Workers' Compensation @ 1 percent	$2,440	$4,156
Subtotal (10.65 percent)	$25,984	$44,259
Other Benefits		
Health Insurance @ $2,500 per staff	$12,600	$30,000
Dental Insurance @ $900 per staff	$2,808	$10,800
Pension @$2,000 annually per staff	$5,040	$24,000
Subtotal	$20,448	$64,800
Non-Personnel		
$2,000 per child	$160,000	$160,000
Total*	$450,416	$684,632
Cost per child year	$5,630	$8,558
Cost difference per child year between child care and Illinois Preschool		$2,928
Cost difference per child hour based on 620 hours of Illinois Preschool per year		$4.72

Budget Assumptions and Source Information

Program and Staffing Characteristics

Budgets are based on a typical child care center open 7a.m.-6p.m. (11 hours)
Staff work eight hours per day, 260 days per year (to cover in-house training) and have 20 days of leave, unless otherwise noted.
The child care center has four classrooms that serve 20 children per classroom. We assume all children are full time, for a total of 80 children per program.
There is at least one teacher per classroom. Teachers work 8a.m.-4p.m., eight hours a day.
There are six assistant teachers who cover three shifts throughout the day: two cover morning drop-off and most of the day (7a.m.-3p.m.);
two cover mid-morning to pick-up (10a.m.-6p.m.); two cover the same hours as teachers (8a.m.-4p.m.).
There is one director per 50 children.

Salary and Benefit Assumptions and Source Information

Child care director salary is based on data from a staffing survey, at an annual average salary of $35,366 (Illinois Department of Human Services (IDHS) 1999)
Child care teacher salaries are based on data from staffing surveys, at an average of $9.64 per hour (IDHS 1999; Krajec, Bloom, Talan, and Clark 2001).
Child care assistant teacher salaries are based on data from staffing surveys, at an average of $7.17 per hour (IDHS 1999; Krajec, Bloom, Talan, and Clark 2001).
Administrative/bookkeeper salary is estimated at 75 percent of director's salary.
Substitute costs are estimated to be about $50 per day, 20 days per staff.
Illinois Preschool director compensation is based on Illinois State Board of Education (ISBE) principal salary and benefits, at an average annual rate of $77,529, which is discounted at about 25 percent to account for the cost of benefits (ISBE 2001a).
Illinois Preschool teacher compensation is based on ISBE teacher salary and benefits, at an average annual rate of $44,431, which is discounted at about 25 percent to account for the cost o f benefits (ISBE 2001a).

The Family Resource Coordinator's compensation is based on the position of Speech Specialist in the public schools, at an average annual rate of approximately $45,000 including benefits (ISBE 2001a).
The Family Resource Coordinator's compensation is not discounted for benefits and is not included, therefore, in the benefit pool for health, dental, and pension.
To calculate benefit coverage at a child care center before Illinois Preschool, we assumed the following: 42 percent of current staff have health insurance;
26 percent have dental insurance; 21 percent have an employer-based pension plan (IDHS 1999).
Benefit coverage after Illinois Preschool is calculated such that 100 percent have health, dental, and pension.

* Totals may be affected by rounding.

Table Excerpted from: Golin, Mitchell, and Wallen 2003.

CALCULATION 5. ADDING PER-CHILD MATERIAL COSTS

(0.1 x total estimated number of participating three-, four-, and five-year-olds needing full-year service x 2.5 hours per day x 248 days per year x $4.72 per child hour) + (0.1 x total estimated number of participating three-, four-, and five-year-olds needing full-year service x $100 per child)
= Annual Direct Service Costs (to serve 10% of population of those needing full-year service, assuming a child care setting)

STEP 3. ESTIMATING INFRASTRUCTURE COSTS

Once direct service costs are estimated, users should estimate infrastructure costs. Below are our recommendations for estimating key supports for a universal preschool program. Each of the infrastructure costs below can be calculated as completely new costs to the state, or if existing resources are available and applicable to the new program, these existing resources could be subtracted from the total infrastructure cost estimate. In many cases, however, existing state infrastructure resources are not applicable to new preschool programs or expansions.

STEP 3A. TECHNICAL ASSISTANCE AND CONSULTATION TO PROGRAMS

A necessary element of any effort to expand and/or improve early education is consultation to programs on issues such as curriculum, program design and other educational issues, as well as financial management. To estimate the cost of consultation, we recommend that users assume that a typical preschool site would have an average of 75 children and each consultant could handle about 20 sites. Thus, one consultant is needed for every 1,500 children enrolled in preschool. This assumes that programs such as Head Start and state child care licensing agencies offer program consultation as well.

One reasonable way to estimate the cost of consultants would be to use the current expenditures for state licensing staff (e.g., average salary plus the cost of benefits, supervision, clerical support and operational expenses). This strategy has its limitations, especially because some have argued that child care licensing staff should earn higher wages to reflect the fact that they need to be experts in a number of early childhood education areas (Helburn and Bergmann 2002). Because it is unlikely that states will increase the wages of all early care and education monitors for universal preschool, using current licensor costs is sensible in the short term. The cost of technical assistance and consultation to programs can be expressed by Calculation 6.

CALCULATION 6. TECHNICAL ASSISTANCE AND CONSULTATION TO PROGRAMS

(Total number of participating children/1,500) x (cost of one consultant/total number of participating children)
= Per-Child Cost for Technical Assistance and Consultation

We assume that a preschool program would need consultation primarily during the first year or two of its operation, and less so or not at all in later years. Consultants are needed at the same rate as program expansion to provide service to each new program. In other words, if the take-up rate for a given year is 20 percent of the total participat-

ing population, then enough consultants would need to be available to cover programs incorporating those children. In some cases, states may want to provide programs with more assistance, particularly if few programs comply with preschool standards in the early years. One example of this would be if users decided to provide two years of consultation to programs. If 10 percent of all eligible children were served in year one and an additional 20 percent were added in year two, that means 30 percent of the population was served in year two, and year two would need enough consultants to cover 30 percent of the total eligible population. In year three, if an additional 20 percent of the eligible population participated, there would have to be enough consultants to cover 40 percent of the eligible population (to cover two years for the children introduced into the system in years two and three, but not the 10 percent integrated in year one). To calculate an annual cost for technical assistance and consultation for a 20 percent take-up rate, assuming consultation for the first year, users would follow Calculation 7.

CALCULATION 7. ANNUAL TECHNICAL ASSISTANCE AND CONSULTATION COSTS

(0.2 x total number of participating children x annual per-child technical assistance and consultation costs)
=Annual Cost for Technical Assistance and Consultation. (at 20 percent take-up rate)

STEP 3B. MONITORING FOR QUALITY ASSURANCE

It is likely that the state agency charged with administering funds for the preschool program will do a 'paper review' for financial oversight, including checking that teachers are qualified and that licensing requirements are met, and will have sufficient staff to carry out that responsibility. On-site monitoring is required to ensure that programs meet standards and that those needing help are identified for technical assistance. This is an additional cost. We recommend that users estimate the cost of monitoring based on best practice in regulatory caseloads, which is considered one regulator for every 50 center-based programs (National Association for the Education of Young Children 1987). Assuming an average of 75 children in a preschool program, 50 programs would include 3,750 children. As with the technical assistance consulting mentioned above, a reasonable estimate for monitoring costs is the current expenditure for state licensing staff (e.g., average salary plus the cost of benefits, supervision, clerical support, and operational expenses). Assuming the parameters above, Calculation 8 could then be used to estimate the annual per-child cost for monitoring

CALCULATION 8. PER-CHILD COST OF MONITORING

((Total number of participating children/3,750) x average expenditure for licensor)/total number of participating children
= Per-Child Monitoring Cost

As Calculation 8 shows, the total cost for monitoring programs serving all children is divided by the total number of participating children, equaling a per-child cost. In the case of a program phase-in, the annual per-child cost is computed by multiplying the per-child cost by the total number of children participating in the preschool program for that year. Calculation 9 demonstrates this formula, assuming a 40 percent take-up rate.

CALCULATION 9. ANNUAL COST FOR MONITORING

(0.4 x total number of eligible children x per-child cost for monitoring)
= Per-Child Monitoring Cost (at 40 percent take-up rate)

STEP 3C. PROFESSIONAL DEVELOPMENT

Teachers are the key to high-quality early education. We assume that a preschool program will require that all teachers have at least a bachelor's degree in early childhood education, and in many cases certification in early childhood education. We further assume that not all existing settings, including the public schools, currently employ B.A.-level certified early childhood teachers. To accommodate these factors, we have developed a strategy to estimate the cost of ensuring that there are enough qualified staff to meet the increased demand for preschool.

The cost of improving staff qualifications can be calculated if the following data are available for a given state: 1) the status of teacher qualifications for the current workforce in child care, Head Start, and public school preschool programs; 2) the average tuition cost in public institutions of higher education in the state; 3) the number of early childhood certified teachers currently produced each year.

Data Sources

Usually the state agency that oversees higher education and/or the state education department have data on the number of professional preparation programs in institutions of higher education (those offering two- and four-year ECE degree programs); the annual number of graduates of higher education programs obtaining ECE teacher certification; and the number of graduates applying for ECE certification each year.

These state agencies will also know the average tuition costs of public higher education. The cost of a typical two-year degree program (60 credit hours) and a typical four-year degree program (120 credit hours) can be calculated using the average per-college-credit cost. Tuition for an articulated "2+2" degree program could be calculated assuming that half the credits are taken at the community college tuition rate and half at the four-year college tuition rate.

Data on the current qualification status of the ECE workforce may be more difficult to obtain. Ideally, the data will show the percentage of staff who hold various levels of qualification (e.g., Child Development Associate (CDA), associate's degree in ECE, other associate's degree, bachelor's degree, bachelor's degree in ECE) by different positions (e.g., teacher, assistant, director). Some states may have collected this type of data on child care (and they may be accessible through staffing studies and market rate studies). State departments of education have certification data for teachers but not for assistants/aides; and the federal regional office of the U.S. Department of Health and Human Services has data for Head Start employees by position for every state, in the form of Program Information Reports.

How Many Teachers Would be Needed?

The first step in estimating costs is determining how many teachers would be needed for preschool. In the case of a part-day program, one teacher and one assistant teacher could most likely cover two preschool sessions, one in the morning and one in the afternoon. In the case of a full day, one teacher and one assistant teacher would be needed for every classroom. Thus, users should make an estimate based on what type of options their preschool program will allow. For example, if a state preschool program will serve 200,000 children in a full-day, full-year arrangement, 10,000 B.A.-level certified teachers would be needed. If half of those children go into a part-day program, the estimate can be decreased to 7,500.

How Many Teachers Would Need to Improve Their Qualifications?

The next step should be to determine how many teachers will need to improve their qualifications and how much of an investment this will require. To make this estimate, we recommend considering three populations— assuming in this case that a state program will require certified teachers:

1. Teachers with bachelor's degrees who will need to acquire teacher certification,
2. Teachers with associate's degrees who will need to acquire the bachelors degree and certification, and
3. Teachers with Child Development Associates (CDA) who will need to acquire the bachelor's degree and certification.

Once users determine the number of teachers in each category, estimates should be made about how many of these teachers would seek additional education and certification. Some teachers may want to care for younger children or infants or not participate in the state preschool program. Most likely, many of those with a bachelor's degree will want to obtain certification, if significant salary increases follow. If there are too few BA-level teachers to cover all of the children who would participate in preschool, a number of those with AAs or CDAs might also want to obtain Preschool qualifications.

Estimating Costs

Once users estimate the number of qualified teachers and the average number of credits needed in each category, these numbers should be multiplied by the cost of an average college credit, generating the total cost of improving education. The general formula to estimate the cost of improving staff qualifications is expressed in Calculation 10.

CALCULATION 10. GENERAL FORMULA FOR ESTIMATING THE COST OF INCREASING TEACHER EDUCATION

(Number of potential students x number of credits required to reach certification x average tuition per credit)
= Total Cost of Increasing Teacher Qualifications

This formula should then be adapted based on the number of potential students starting from each education level. For example, the students with an Associate's Degree in ECE will need more credits than a student with a Bachelor's Degree in ECE to achieve a certification. To account for this difference, the formula would be adjusted to Calculation 11.

CALCULATION 11. ESTIMATING THE COST OF IMPROVING THE QUALIFICATION OF BA-LEVEL AND AA-LEVEL TEACHERS

(Number of students with BA x number of credits for certification x average tuition per credit) + (number of students with AA x number of credits for a BA and certification x average tuition per credit)
= Total Cost of Increasing Teacher Qualifications

Other considerations include determining whether full or partial tuition scholarships will be provided, and whether program directors will have to meet higher standards. The estimate can be decreased by 50 percent if users only want states to pay half of the tuition. This estimate can also be done for directors. Leadership is often seen as a key component to improving education – whether it is an elementary school or an early childhood program. A goal might be that all directors have a director credential or certification as a school administrator.

Once a total is calculated, an annual cost to the state can be calculated. One way to determine the annual cost would be to divide the total cost for improving staff qualification by the number of years of implementation. For example, if the total cost was $20,000,000, then $2,000,000 would be the annual cost, assuming a ten year implementation process.

Another way to estimate the annual cost would be to use the data cited above to determine how many early childhood certifications are granted every year. For example, if 10,000 teachers are needed to serve 200,000 children, and if 5,000 of these are qualified, 5,000 teachers would need to increase their qualifications. If an average college credit in the state is $100 and there are 5,000 teachers with a BA who will need to be certified, the total cost would be $9,000,000. If the state currently certifies about 500 teachers a year, it would take ten years to certify all 5,000. Thus the annual cost to increase staff qualification would be $900,000.

In some states, public colleges and universities will not be ready to handle the increased demand for qualified early childhood educators. A planning process will be needed to help them coordinate efforts to meet the increased demand. In such cases, users may want to include planning grants for higher education collaboration and for helping colleges develop their early childhood education programs. Planning grants can be small, anywhere from $25,000 to $50,000, and they can be disbursed to clusters of colleges in a given region. They can be provided in the early years of a program's implementation and phased-out in later years. Calculation 12 computes the annual estimated cost of professional development in the early years of a program.

CALCULATION 12. THE ESTIMATING THE ANNUAL COST OF PROFESSIONAL DEVELOPMENT

((Number of potential students or teachers with a BA x number of credits for certification x average tuition per credit) + (number of potential students or teachers with an AA x number of credits for a BA and certification x average tuition per credit) + (number of potential students or directors with a BA x number of credits for certification x average tuition per credit) + (number of potential students or directors with an AA x number of credits for a BA and certification x average tuition per credit))/(number of years of program implementation) + annual planning grants to communities
= Annual Professional Development Cost

STEP 3D. EVALUATION AND ASSESSMENT

To ensure that children are truly benefiting from universal preschool, programs must be evaluated. In this model, we include estimates for two main types of evaluation and assessment: 1) program evaluation (of the process and outcomes of the preschool program) and 2) measurement of children's readiness for kindergarten. The following provide guidelines for including these types of evaluation and assessment tools.

Third-Party Evaluation

A third-party evaluation of a state-based universal preschool program would examine the effectiveness and scope of the implementation of the program and whether it is achieving high levels of service for children. To estimate the cost for such evaluation, we looked to other evaluations of similar programs. Based on informal conversations with other researchers conducting statewide evaluations, we found that the cost of a third-party evaluation (including an implementation study and a quality study using measurement tools such as the Early Childhood Environmental Rating Scale) was roughly 5-to-10 percent of the total program cost. One way users can adapt this "rule-of-thumb" is to take the full cost of the proposed universal preschool program at final implementation (the total cost of all infrastructure investments plus the total direct costs in the final year of implementation) and multiply that by .05. For example, if by year ten (full implementation), a preschool program had a direct service cost of $500 million and the total cost of all infrastructure investments was $500 million, the cost of the evaluation would be $50 million. This amount could be paid out over the 10 years, at an annual cost of $5 million.

Assessing Kindergarten Readiness

Assessing kindergarten readiness is an increasingly desired policy goal. Generally, such assessments are conducted using a statewide representative sample and may include one-on-one child assessments, teacher surveys, parent surveys, and principal surveys. To devise a strategy to estimate the cost of a kindergarten readiness assessment, we looked at existing efforts in the states. The Frank Porter Graham Child Development Institute at the University of North Carolina, Chapel Hill conducted a school readiness study on a sample of North Carolina children. That study included 1,034 children (approximately 1 percent of the population of children entering kindergarten) from 189 different elementary schools. Researchers examined a number of factors, including differences in poor and more affluent children, but they did not look at differences in children by early care and education setting. The study cost was $500,000, or about $484 dollars per child. Frank Porter Graham researchers advised us that a more complex study design would be needed to measure the impact of a universal preschool program (such as the quality of programs and children's school outcomes), and differences across a number of early educational settings.[16]

We estimated that an increase of 10-15 percent of the overall costs of assessment would be needed to account for a more complex design, bringing the per-child cost to about $542 per child. If a state had 200,000 three-and four-year-olds, and included 1 percent of them in a kindergarten-readiness study, that would be about 2,000 children, and

[16] Data on cost and study design came via personal correspondence, November 2001. This process was first reported in Golin, Mitchell, and Wallen 2003

a cost of about $1.1 million. If a kindergarten readiness study was performed every three years during a 10-year program implementation process, $1.1million could be allocated for each of the three years an assessment was conducted, for a total of $3.3 million.

STEP 3E. FACILITIES

The cost of renovating or constructing existing facilities must be taken into consideration. Many early childhood programs operate in less than adequate spaces; expansion to serve additional children requires renovation and/or new construction. These costs are difficult to estimate since they depend on factors such as whether the project is rehabilitation or new construction and regional differences in construction costs.

In general, we assume that one facilities project would cover approximately eight classrooms, or 160 children. The basic formula for estimating the cost of renovating or building facilities is detailed in Calculation 13.

CALCULATION 13. ESTIMATING THE COST OF RENOVATION OR CONSTRUCTION

(Number of renovated facilities projects by region x regional per facility construction costs) + (number of new facilities projects by region x regional per facility construction costs)
= Cost of Building or Renovating Facilities

Cost of building/renovating facilities

The formula can be adapted to meet a variety of facilities projects. For example, one state might renovate all existing facilities participating in the preschool program, while another might only invest in building new facilities.

To obtain information on construction/renovation costs for an early childhood education facility in a given region, we recommend contacting local facilities funds or community development corporations. To determine existing early childhood classroom capacity, we recommend contacting child care licensing agencies, regional offices of the U.S. Department of Health and Human Services for Head Start programs, and state boards of education for public prekindergarten programs. U.S. Census Bureau data could be used to determine the number of projects needed for each region of the state, and costs could be adjusted accordingly.

For example, if the current capacity to serve preschool-age children in a given state is 160,000 and 200,000 slots or spaces are needed, 40,000 spaces would need to be constructed. This would total about 250 facility construction projects. Forty-three percent of preschool-age children live in the largest city of the state, 22 percent are in that city's metropolitan area, and the rest, 35 percent, live in the rest of the state. In consultation with a community development corporation, a state estimates that the cost of constructing an early childhood education facility in the largest city is $3 million. The construction costs decrease by 10 percent in the city's metropolitan area and decrease 15 percent everywhere else. To estimate these costs, users would enter the data into Calculation 13 and come up with the following results:

((0.43 x 250) x 3,000,000) + ((0.22 x 250) x (0.90 x 3,000,000) + (0.35 x 250) x (0.85 x 3,000,000)

= $694,125,000

This cost could be stretched-out over the years of implementation. For example, if the cost were stretched-out over ten years, the annual cost would be about $69.4 million per year.

Given the high-cost of facilities renovation and construction, another feasible approach to facility investment would be to set up a facility loan fund in an amount that would cover a reasonable number of projects each year. The fund would be guaranteed by the state and would be replenished by loan repayments.

STEP 3F: GOVERNANCE

Finally, users should think about the cost of a state-level office or agency charged with administering a universal preschool program. To estimate the annual cost of such an entity, we suggest looking at other administrative offices. For example, to estimate the cost of three staff members and an administrator, users could use the cost of one state licensor and one licensor supervisor. The formula to produce the annual estimate is detailed in calculation 14. This calculation assumes that one licensor costs $80,000 and one supervisor costs $120,000.

CALCULATION 14. ESTIMATING THE COST OF GOVERNANCE

(3 x $80,000) + $120,000

= $360,000 per year

STEP 4. ADJUSTING FOR INFLATION

Once values are entered into the model and annual costs are computed for a given preschool implementation year, users should consider two issues: First, because the model relies on secondary data, salary data may actually come from multiple years. Second, as the program is implemented, prices for things such as labor and materials will change. On the one hand, these issues may not have a significant impact on the estimates because it could be assumed that, at least when the economy is growing, state expenditures will rise proportionally to increases in prices. On the other hand, accounting for inflation in an estimate allows users to ensure that increases in price are recognized in the cost.

One strategy to standardize cost data by year would be to use the Consumer Price Index (CPI) and calculate an escalation adjustment for each piece of information. For example, if some data were in 2000 dollars and others were in 2001 dollars, an escalation for the 2000 dollars could be calculated. Using the national CPI for all urban users as an example, if the average index for 2001 was 177.1 and the average index for 2000 was 172.2, the index point change would be 4.9. That number is then divided by the 2000 CPI index to equal .028, which when multiplied by 100 equals 2.8 percent. The 2000 data should then be multiplied by 1.028, adjusting to 2001 dollars.[17]

If users adopt this strategy, we suggest using a CPI that is representative of their state or region.

A strategy for adjusting for annual inflation, once all costs are standardized for year, would be to calculate adjustment-using estimates again based on the CPI. For example,

[17] Method prescribed by the U.S. Department of Labor (Fax on Demand Code 9256)

in January 2002, the Congressional Budget Office estimated that the Consumer Price Index for all urban areas will increase by about 2.5 percent annually from 2003-2012. Using this estimate, users can calculate an adjustment for each year. If all dollars were in 2003, users would start with year two of the estimate, and adjust the total annual cost by 1.025. In year three, the total annual cost would be adjusted by $(1.025)^2$; in year four, the annual total would be adjusted by $(1.025)^3$.

To demonstrate how all of these various factors work together to create a cost estimate for preschool, the following chapter puts all of the model components together. Our example of "State X" demonstrates how one state might use the model to estimate the cost of a universally accessible preschool program for their children.

Chapter Four: Using the Model in State X

The following is an example of how our model can be used to estimate the cost of a state's universal early education program for preschoolers. It also provides one example of how policymakers can stretch out total costs by implementing the program over a long period. Our example estimates the cost of a program that would provide children a full-day, full-year arrangement, so the estimates presented below are high. It is important to note, therefore, that these numbers are fictitious and are only used as an illustrative example of how the model can be implemented.

State X and Program Summary

State X is a mid-sized state of 8,000,000 people, of which 750,000 are under the age of six. In many ways, the state has relatively well-supported early care and education programs. It uses almost all its available TANF funds for child care subsidies, has strong regulations regarding child care licensing, has additional state funds for additional Head Start spaces, and has an all-day kindergarten program.

State X policymakers want to implement a voluntary, universally accessible preschool program for children ages three through five, which would be delivered in a variety of early childhood settings. They would like to include a full-day, full-year option for working parents (defined as 10 hours per day and 240 days per year), and a part-day school-year option for those parents who only want part-time service (defined as 3 hours per day and 180 days per year).

For program quality purposes, planners will define high quality as having at least one bachelor degree-level, certified teacher in every classroom. They will therefore need to ensure that funds are available for professional development. Planners will also provide guidance on curriculum. Although State X appears to have enough existing early care and education spaces to serve the number of children they estimate will participate, about 25 percent of those facilities will require renovation. State X is committed to implementing this program, but current state revenues are lower than in years past. Thus, program designers will have to slowly phase-in the program over ten years to keep annual costs affordable.

STEP 1. ESTIMATING NEED

State X currently has 150,000 three-year olds, 150,000 four-year olds, and 160,000 five-year-olds, totaling 460,000 eligible children. Based on Georgia's experience, program planners think that about 70 percent of all four-year-olds will participate in the program. Based on information from the U.S. Department of Education (see Chapter Three, Step 1), they assume fewer three-year-olds will participate (60 percent). They think that all five-year-olds who are not yet eligible for kindergarten will participate in preschool, about 25 percent of all five-year-olds in the state. Once fully implemented, approximately 90,000 three-year-olds, 105,000 four-year-olds, and 40,000 five-year-olds will participate in State X's Universal Preschool program, totaling about 235,000 children. Planners have decided not to adjust for population change because based on their review of population records over the last ten years, the number of preschool-aged children has not significantly changed.

Program planners do not think that all parents who enroll their children in Universal Preschool will either want or need a full-day, full-year arrangement. To estimate how many children would be sufficiently served with less than full-day, full-year preschool, planners analyzed State X's parental employment patterns. Using a national data set containing data about State X, program planners concluded that 50 percent of the participating three-year olds, 60 percent of the participating four-year olds, and 100 percent of participating five-year-olds will need full-day, full-year service. Fifty percent of the four-year-olds, 40 percent of the three-year-olds, and no five-year-olds will need part-time, school-year service. Table 4 displays the estimated participation patterns of preschoolers in the program.

TABLE 4

Estimated Participation Patterns for State X

Age	Total Number	Estimated Participation	Full-day, Full-year	Part-day, School-year
Three	150,000	90,000	45,000	45,000
Four	150,000	105,000	63,000	42,000
Five	160,000	40,000	40,000	0
Total	460,000	235,000	148,000	87,000

Calculations performed by the Institute for Women's Policy Research.

STEP 2. ESTIMATING DIRECT COSTS

Because of existing investments in early childhood education, State X program planners assume that policymakers will agree to pay for the cost of upgrading existing programs to Universal Preschool standards. So the unit cost of Universal Preschool in State X will be estimated using the additional or "upgrade" per-child-hour unit cost to existing early childhood education providers for delivering Universal Preschool. The largest cost will be to upgrade staff compensation.

To estimate the additional costs incurred to programs to deliver Universal Preschool, the planners developed proxy budgets in two main settings: 1) a community child care center and 2) a Head Start program. The child care setting was used to estimate the cost for full-time, full-year preschool. The Head Start budget was used for part-time, school-year service.

Planners developed two sets of budgets for each early childhood arrangement, the costs before Universal Preschool and the cost of programs delivering Universal Preschool. Planners used data from a 2003 child care staffing survey to estimate current average wages for child care center staff. This survey also contained information about the proportion of child care workers receiving benefits such as health, dental, and retirement. Ratios and other staffing guidelines were based on NAEYC standards. Non-personnel costs were estimated to be about $2,000 per child, based on the budget presented in Chapter 3. Information about Head Start was taken from the state's 2003 Head

Start Program Information Report (PIR). Because the PIR did not contain information about benefits, planners assumed that benefit packages would be similar to those in child care centers. Non-personnel costs were estimated to be about $2,000 per child, again using the budget presented in Chapter 3 (see Table 2). Program staffing patterns were based on NAEYC standards. All data gathered for these budgets were in 2002 dollars.

To develop the budgets that would account for child care and Head Start programs delivering Universal Preschool, planners gathered compensation information from State X's Department of Education. These data were also reported in 2002 dollars. The difference between these two sets of budgets was determined and then converted into per-child-hour units. Table 5 shows the per-child unit cost of Universal Preschool for each setting, followed by the converted per-child-hour unit.

TABLE 5

Direct Unit Costs for State X

Program	Annual Per-Child Cost of Program w/ Preschool	Annual Per-Child Cost of Program w/o Preschool	Difference in Cost	Hours/Days of Service	Additional Per-Child-Hour Unit (upgrade)
Child Care	$9,536.00	$5,630.00	$3,906.00	10 hrs/day, 240 days/yr	$1.63
Head Start	$3,653.00	$2,680.00	$973.00	3 hrs/day, 180 days/yr	$1.80

Calculations performed by the Insitute for Women's Policy Research.

To ensure that there are sufficient funds for adequate classroom furniture, planners also added an additional $100 per child to account for additional classroom materials.

STEP 3. ESTIMATING INFRASTRUCTURE COSTS

State X will include funds to provide a host of supports to ensure that Universal Preschool is properly implemented and monitored. This would include funds to ensure an adequate supply of qualified teachers, monitoring, assessment and evaluation, and facilities renovation.

Technical Assistance and Monitoring for Quality Assurance

State X program planners will allocate funds to provide technical assistance for new programs to help them adhere to Universal Preschool standards. Since the state child care office and the regional Head Start Bureau already provide some form of technical assistance, the planners assume that additional "preschool" technical assistance would be provided to programs for one year. To estimate the cost of technical assistance consultants, planners used the cost of one staff person currently working in the state's child care licensing office, which was $80,000 per year in 2002 (including benefits and office costs). Planners estimate that one consultant can assist about 20 programs, assuming an average program size of 75 preschool-age children. Given the number of children estimated to participate, the total number of technical advisors is estimated to be 157 over ten years (235,000/1,500). The total cost during the 10-year implementation

process would be $12,560,000 (157 x 80,000), and the cost per child would be $53.45 (157 x $80,000)/235,000). These funds would then be allocated to newly participating children as a proxy for new programs.

To ensure that there are enough inspectors to monitor Preschool program quality, State X planners estimate that approximately 63 inspectors will be needed, assuming that one inspector can monitor about 50 programs each with 75 children ((235,000/3750)= 63). The cost of one inspector is $80,000 per year, thus the total cost would be: 63 x $80,000= $5,040,000. The cost per child would be: (63 x $80,000)/235,000 = $21.45.

Professional Development

State X program planners have proposed to mandate that at least one lead or master teacher with a bachelor's degree in Early Childhood Education and an Early Childhood Certificate is present in every Universal Preschool classroom. Program planners also propose to mandate that all Preschool directors have at least a bachelor's degree in Early Childhood Education and are certified as Education Administrators. This requirement will mean that State X will need about 9,500 teachers and 2,900 directors.[18] Based on an early care and education staffing survey conducted in 2000, State X currently has about 2,500 certified teachers and 1,000 certified directors. Therefore, approximately 7,000 teachers and 1,900 directors will need to be upgraded.

Based on the staffing survey, program planners estimate that about 3,500 teachers will require 60 college credits to be upgraded from an associate's level to a bachelor's degree in ECE for, with an additional 12 credits for certification (72 credits total). The other 3,500 teachers have a bachelor's degree in ECE but will need 12 credits to achieve certification. All 1,900 directors will require 35 credits to achieve certification, since all already have a bachelor's degree in ECE. The average cost of a college credit in State X's public college and university system was $120 in 2002. Program planners estimate the cost of professional development using the following formulas:

CALCULATION 15. ESTIMATING THE COST OF UPGRADING TEACHER CREDENTIALS IN STATE X

(3,500 x 72 x $120) + (3,500 x 12 x $120)
= $35,280,000

CALCULATION 16. ESTIMATING THE COST OF UPGRADING DIRECTOR CREDENTIALS IN STATE X

(1,900 x 35 x $120)
= $7,980,000

To keep costs manageable during program implementation, planners have decided to extend the cost of upgrading staff credentials over the course of the 10-year implementation process. The annual cost for teachers, therefore, is estimated to be about $ 3,528,000. The annual cost for directors is estimated to be about $798,000.

In order to ensure that public colleges and universities can meet the estimated increase in early childhood staff seek specialized credentials, program planners will also

[18] These numbers were calculated by assuming that one teacher would be needed for every 20 full-day, full-year classroom (20 children) and one teacher would be needed for every 2 part-day classrooms (40 children). We assumed that one director would be needed for every 80 children and that each program would have about four preschool classrooms.

include planning grants. To ensure that there are enough early childhood education faculty, planners will allocate six annual grants of $50,000, which will be dispersed to six regions throughout the state. These grants will be allocated for three years, at a total cost of $900,000.

Evaluation and Assessment

Program planners will also include funds to evaluate Universal Preschool and assess child outcomes associated with the program. To achieve this, planners will estimate the cost of an independent evaluation and a kindergarten readiness assessment (performed with a representative sample every three years).

Program planners estimate that the cost of the ten-year evaluation will be approximately 5 percent of the full cost of universal preschool, estimated to be $72,238,473. Planners calculated this estimate by adding the full cost of all infrastructure support, plus the full direct costs of the program in year ten, and then adjusted for inflation. The total was then multiplied by .05.

To estimate the cost of a kindergarten-readiness assessment, administered to 1 percent of kindergarteners, program planners used the following strategy: Planners assumed that there were 120,000 five-year-olds and about 40,000 six-year-olds currently in kindergarten, totaling about 160,000 kindergartners. A one percent sample would equal 1,600 children. The price per child was estimated to be about $542 per child (see Chapter 3). The cost of each assessment, therefore, would be about $867,200. During the program's implementation, planners want to conduct an assessment four times: in years one, four, seven, and ten.

Facilities

As mentioned above, State X program planners have assumed that there are enough existing early childhood spaces to accommodate the estimated number of children who will participate in Universal Preschool. However, some spaces will need to be renovated to meet Universal Preschool standards. According to the state child care licensing agency and the 2003 Head Start PIR, there are 300,000 available Head Start and child care spaces for preschool-aged children. Based on information interviews with state child care licensing monitors, planners assume that at least 25 percent of all existing spaces will need to be renovated, which is about 75,000 spaces or about 3,000 classrooms.[19]

To estimate the cost of renovation, planners assume that each renovation project would include eight classrooms, or 160 spaces. To meet the renovation goal, the state would pay for about 375 renovation projects.

Planners assume that these projects would be scattered around the state. To estimate where renovation projects would most likely be needed and the regional variation in costs, planners worked with a community development organization in the state's major city, called Capital. The cost of one renovation project in Capital is approximately $1.5 million in 2002. Planners estimate that the cost of renovation in Capital's metro-

[19] This number assumes that 60 percent of the 75,000 spaces would be in full-day classrooms. Forty percent of the 75,000 spaces would be in part-day classrooms.

politan area is about 85 percent of the cost within the city limits (slightly less than $1.3 million per project). Renovation costs in the rest of the state are about 75 percent of Capital's costs (slightly over $1.1 million per project).

Using Census data, planners estimated that about 40 percent of State X's population lives in Capital. About 25 percent live in Capital's metropolitan area, with 35 percent living in the rest of the state. Based on this distribution, planners estimated the following costs for renovating facilities:

CALCULATION 17. ESTIMATING THE COST OF FACILITIES RENOVATION IN STATE X

($1,500,000 x 150) + ($1,275,000 x 94) + ($1,125,000 x 131)
= $492,225,000.

Because of the high cost of facilities investment, program planners will spread the cost of the projects over the ten-year implementation period. The annual cost during this period will be $49,222,500.

Governance

Program planners assume that there will be some state-level agency or office charged with administering Universal Preschool. They estimate that for a four-person staff (three staff and one supervisor), the cost would be the following, using Calculation 18.

CALCULATION 18. PRESCHOOL GOVERNANCE FOR STATE X

(3 x $80,000) + $120,000
= $360,000 per year

Inflation

Although program planners do not think that costs will change dramatically over the first ten years of implementation, they do want to estimate potential changes in inflation. According to the Congressional Budget Office, the Consumer Price Index for all urban areas will increased by about 2.5 percent annually from 2003-2012 (see Chapter 3). Program planners, therefore will adjust each year of the program's implementation by 2.5 percent. Table 6 summarizes the infrastructure costs for the State X Universal Preschool program.

Annual Estimates for Implementing Universal Preschool in State X

Once all data were collected, program planners calculated the following annual estimates for implementing Universal Preschool in State X, assuming a 10 percent annual take-up rate. Program planners assumed that the program would begin in 2003. Since all data were reported in 2002 dollars, inflation adjustments would begin in Year One.

Year One Estimates

In Year One, program planners estimate that State X's Universal Preschool program will serve 23,500 children. Planners also include a kindergarten readiness assessment, which will be used as a base line measurement for future assessments. The total cost of Year One is about $137 million, when adjusted for inflation, of which about 49 percent is designated for infrastructure investments (before adjusting for inflation). Table 7 details the costs of Year One.

TABLE 6

Infrastructure Costs for State X

Item	Total Cost	Unit or Annual Cost
Technical Assistance	$12,560,000	$53.45 per child
Monitoring	$5,040,000	$21.45 per child
Increasing Staff Credentials- Teachers	$35,280,000	$3,528,000 per year
Increasing Staff Credentials- Directors	$7,980,000	$798,000 per year
Professional Development Planning Grants	$900,000	$300,000 per year
Evaluation	$79,827,775	$7,982,778 per year
Kindergarten Readiness Assessment	$2,601,600	$867,200 per assessment
Facilities Renovation	$492,225,000	$49,222,500 per year
Governance	$3,600,000	$360,000 per year

Calculations performed by the Institute for Women's Policy Research.

TABLE 7

Year One Estimates– Serving 10 Percent of Projected Population

		Per-Child Unit Cost			
Direct Service Costs	**# of Children**	**Additional**	**# Hours**	**# Days**	**Amount**
10 hours of preschool in a full day, full year child care setting	14,800	$1.63	10	240	$57,897,600
3 hours of preschool in a Head Start setting	8,700	$1.80	3	180	$8,456,400
Total # of children/subtotal	23,500				$66,354,000
Additional Materials and Equipment	23,500	$100.00	na	na	$2,350,000
Total Direct Service Costs					$68,704,000
Infrastructure Costs					
Technical Assistance and Consultation to Programs	23,500	$53.45			$1,256,075
Monitoring and Quality Assurance	23,500	$21.45			$504,075
Professional Development					
Financial Support for Continuing Education, Teachers					$3,528,000
Financial Support for Continuing Education, Directors					$798,000
Professional Development Planning Grants					$300,000
Assessment					
Kindergarten Readiness Assessment					$867,200
Evaluation					$7,982,778
Facilities					
Renovation					$49,222,500
Governance					
Preschool Office					$360,000
Total Infrastructure costs					$64,818,628
Total Annual Costs					**$133,522,628**
Total Annual Costs Adjusted for Inflation					**$136,860,694**

Calculations performed by the Institute for Women's Policy Research.

TABLE 8

Year Two Estimates- Serving 20 Percent of Projected Population

Direct Service Costs	# of Children	Per-Child Unit Cost Additional	# Hours	# Days	Amount
10 hours of preschool in a full day, full year child care setting	29,600	$1.63	10	240	$115,795,200
3 hours of preschool in a Head Start setting	17,400	$1.80	3	180	$16,912,800
Total # of children/subtotal	47,000				$132,708,000
Additional Materials and Equipment	47,000	$100.00	na	na	$4,700,000
Total Direct Service Costs					$137,408,000
Infrastructure Costs					
Technical Assistance and Consultation to Programs	23,500	$53.45			$1,256,075
Monitoring and Quality Assurance	47,000	$21.45			$1,008,150
Professional Development					
Financial Support for Continuing Education, Teachers					$3,528,000
Financial Support for Continuing Education, Directors					$798,000
Professional Development Planning Grants					$300,000
Assessment					
Evaluation					$7,982,778
Facilities					
Renovation					$49,222,500
Governance					
Preschool Office					$360,000
Total Infrastructure costs					$64,455,503
Total Annual Costs					**$201,863,503**
Total Annual Costs Adjusted for Inflation					**$212,082,843**

Calculations performed by the Institute for Women's Policy Research.

Years Two and Three Estimates

In Year Two, planners estimate that 47,000 children will be served in State X's Universal Preschool program. The annual costs increase to over $212 million. By Year Three, 70,500 children are served, and the annual cost increases to about $292 million. The average proportion of costs dedicated to infrastructure investment for Year Two is about 32 percent and for Year Three, 24 percent. Tables 8 and 9 provide details on the cost of Years Two and Three.

TABLE 9

Year Three Estimates- Serving 30 Percent of Projected Population

		Per-Child Unit Cost			
Direct Service Costs	**# of Children**	**Additional**	**# Hours**	**# Days**	**Amount**
10 hours of preschool in a full day, full year child care setting	44,400	$1.63	10	240	$173,692,800
3 hours of preschool in a Head Start setting	26,100	$1.80	3	180	$25,369,200
Total # of Children/subtotal	70,500				$199,062,000
Additional Materials and Equipment	70,500	$100.00	na	na	$7,050,000
Total Direct Service Costs					$206,112,000
Infrastructure Costs					
Technical Assistance and Consultation to Programs	23,500	$53.45			$1,256,075
Monitoring and Quality Assurance	70,500	$21.45			$1,512,225
Professional Development					
Financial Support for Continuing Education, Teachers					$3,528,000
Financial Support for Continuing Education, Directors					$798,000
Professional Development Planning Grants					$300,000
Facilities					
Renovation					$49,222,500
Assessment					
Evaluation					$7,982,778
Governance					
Preschool Office					$360,000
Total Infrastructure costs					$64,959,578
Total Annual Costs					**$271,071,578**
Total Annual Costs Adjusted for Inflation					**$291,914,441**

Calculations performed by the Institute for Women's Policy Research.

TABLE 10

Year Four Estimates- Serving 40 Percent of Projected Population

		Per-Child Unit Cost			
Direct Service Costs	**# of Children**	**Additional**	**# Hours**	**# Days**	**Amount**
10 hours of preschool in a full day, full year child care setting	59,200	$1.63	10	240	$231,590,400
3 hours of preschool in a Head Start setting	34,800	$1.80	3	180	$33,825,600
Total # of children/subtotal	94,000				$265,416,000
Additional Materials and Equipment	94,000	$100.00	na	na	$9,400,000
Total Direct Service Costs					$274,816,000
Infrastructure Costs					
Technical Assistance and Consultation to Programs	23,500	$53.45			$1,256,075
Monitoring and Quality Assurance	94,000	$21.45			$2,016,300
Professional Development					
Financial Support for Continuing Education, Teachers					$3,528,000
Financial Support for Continuing Education, Directors					$798,000
Assessment					
Kindergarten Readiness Assessment					$867,200
Evaluation					$7,982,778
Facilities					
Renovation					$49,222,500
Governance					
Preschool Office					$360,000
Total Infrastructure costs					$66,030,853
Total Annual Costs					**$340,846,853**
Total Annual Costs Adjusted for Inflation					**$376,231,150**

Calculations performed by the Institute for Women's Policy Research.

Years Four and Five Estimates

In Year Four, another kindergarten readiness assessment will be conducted. By Year Five, the State will serve 50 percent of the total projected participating population, at a cost of $463 million. Tables 10 and 11 detail the costs in Years Four and Five.

TABLE 11

Year Five Estimates- Serving 50 Percent of Projected Population

		Per-Child Unit Cost			
Direct Service Costs	**# of Children**	**Additional**	**# Hours**	**# Days**	**Amount**
10 hours of preschool in a full day, full year child care setting	74,000	$1.63	10	240	$289,488,000
3 hours of preschool in a Head Start setting	43,500	$1.80	3	180	$42,282,000
Total # of children	117,500				$331,770,000
Additional Materials and Equipment	117,500	$100.00	na	na	$11,750,000
Total Direct Service Costs					$343,520,000
Infrastructure Costs					
Technical Assistance and Consultation to Programs	23,500	$53.45			$1,256,075
Monitoring and Quality Assurance	117,500	$21.45			$2,520,375
Professional Development					
Financial Support for Continuing Education, Teachers					$3,528,000
Financial Support for Continuing Education, Directors					$798,000
Assessment					
Evaluation					$7,982,778
Facilities					
Renovation					$49,222,500
Governance					
Preschool Office					$360,000
Total Infrastructure costs					$65,667,728
Total Annual Costs					**$409,187,728**
Total Annual Costs Adjusted for Inflation					**$462,958,356**

Calculations performed by the Institute for Women's Policy Research.

TABLE 12

Year Six Estimates- Serving 60 Percent of Projected Population

		Per-Child Unit Cost			
Direct Service Costs	**# of Children**	**Additional**	**# Hours**	**# Days**	**Amount**
10 hours of preschool in a full day, full year child care setting	88,800	$1.63	10	240	$347,385,600
3 hours of preschool in a Head Start setting	52,200	$1.80	3	180	$50,738,400
Total # of children	141,000				$398,124,000
Additional Materials and Equipment	141,000	$100.00	na	na	$14,100,000
Total Direct Service Costs					$412,224,000
Infrastructure Costs					
Technical Assistance and Consultation to Programs	23,500	$53.45			$1,256,075
Monitoring and Quality Assurance	141,000	$21.45			$3,024,450
Professional Development					
Financial Support for Continuing Education, Teachers					$3,528,000
Financial Support for Continuing Education, Directors					$798,000
Assessment					
Evaluation					$7,982,778
Facilities					
Renovation					$49,222,500
Governance					
Preschool Office					$360,000
Total Infrastructure costs					$66,171,803
Total Annual Costs					**$478,395,803**
Total Annual Costs Adjusted for Inflation					**$554,792,464**

Calculations performed by the Institute for Women's Policy Research.

Years Six and Seven

By Year Six, 141,000 children will participate in State X's Universal Preschool program, at an annual cost of $555 million. In Year Seven, at an annual cost of $636 million, State X will serve 164,500 children. This includes a third kindergarten readiness assessment. Tables 12 and 13 detail costs in Years Six and Seven.

TABLE 13

Year Seven Estimates- Serving 70 Percent of Projected Population

		Per-Child Unit Cost			
Direct Service Costs	**# of Children**	**Additional**	**# Hours**	**# Days**	**Amount**
10 hours of preschool in a full day, full year child care setting	103,600	$1.63	10	240	$405,283,200
3 hours of preschool in a Head Start setting	60,900	$1.80	3	180	$59,194,800
Additional Materials and Equipment	164,500	$100.00	na	na	$16,450,000
Total Direct Service Costs					$480,928,000
Infrastructure Costs					
Technical Assistance and Consultation to Programs	23,500	$53.45			$1,256,075
Monitoring and Quality Assurance	164,500	$21.45			$3,528,525
Professional Development					
Financial Support for Continuing Education, Teachers					$3,528,000
Financial Support for Continuing Education, Directors					$798,000
Assessment					
Kindergarten Readiness Assessment					$867,200
Evaluation					$7,982,778
Facilities					
Renovation					$49,222,500
Governance					
Preschool Office					$360,000
Total Infrastructure costs					$67,543,078
Total Annual Costs					**$548,471,078**
Total Annual Costs Adjusted for Inflation					**$636,058,299**

Calculations performed by the Institute for Women's Policy Research.

TABLE 14

Year Eight Estimates- Serving 80 Percent of Projected Population

Direct Service Costs	# of Children	Per-Child Unit Cost Additional	# Hours	# Days	Amount
10 hours of preschool in a full day, full year child care setting	118,400	$1.63	10	240	$463,180,800
3 hours of preschool in a Head Start setting	69,600	$1.80	3	180	$67,651,200
Total # of children	188,000				$530,832,000
Additional Materials and Equipment	188,000	$100.00	na	na	$18,800,000
Total Direct Service Costs					$549,632,000
Infrastructure Costs					
Technical Assistance and Consultation to Programs	23,500	$53.45			$1,256,075
Monitoring and Quality Assurance	188,000	$21.45			$4,032,600
Professional Development					
Financial Support for Continuing Education, Teachers					$3,528,000
Financial Support for Continuing Education, Directors					$798,000
Assessment					
Evaluation					$7,982,778
Facilities					
Renovation					$49,222,500
Governance					
Preschool Office					$360,000
Total Infrastructure costs					$67,179,953
Total Annual Costs					**$616,811,953**
Total Annual Costs Adjusted for Inflation					**$733,195,581**

Calculations performed by the Institute for Women's Policy Research.

Years Eight Through Ten

By Year Eight, State X will be serving 188,000 preschoolers. With infrastructure investments, the annual cost is $733 million. By Year Ten, 235,000 children will be served and large investments will have been made in various infrastructure components, including professional development, and an independent evaluation of the program is coming to conclusion. By Year Ten, annual costs rise to $967 million, including a modest 9 percent for infrastructure. This amounts to about $4,100 per child, less than what is spent per child on K-12 education in any state (US DOE 2004). Tables 14 though 16 detail the last three years of the phase-in.

These estimates are substantial in State X. However, given the inadequate funding of the current early childhood care and education system, any major effort to raise the quality of preschool will be high. Nevertheless, the model does allow states to change a number of assumptions used to raise or lower costs, and may reduce costs if a state chooses to include parental contributions. Program planners have broad latitude under the model in terms of program assumption, but they will have to weigh the price of curbing funds against decreasing the program's quality.

TABLE 15

Year Nine Estimates- Serving 90 Percent of Projected Population

		Per-Child Unit Cost			
Direct Service Costs	**# of Children**	**Additional**	**# Hours**	**# Days**	**Amount**
10 hours of preschool in a full day, full year child care setting	133,200	$1.63	10	240	$521,078,400
3 hours of preschool in a Head Start setting	78,300	$1.80	3	180	$76,107,600
Total # of children	211,500				$597,186,000
Additional Materials and Equipment	211,500	$100.00	na	na	$21,150,000
Total Direct Service Costs					$618,336,000
Infrastructure Costs					
Technical Assistance and Consultation to Programs	23,500	$53.45			$1,256,075
Monitoring and Quality Assurance	211,500	$21.45			$4,536,675
Professional Development					
Financial Support for Continuing Education, Teachers					$3,528,000
Financial Support for Continuing Education, Directors					$798,000
Assessment					
Evaluation					$7,982,778
Facilities					
Renovation					$49,222,500
Governance					
Preschool Office					$360,000
Total Infrastructure costs					$67,684,028
Total Annual Costs					**$686,020,028**
Total Annual Costs Adjusted for Inflation					**$856,745,010**

Calculations performed by the Institute for Women's Policy Research.

TABLE 16

Year Ten Estimates- Serving All of Projected Population

Direct Service Costs	# of Children	Per-Child Unit Cost Additional	# Hours	# Days	Amount
10 hours of preschool in a full day, full year child care setting	148,000	$1.63	10	240	$578,976,000
3 hours of preschool in a Head Start setting	87,000	$1.80	3	180	$84,564,000
Total # of children	235,000				$663,540,000
Additional Materials and Equipment	235,000	$100.00	na	na	$23,500,000
Total Direct Service Costs					$687,040,000
Infrastructure Costs					
Technical Assistance and Consultation to Programs	23,500	$53.45			$1,256,075
Monitoring and Quality Assurance	235,000	$21.45			$5,040,750
Professional Development					
Financial Support for Continuing Education, Teachers					$7,223,847
Financial Support for Continuing Education, Directors					$798,000
Assessment					
Kindergarten Readiness Assessment					$867,200
Evaluation					$3,681,275
Facilities					
Renovation					$49,222,500
Governance					
Preschool Office					$360,000
Total Infrastructure costs					$68,449,647
Total Annual Costs					**$755,489,647**
Total Annual Costs Adjusted for Inflation					**$967,090,620**

Calculations performed by the Institute for Women's Policy Research.

Chapter Five: Discussion and Conclusion

Throughout this report, we have emphasized that our approach to estimating the cost of universal preschool is designed to help states finance a sound program that encourages providers to deliver high-quality service. We also strived to make the model adaptable for various state needs, including differing participation rates and flexible service hours. Our approach also takes into account that some states will have systems in place to allow for the immediate adoption of preschool, while other states will require substantial community planning before any service delivery begins. For example, if State X wanted a planning phase during the first two years, the actual phase-in of service would not begin until Year Three.

This model was primarily designed to help users estimate costs as accurately as possible within a relatively short period of time. This makes it a useful tool for initiatives with definitive timelines. In many ways, we think it accomplishes its goal. Nevertheless, the model currently excludes some items that would ideally be included in future versions. One large omission in our present model is a specific line item for transportation. As states debate the merits of the model and its applicability, transportation is one area that will need to be addressed. Although researchers are developing methods of estimating these costs, states may want to devise their own solutions.

In addition, future models would estimate changes in parental workforce participation and impacts on preschool participation. The very presence of affordable, high-quality early childhood education may impact parents' workforce participation. The logic is that if parents have access to such an arrangement, they may be more likely to work full time. Since we suggest looking at parental employment to gauge participation, changes in parental employment would increase the need for full-day, full-year preschool arrangement, driving up costs. Future versions of the model will hopefully incorporate this dynamic.

By constructing this model, we sought to contribute to the debate on expanding early childhood programs in a comprehensive and fiscally responsible manner. We also hoped that models such as ours help policymakers design programs that can realistically achieve the long-term goal of ensuring that all children enter school ready to succeed.

High-quality, universal preschool will require a substantial investment from government. In many ways, adequate preschool investment needs to be valued similarly to other important community development efforts such as access to higher education, homeownership, and highways. Just as these other factors contribute to the well-being of all, investing in preschool will contribute to our future economic growth and social stability. Researchers provide a strong case that these costs are actually a bargain, when looking at long-term financial returns to individuals and society. It is therefore imperative that we continue to expand our knowledge of what makes high-quality preschool programs accessible to all families, and not be afraid to pay for it.

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