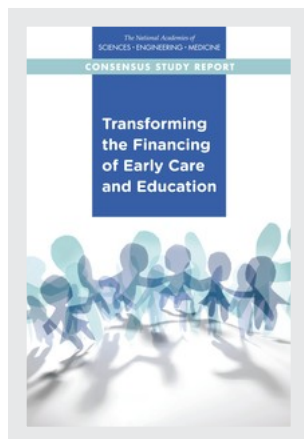


This PDF is available at <http://nap.edu/24984>

SHARE



## Transforming the Financing of Early Care and Education

### DETAILS

314 pages | 6 x 9 | PAPERBACK

ISBN 978-0-309-47040-7 | DOI 10.17226/24984

### CONTRIBUTORS

La Rue Allen and Emily P. Backes, Editors; Committee on Financing Early Care and Education with a Highly Qualified Workforce; Board on Children, Youth, and Families; Division of Behavioral and Social Sciences and Education; Health and Medicine Division; National Academies of Sciences, Engineering, and Medicine

GET THIS BOOK

FIND RELATED TITLES

Visit the National Academies Press at [NAP.edu](http://NAP.edu) and login or register to get:

- Access to free PDF downloads of thousands of scientific reports
- 10% off the price of print titles
- Email or social media notifications of new titles related to your interests
- Special offers and discounts



Distribution, posting, or copying of this PDF is strictly prohibited without written permission of the National Academies Press. (Request Permission) Unless otherwise indicated, all materials in this PDF are copyrighted by the National Academy of Sciences.

Copyright © National Academy of Sciences. All rights reserved.

# Transforming the Financing of Early Care and Education

Committee on Financing Early Care and Education  
with a Highly Qualified Workforce  
La Rue Allen and Emily P. Backes, *Editors*

Board on Children, Youth, and Families  
Division of Behavioral and Social Sciences and Education  
Health and Medicine Division

A Consensus Study Report of  
*The National Academies of*  
SCIENCES • ENGINEERING • MEDICINE

THE NATIONAL ACADEMIES PRESS  
*Washington, DC*  
[www.nap.edu](http://www.nap.edu)

THE NATIONAL ACADEMIES PRESS 500 Fifth Street, NW Washington, DC 20001

This activity was supported by contracts between the National Academy of Sciences and the Alliance for Early Success (G-1605-01115); the Bill & Melinda Gates Foundation (OPP1153016); the Buffett Early Childhood Fund; the Caplan Foundation for Early Childhood (10002673); the Foundation for Child Development (NAS-02-2016); the Heising-Simons Foundation (2016-210); the Kresge Foundation (R-1604-259389); the U.S. Department of Education (ED-ESE-16-C-0018); the U.S. Department of Health and Human Services Administration for Children and Families (HHSP233201400020B, Order No. HHSP23337046); and with additional support from the Bruce Alberts Fund, the Cecil and Ida Green Fund, and the W.K. Kellogg Foundation Fund (P3034414). Any opinions, findings, conclusions, or recommendations expressed in this publication do not necessarily reflect the views of any organization or agency that provided support for the project.

International Standard Book Number-13: 978-0-309-47040-7

International Standard Book Number-10: 0-309-47040-4

Digital Object Identifier: <https://doi.org/10.17226/24984>

Library of Congress Control Number: 2018941717

Additional copies of this publication are available for sale from the National Academies Press, 500 Fifth Street, NW, Keck 360, Washington, DC 20001; (800) 624-6242 or (202) 334-3313; <http://www.nap.edu>.

Copyright 2018 by the National Academy of Sciences. All rights reserved.

Printed in the United States of America

Suggested citation: National Academies of Sciences, Engineering, and Medicine. (2018). *Transforming the Financing of Early Care and Education*. Washington, DC: The National Academies Press. doi: <https://doi.org/10.17226/24984>.

*The National Academies of*  
**SCIENCES • ENGINEERING • MEDICINE**

The **National Academy of Sciences** was established in 1863 by an Act of Congress, signed by President Lincoln, as a private, nongovernmental institution to advise the nation on issues related to science and technology. Members are elected by their peers for outstanding contributions to research. Dr. Marcia McNutt is president.

The **National Academy of Engineering** was established in 1964 under the charter of the National Academy of Sciences to bring the practices of engineering to advising the nation. Members are elected by their peers for extraordinary contributions to engineering. Dr. C. D. Mote, Jr., is president.

The **National Academy of Medicine** (formerly the Institute of Medicine) was established in 1970 under the charter of the National Academy of Sciences to advise the nation on medical and health issues. Members are elected by their peers for distinguished contributions to medicine and health. Dr. Victor J. Dzau is president.

The three Academies work together as the **National Academies of Sciences, Engineering, and Medicine** to provide independent, objective analysis and advice to the nation and conduct other activities to solve complex problems and inform public policy decisions. The National Academies also encourage education and research, recognize outstanding contributions to knowledge, and increase public understanding in matters of science, engineering, and medicine.

Learn more about the National Academies of Sciences, Engineering, and Medicine at [www.nationalacademies.org](http://www.nationalacademies.org).

*The National Academies of*  
**SCIENCES • ENGINEERING • MEDICINE**

**Consensus Study Reports** published by the National Academies of Sciences, Engineering, and Medicine document the evidence-based consensus on the study's statement of task by an authoring committee of experts. Reports typically include findings, conclusions, and recommendations based on information gathered by the committee and the committee's deliberations. Each report has been subjected to a rigorous and independent peer-review process and it represents the position of the National Academies on the statement of task.

**Proceedings** published by the National Academies of Sciences, Engineering, and Medicine chronicle the presentations and discussions at a workshop, symposium, or other event convened by the National Academies. The statements and opinions contained in proceedings are those of the participants and are not endorsed by other participants, the planning committee, or the National Academies.

For information about other products and activities of the National Academies, please visit [www.nationalacademies.org/about/whatwedo](http://www.nationalacademies.org/about/whatwedo).

**COMMITTEE ON FINANCING EARLY CARE AND  
EDUCATION WITH A HIGHLY QUALIFIED WORKFORCE**

**LA RUE ALLEN** (*Chair*), Steinhardt School of Culture, Education, and  
Human Development, New York University

**CELIA C. AYALA**, Los Angeles Universal Preschool/Child 360

**DAPHNA BASSOK**, Curry School of Education and EdPolicy Works,  
University of Virginia

**RICHARD N. BRANDON**, Human Services Policy Center, University of  
Washington (*retired*)

**GERALD M. CUTTS**, First Children's Finance

**KIM DANCY**, Education Policy Program, New America

**ELIZABETH E. DAVIS**, Department of Applied Economics, University of  
Minnesota

**HARRIET DICHTER**, Early Education Services, ICF and Early  
Childhood Policy and Strategy Consultant

**KATHY GLAZER**, Virginia Early Childhood Foundation

**LYNN A. KAROLY**, RAND Corporation

**HELEN F. LADD**, Sanford School of Public Policy, Duke University  
(*emeritus*)

**SHAYNE SPAULDING**, Income and Benefits Policy Center, Urban  
Institute

**MARCY WHITEBOOK**, Center for the Study of Child Care  
Employment, University of California, Berkeley

**SHEILA MOATS**, *Costudy Director*

**EMILY P. BACKES**, *Costudy Director*

**SARAH TRACEY**, *Associate Program Officer* (July through  
November 2016)

**MARY GHITELMAN**, *Senior Program Assistant*

**LESLEY WEBB**, *Program Assistant* (from January 2018)

**EMILY BYERS**, *Christine Mirzayan Science and Technology Policy  
Graduate Fellow* (January through May 2017)

## BOARD ON CHILDREN YOUTH AND FAMILIES

- ANGELA DIAZ**, (*Chair*), Departments of Pediatrics and Preventive Medicine, Icahn School of Medicine at Mount Sinai
- HAROLYN BELCHER**, Kennedy Krieger Institute and Johns Hopkins University School of Medicine
- W. THOMAS BOYCE**, Division of Developmental Medicine, University of California, San Francisco
- DAVID V.B. BRITT**, Sesame Workshop (retired CEO)
- RICHARD F. CATALANO**, University of Washington School of Social Work
- DEBBIE I. CHANG**, Nemours, Policy and Prevention
- DIMITRI CHRISTAKIS**, Seattle Children's Research Institute, University of Washington
- PATRICK H. DELEON**, F. Edward Hébert School of Medicine and the Graduate School of Nursing Uniformed Services, University of the Health Sciences
- ELENA FUENTES-AFFLICK**, University of California, San Francisco, and San Francisco General Hospital
- EUGENE E. GARCÍA**, Mary Lou Fulton Teachers' College, Arizona State University (*emeritus*)
- JEFFREY W. HUTCHINSON**, F. Edward Hébert School of Medicine, Uniformed Services University of the Health Sciences
- JACQUELINE JONES**, Foundation for Child Development
- JAMES M. PERRIN**, Harvard Medical School and MassGeneral Hospital for Children
- MARTIN J. SEPÚLVEDA**, Research Division, IBM Corporation (retired)
- MARTIN H. TEICHER**, Harvard Medical School and McLean Hospital
- JONATHAN TODRES**, Georgia State University College of Law
- NATACHA BLAIN**, *Director*
- PAMELLA ATAYI**, *Program Coordinator*

## Acknowledgments

The Alliance for Early Success; the Bill & Melinda Gates Foundation; the Buffett Early Childhood Fund; the Caplan Foundation for Early Childhood; the Foundation for Child Development; the Heising-Simons Foundation; the Kresge Foundation; the U.S. Department of Education; and the U.S. Department of Health and Human Services Administration for Children and Families asked the Board on Children, Youth, and Families of the National Academies of Sciences, Engineering, and Medicine to outline a framework for a funding strategy that would provide reliable, accessible high-quality early care and education for young children from birth to kindergarten entry, including a highly qualified and adequately compensated workforce consistent with the vision outlined in the 2015 Institute of Medicine and National Research Council report, *Transforming the Workforce for Children Birth Through Age 8: A Unifying Foundation*. The National Academies appointed the Committee on Financing Early Care and Education with a Highly Qualified Workforce. In addition to the sponsors listed above, the committee also acknowledges the Bruce Alberts Fund, the Cecil and Ida Green Fund, and the W.K. Kellogg Foundation Fund for funding our work.

Many individuals volunteered significant time and effort to address and educate the committee during our public information meetings. Their willingness to share their perspectives and experiences was essential to the committee's work. We thank Linda K. Smith, formerly Administration for Children and Families; Libby Doggett, formerly U.S. Department of Education; Helene Stebbins, Alliance for Early Success; Jacqueline Jones, Foundation for Child Development; Patricia Lozano, formerly Bill &



Melinda Gates Foundation; Neesha Modi, Kresge Foundation; Rebecca Gomez, Heising-Simons Foundation; W. Clayton Burch, West Virginia Department of Education; Ellen Frede, Building Effective Early Learning Systems; Barbara Thompson, formerly U.S. Department of Defense; Valora Washington, Council for Professional Recognition; Bill Ermatinger, Huntington Ingalls Industries; Ellen Galinsky, Families and Work Institute and Society for Human Resource Management; Tom Lamb, PNC; Amy K. Matsui, National Women's Law Center; Sandy Baum, Urban Institute; Carole Roan Gresenz, RAND Corporation; Alanna McCargo, Urban Institute; Nancy Hylden, Hylden Advocacy & Law; Katherine Klem, Institute for Child Success; Nasha Patel, Louisiana Department of Education; Simon Workman, Center for American Progress; and Anne W. Mitchell, Early Childhood Policy Research and Alliance for Early Childhood Finance. We also thank the many other stakeholders who shared information with the committee over the course of the study.

This report would not have been possible without the contributions of many people. Special thanks go to the members of the committee, who dedicated extensive time, thought, and energy to the drafting of the report. Several members of the staff of the National Academies made significant contributions to the report. Mary Ghitelman provided key administrative and logistical support and made sure that committee meetings ran smoothly. Lesley Webb provided administrative support for report dissemination and production. Tara Mainero and Sarah Tracey assisted with committee formation. Thanks are also due to Emily Byers, who contributed important research assistance to the committee's work. The committee is also grateful to Lisa Alston and Pamella Atayi for their administrative and financial assistance on this project. From the Division of Behavioral and Social Sciences and Education Office of Reports and Communication, Eugenia Grohman, Viola Horek, Patricia L. Morison, Kirsten Sampson-Snyder, Douglas Sprunger, and Yvonne Wise shepherded the report through the review and production process and assisted with its communication and dissemination. Finally, throughout the project, Natacha Blain, director of the Board on Children, Youth, and Families, provided helpful oversight.

We are also indebted to Bridget Kelly for her guidance, wisdom, and thoughtful substantive work as a consultant for this study, as well as consulting writer Erin Hammers Forstag, who provided invaluable writing assistance and played an important substantive role in drafting the report. In addition, we thank Scott Latham and Helen Penn for their valuable commissioned papers, which informed our deliberations.

This Consensus Study Report was reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise. The purpose of this independent review is to provide candid and critical comments that will assist the National Academies in making each published report as sound as

possible and to ensure that it meets the institutional standards for quality, objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process.

We thank the following individuals for their review of this report: Kimberly Boller, senior research psychologist, Mathematica Policy Research, Inc., Princeton, New Jersey; W. Clayton Burch, Office of the State Superintendent, West Virginia Department of Education; Miriam Calderon, Early Learning Systems, State of Oregon; Rachel Connelly, Department of Economics, Bowdoin College; Martha A. Darling, education policy consultant, Ann Arbor, Michigan; Kenneth A. Dodge, Sanford School of Public Policy, Duke University; Jana Fleming, Early Childhood Policy, Salama bint Hamdan Al Nahyan Foundation, Abu Dhabi, United Arab Emirates; Robert French, NorthStar Learning Centers, New Bedford, Massachusetts; James J. Heckman, Department of Economics, The University of Chicago; Geoffrey Nagle, president and CEO, Erikson Institute, Chicago, Illinois; Adele Robinson, School of Public Policy/School of Public Health, University of Maryland; Louise Stoney, Alliance for Early Childhood and Finance and Opportunities Exchange, West Palm Beach, Florida.

Although the reviewers listed above provided many constructive comments and suggestions, they were not asked to endorse the conclusions or recommendations of this report nor did they see the final draft before its release. The review of this report was overseen by Rosemary Chalk, independent consultant, Bethesda, Maryland, and Sherry Glied, Dean's Office, Robert F. Wagner Graduate School of Public Service, New York University. They were responsible for making certain that an independent examination of this report was carried out in accordance with the standards of the National Academies and that all review comments were carefully considered. Responsibility for the final content rests entirely with the authoring committee and the National Academies.

La Rue Allen, *Chair*  
 Sheila Moats, *Costudy Director*  
 Emily P. Backes, *Costudy Director*  
 Committee on Financing Early Care  
 and Education with a Highly  
 Qualified Workforce



# Contents

<b>Summary</b>	<b>1</b>
<b>1 Introduction</b>	<b>17</b>
Charge to the Committee, 20	
Defining Early Care and Education, 23	
Transforming the Early Care and Education Workforce, 27	
Financing High-Quality Early Care and Education, 35	
Study Methods, 41	
Organization of the Report, 43	
<b>2 Landscape of Early Care and Education Financing</b>	<b>45</b>
History and Evolution of Early Care and Education Policy in the United States, 46	
Current Early Care and Education Financing Landscape, 56	
Conclusion, 82	
<b>3 Current Financing for Early Care and Education:     Financing a Highly Qualified Workforce (Principle 1)</b>	<b>83</b>
Improved Compensation, 88	
Ongoing Professional Learning and Higher Education, 96	
Conclusion, 114	

<b>4</b>	<b>Current Financing for Early Care and Education: Affordability and Equitable Access (Principle 2)</b>	<b>115</b>
	Current ECE Usage and Affordability for Families, 115	
	Financing Mechanisms' Support of Equitable Access, 123	
	Conclusion, 132	
<b>5</b>	<b>Current Financing for Early Care and Education: Ensuring High Quality Across Settings</b>	<b>135</b>
	Principle 3: Easy-to-Administer Financing with Incentives for Quality, 135	
	Principle 4: Variety of High-Quality Service Options, 139	
	Principle 5: High-Quality Facilities, 141	
	Principle 6: Quality Assurance and Improvement, 147	
	Conclusion on Current Financing for Early Care and Education, 155	
<b>6</b>	<b>Estimating the Cost of High-Quality Early Care and Education</b>	<b>157</b>
	Cost Elements of High-Quality Early Care and Education, 158	
	Example Part I: Illustration of a Total Cost Estimate, 174	
	Example Part II: Family Payments in a High-Quality Early Care and Education System, 186	
	Example Part III: Sharing the Cost, Filling the Gap, 189	
	Conclusion, 192	
<b>7</b>	<b>A Vision for Financing Early Care and Education</b>	<b>195</b>
	An Effective Financing Structure, 198	
	Sharing the Cost for High-Quality Early Care and Education, 213	
	Planning for the Transition to High Quality, 221	
	Financing Workforce Transformation, 225	
	Business Supports, 230	
	Assessing Progress Toward Quality, 231	
	Conclusion, 238	
	<b>References</b>	<b>241</b>
	<b>APPENDIX</b>	
	A. Methodology and Policy Choices and Assumptions for Cost Estimation	<b>265</b>
	B. Cost Estimation Models	<b>277</b>
	C. Determining a Reasonable Share of Costs for Families to Pay	<b>285</b>
	D. Biosketches of Committee Members and Staff	<b>295</b>

## Summary

High-quality early care and education<sup>1</sup> for children from birth to kindergarten entry is critical to positive child development and has the potential to generate economic returns, which benefit not only children and their families but also society at large. Despite the great promise of early care and education, it has been financed in such a way that high-quality early care and education has only been available to a fraction of the families needing and desiring it and does little to further develop the early care and education (ECE) workforce.<sup>2</sup> It is neither sustainable nor adequate to provide the quality of care and learning that children and families need—a shortfall that further perpetuates and drives inequality. In light of these challenges, the National Academies of Sciences, Engineering, and Medicine were asked to convene a committee of experts to study how to fund early care and education for children from birth to kindergarten entry that is accessible, affordable for families, and of high quality, including a well-qualified and adequately supported workforce consistent with the research and vision outlined in the 2015 report by a study committee of the Institute of Medicine and National Research Council, *Transforming*

---

<sup>1</sup>Early care and education can be defined as nonparental care that occurs outside the child's home. Given the report's focus on financing, the committee discusses only paid nonparental care. ECE services may be delivered in center-based settings, school-based settings, or home-based settings.

<sup>2</sup>The ECE workforce consists of practitioners working in ECE settings and includes, for example, educators (lead educators, assistants, and aides), administrators, and coaches (also called "mentors").

*the Workforce for Children Birth Through Age 8: A Unifying Foundation* (the *Transforming* report).

Transforming the financing structure for early care and education to meet the needs of all children and families and the workforce that provides services will require greater harmonization and coordination among financing mechanisms and significant mobilization of financial and other resources. The necessary changes will not come quickly, easily, or without cost.

## LANDSCAPE OF EARLY CARE AND EDUCATION FINANCING

Early care and education has served multiple purposes in the United States: to promote child development and parental employment and as an investment in the future workforce. Each purpose has been reflected in the evolution of early care and education over the past century and has been prioritized differently in various ECE policies over time. Furthermore, funding for ECE services comes from a multitude of revenue streams, including families' payments, public sector expenditures, and other private sources such as philanthropy and employers. As a result, the financing for early care and education in the United States is a layering of separate programs, with different funding streams, constituencies, eligibility requirements, and quality standards. Table S-1 demonstrates this fragmentation across public sector programs and investments.

## CURRENT FINANCING FOR EARLY CARE AND EDUCATION

These funds are distributed through financing mechanisms, defined here as the methods by which funds are distributed to entities that include ECE service providers (provider-oriented financing mechanisms), families (family-oriented financing mechanisms), the ECE workforce (workforce-oriented financing mechanisms), and system-level actors (system-oriented financing mechanisms), in order to support the provision of early care and education. These financing mechanisms have consequences for the accessibility, affordability, and quality of ECE programs. The ways in which funds are distributed and to whom they are distributed can have effects on which children are served, which families benefit, and whether the care delivered is of high quality, as well as affecting the well-being and qualifications of the ECE workforce. Drawing from the *Transforming* report and from the science of child development and early learning, the committee extracted six principles for high-quality early care and education. From these principles, we developed a set of criteria by which to judge the existing financing mechanisms that make up the current, fragmented financing structure.

TABLE S-1 Major Public ECE Programs

Program	Population Targeted	Financing Mechanism
<b>Subsidized Care</b>		
Early Head Start/Head Start	Families with income < FPL and children ages 0–5 years	Direct to providers
Child Care and Development Fund	Qualifying low-income families with children ages 0–12 years	To providers via vouchers or contracts
State-Funded or Locally Funded Prekindergarten	Targeted or universal; children ages 3–5 years	To providers via vouchers, scholarships, contracts, grants, or school-funding formulas
<b>Tax-Based Subsidies</b>		
Child and Dependent Care Tax Credit	Working families with tax liability and children ages 0–12 years (and adults)	Personal income tax credit (refundable in some states)
Dependent Care Assistance Program	Working families with tax liability and children ages 0–12 years (and adults)	Employer-administered account to pay for eligible expenses with pretax dollars
Employer-Provided Childcare Credit	Working families with qualifying employer and with children ages 0–12 years	Employer tax credit

NOTE: FPL = federal poverty level.

Financing a Highly Qualified Workforce

**Principle 1:** *High-quality early care and education requires a diverse, competent, effective, well-compensated, and professionally supported workforce across the various roles of ECE professionals.*

A highly qualified ECE workforce is essential to the provision of high-quality ECE services. For a workforce to be well qualified, educators and staff need to be well compensated, have affordable opportunities to access higher education, and receive appropriate ongoing support and professional development. Despite an increased emphasis on raising the qualifications and education level of ECE educators over the past two decades, there has not been a commensurate emphasis on raising workforce compensation. More often than not, these poor wages are also accompanied by limited benefits and workplace conditions that are not conducive to quality professional practice.



Though various programs and financing mechanisms have been used to supplement ECE practitioners' wages, their overall compensation is still low, and the temporary nature of such supplements does not create the predictable and steady salaries necessary for recruiting and retaining a highly qualified workforce. A notable exception, albeit limited, are initiatives in some state-funded prekindergarten programs to increase base pay through contracts with providers that set compensation levels, which is the most direct way to guarantee that ECE professionals are adequately compensated. Compensation levels are highly variable across ECE settings (e.g., different funding streams, differences in ages of children served, and center- versus home-based care). Mechanisms that raise wages only for some of the ECE workforce may exacerbate these differences rather than ameliorating them, necessitating effective mechanisms for systematically improving compensation.

Despite increased awareness of the need to improve the foundational knowledge and the skills and competencies of the ECE workforce, financial supports for ongoing professional learning and higher education are generally provided only on a limited basis and, like financing for improved compensation, typically are neither integrated into nor coordinated with the financing of direct service delivery. Existing resources and financing mechanisms are insufficient to overcome the barriers, which include affordability, access, and availability, that ECE educators face when pursuing professional education and training. Furthermore, the mechanisms available to help ameliorate the racial and ethnic stratification across job roles that persists throughout the ECE workforce are limited in scale.

None of these financing mechanisms addresses the quality of higher education for ECE. Financing is largely absent for system-level improvements to ensure that higher-education programs prepare students with the knowledge and competencies necessary to work with young children. Without proper investment to ensure quality in higher-education programs, financing to support pursuit of higher education for the ECE workforce may do little to improve the quality of ECE professional practice.

### Affordability and Equitable Access

**Principle 2:** *High-quality early care and education requires that all children and families have equitable access to affordable services across all ethnic, racial, socioeconomic, and ability statuses as well as across geographic regions.*

The inability of families to access high-quality early care and education stems from a financing structure that places a large burden to pay for early care and education directly on families in the form of fees and tuition,

making high-quality early care and education prohibitively expensive for many families. Even for those families that qualify for subsidized programs, many are not receiving assistance due to inadequate funding. Moreover, current ECE utilization rates suggest that many middle-income families are unable to afford center-based services.

While both provider-oriented and family-oriented mechanisms can help improve ECE access and affordability, in their current form both types of financing have drawbacks that can exacerbate inequality in access. Head Start, state Child Care Assistance Programs, and state-funded prekindergarten programs tend to target resources to low-income families, while tax preferences benefit middle- and upper-income families. The current lack of harmonization among these financing mechanisms leads to gaps in ECE affordability for some low-income families, economic segregation within ECE settings and classrooms, and under-utilization of ECE services by middle-income families. Current requirements that make assistance conditional on parental employment or participation in education and training programs also limit participation in high-quality ECE programs by all children and position a child's early learning and development as dependent upon a parent's employment status, rather than basing it on the child's developmental and learning needs.

### Ensuring High-Quality Across Settings

**Principle 3:** *High-quality early care and education requires financing that is adequate, equitable, and sustainable, with incentives for quality. Moreover, it requires financing that is efficient, easy to navigate, easy to administer, and transparent.*

**Principle 4:** *High-quality early care and education requires a variety of high-quality service delivery options that are financially sustainable.*

**Principle 5:** *High-quality early care and education requires adequate financing for high-quality facilities.*

**Principle 6:** *High-quality early care and education requires systems for ongoing accountability, including learning from feedback, evaluation, and continuous improvement.*

Provider-oriented and family-oriented mechanisms have the potential to promote quality. However, existing quality standards and the effectiveness of their implementation vary across financing mechanisms and programs. Typically, receipt of funding is not directly linked to attaining or maintaining quality standards and does not offer incentives for attaining

high-quality early care and education. Levels of support to providers and to families are rarely based upon the costs of offering high-quality ECE services and thus are insufficient to drive quality improvements. Many providers also lack secure funding that would allow them to maintain stable operations and invest in quality improvements.

Building and upgrading facilities are often-overlooked elements of a quality infrastructure for early care and education, and ECE providers need funds for acquiring new facilities and for maintaining, expanding, and improving existing facilities. Currently, no systemwide approach exists for providing support for building and improving ECE facilities. Without a consistent and effective financing system for facilities investment, providers are forced to pursue piecemeal financing approaches, which are often insufficient to meet the need.

Improving the quality of early care and education also requires a robust and coordinated system of data collection and management, monitoring, and assurance and improvement systems. Currently, financing supports for this type of systemwide quality improvement are limited and often not sustained. Resources for quality improvements within existing funding streams are not specifically earmarked for quality improvements or provided at high enough levels to effectively incentivize and promote quality. While quality rating and improvement systems are commonly used, these systems vary greatly between states and are limited in their capacity to support and reward workforce supports for developing a highly qualified workforce.

### ESTIMATING THE COST OF HIGH-QUALITY EARLY CARE AND EDUCATION

The flaws in the current financing structure are exacerbated by overall low levels of funding that are not sufficient to enable families at all income levels to access high-quality ECE services. Given this context, the committee developed an illustrative, albeit hypothetical, cost estimate for implementing a high-quality ECE system, under a specified set of assumptions, in order to gauge the likely magnitude of total resources that need to be invested to achieve an affordable, high-quality ECE system.

Drawing from existing literature on the costs of various elements of a high-quality ECE system, the committee produced this national, aggregate estimate of the total cost of providing high-quality early care and education for all children, as well as an estimate of the costs of transitioning to this high-quality ECE system over four phases of implementation (see Chapter 6 and Appendix A). The committee's illustrative estimate is that by the final phase of implementation, the total cost of providing high-quality early care and education would amount to at least \$140 billion, equivalent to about three-quarters of 1 percent (0.75%) of U.S. gross domestic product (GDP),

or slightly less than the current average of 0.8 percent of GDP allocated to early care and education for the nations in OECD. Average funding levels of federal and state programs are substantially lower than the amounts necessary to support high-quality services. Given the increased costs of a high-quality system, more families, including low- and middle-income families, will need assistance in order to access and afford high-quality care and public investments will need to grow over the four phases by at least \$5 billion (in phase 1) to \$53 billion (phase 4) a year above the actual current level of public investments.

### A VISION FOR FINANCING ECE

To realize the considerable potential benefits of early education, an integrated framework of laws and policies that uses financing to bring about an accessible, affordable, and high-quality ECE system should be implemented. Such a financing structure would ensure that the following objectives are met:

- Support for early care and education will be based on paying the total cost of high-quality early care and education (i.e., the costs of service delivery with a highly qualified and adequately compensated workforce and system-level supports, including mechanisms for accountability and improvement) and will hinge on a consistent set of quality standards across a mixed delivery system.
- All ECE providers meeting high quality-standards will have access to a core amount of institutional support based on the cost of recruiting, retaining, and professionally supporting a well-qualified workforce and meeting the developmental needs of all children.
- Families from all socioeconomic, racial, ethnic, ability status, and geographic backgrounds who choose ECE programs will pay either no fee or an amount they can reasonably afford, with a systemwide harmonized combination of assistance mechanisms that do not leave gaps for any income groups and that are easy to navigate.
- Ongoing investments are being made in an infrastructure for support and accountability for attaining quality goals, ensuring access, and spending funds effectively.
- Public funding is substantially increased, phased in over a transition period, to enable transformation and building of an adequate, equitable, and sustainable system.

Such a financing structure should include adequate and integrated funding for service delivery, workforce supports, and system supports including mechanisms for accountability and improvement. The financing structure

should provide flexibility to reduce silos and facilitate nimble and efficient coordination of funding streams, standards, and requirements from disparate sources. The committee offered the following specific recommendations for implementing such a system. When the committee recommends that federal, state, or local governments take action, we are recommending that all relevant agencies at each level of government participate in such actions. To realize its coordinated vision of a cohesive ECE system, the committee stresses that implementation and reforms will need to take place across agencies.

### An Effective Financing Structure

**Recommendation 1:** Federal and state governments should establish consistent standards for high quality across all ECE programs. Receipt of funding should be linked to attaining and maintaining these quality standards. State and federal financing mechanisms should ensure that providers receive payments that are sufficient to cover the total cost of high-quality early care and education.

**Recommendation 2:** All children and families should have access to affordable, high-quality early care and education. ECE access should not be contingent on the characteristics of their parents, such as family income or work status.

2a. ECE programs and financing mechanisms (with the exception of employer-based programs) should not set eligibility standards that require parental employment, job training, education, or other activities.

2b. Federal and state governments should set uniform family payment standards that increase progressively across income groups and are applied if the ECE program requires a family contribution (payment).

2c. The share of total ECE system costs that are not covered by family payments should be covered by a combination of institutional support to providers who meet quality standards and assistance directly to families that is based on uniform income eligibility standards.

**Recommendation 3:** In states that have demonstrated a readiness to implement a financing structure that advances principles for a high-quality ECE system and includes adequate funding, state governments or other state-level entities should act as coordinators for the various federal and state financing mechanisms that support early care and education, with the exception of federal and state tax preferences that flow directly to families.

To ensure support for the full cost of high-quality early care and education, the federal government and states should use consistent, high quality-standards across all publicly financed ECE programs. The federal government should specify consistent, high quality-standards for all its financing mechanisms in consultation with the states, and any funding it provides should be linked to meeting those standards. Any state or local funding supporting those federal programs should also be linked to the same standards. In this way, the federal funding would act as a policy lever to induce high-quality early care and education with a highly qualified workforce at the state level. Individual states should also set consistent, high quality-standards across any financing mechanisms for which they are the primary funders, including any ECE mechanisms that the state is funding out of coordinated funding streams, which may include funds from the federal government. States may exceed federal standards, but all programs in a state should be required to meet the same high quality-standards regardless of funding source.

Access to early care and education should be child-centered (based upon the developmental needs of children) and not contingent on family income or work status (with the exception of employer-based programs), to ensure that all children and families have access to affordable, high-quality early care and education. A combination of provider-oriented and family-oriented financing mechanisms should be available to all families and to ECE providers that meet high quality-standards; they should be designed to jointly cover the full costs of high-quality early care and education and to eliminate gaps in family eligibility for assistance that inhibit utilization. Such a harmonized set of financing mechanisms would benefit all ECE providers by creating financial stability and enabling investment in the ECE workforce; it would benefit all families by allowing them to select among high-quality providers that meet their needs and preferences.

Because most tax preferences that assist families come from the federal tax code, elimination of state flexibility regarding eligibility for ECE assistance programs and restructuring of tax preferences to be equitably progressive across income groups is required to avoid affordability gaps that arise for many middle-income families. These families are currently unable to access funding from ECE assistance programs because their household income exceeds the eligibility threshold set by their state, yet they do not benefit from federal and state tax preferences because their incomes are not high enough to incur a tax liability. This harmonization of funding mechanisms would increase ECE access, provided that states and the federal government adequately fund their ECE assistance programs so that all eligible families are served.

Though the committee believes its recommendations will improve access and affordability of early care and education for all families, we note

that greater access to mediocre- or low-quality care will not result in the desired developmental outcomes for children. While there may be a tension between improving access and improving quality if funding is insufficient or distributed through poorly designed financing mechanisms, the committee stresses that quality and access go hand-in-hand. In order to realize the potential for positive child development and early learning outcomes possible with early care and education, improved and equitable access to high-quality early care and education is needed.

To maintain the multiple financing mechanisms that support early care and education, while also eliminating the heavy administrative burden placed on ECE providers, who must manage the various sources of funding, state governments should act as coordinators of most of the revenue streams and financing mechanisms supporting early care and education, but only after a state has demonstrated a readiness to implement a financing structure that advances the principles for high-quality early care and education, including adequate and coordinated funding for service delivery, workforce supports and adequate compensation, and system supports such as mechanisms for accountability and improvement. The exceptions to this coordinator role for states are the federal and state tax preferences that flow directly to families. States may choose to manage this coordinator role themselves or create a quasi-governmental entity or public/private intermediary organization at the state level to act as the coordinator.

In addition, the current ECE financing structure lacks stability and assured funding that would allow providers to invest in raising staff salaries and supports, recruiting qualified personnel, and expanding or improving facilities. Advance, multiyear funding for early care and education would address this problem.

### Sharing the Cost for High-Quality Early Care and Education

**Recommendation 4:** To provide adequate, equitable, and sustainable funding for a unified, high-quality system of early care and education for all children from birth to kindergarten entry, federal and state governments should increase funding levels and revise tax preferences to ensure adequate funding.

**Recommendation 5:** Family payments for families at the lowest income level should be reduced to zero, and if a family contribution is required by a program, that contribution, as a share of family income, should progressively increase as income rises.

The cost of providing accessible high-quality early care and education far exceeds the amount of funding currently in the system. Substantial



increases in funding are needed to realize the envisioned transformation of the ECE system. To build adequate, equitable, and sustainable financing with effective incentives for quality, additional resources will need to come from a combination of public and private resources, with the largest portion of the necessary increase coming from public investments. These multiple sources of revenue may come from families, employers and the private sector, the public sector, or various combinations of these sources, but revenue should be raised in ways that ensure that the burden of neither family payments nor tax revenue collection falls disproportionately on those with the fewest resources.

As ECE costs increase over the phased transition period, the public's share of cost will necessarily increase because higher quality-standards and cost will make ECE services less affordable for additional families unless they receive public or private assistance. How the burden can best be distributed among the levels of government and among revenue sources must be determined through political processes in which decision makers weigh different options for transitioning to and implementing a high-quality ECE system and weigh the benefits of such a system against the potential political and economic costs of reducing other public expenditures or raising taxes. But the dual function of early care and education at a critical educational period and as economic security for families with parents in the workforce argues for continued public responsibility for ensuring ECE access for all children. The committee supports an ongoing significant federal role but also supports important roles for state and local governments.

The public cost of high-quality early care and education will be reduced through any contributions from other stakeholders, including potential contributions from families, employers, and philanthropy. There are several approaches to determining a reasonable share for families to pay, and the evolving policy and practice landscape in early care and education does not provide an unequivocal path for determining whether families, at any income level, should make out-of-pocket payments for early care and education. Decision makers at the state and local level will need to balance ensuring significant economic barriers do not prevent families from using high-quality ECE services, increasing progressivity through family payments or tax revenue collection, and ensuring public funds to cover ECE costs are adequate and expended effectively (see discussion in Appendix C). Where programs require a family contribution, a restructured family payment schedule that requires less from low- and moderate-income families and progressively more from higher-income families will be needed to eliminate barriers to utilization and achieve an equitable distribution of family contributions.



### Planning for the Transition to High Quality

**Recommendation 6:** A coalition of public and private funders should support the development and implementation of a first round of local-, state-, and national-level strategic business plans to guide transitions toward a reformed financing structure for high-quality early care and education.

The process of transitioning from the current state to the committee's vision of an integrated system will take time, resources, and intentional coordination and planning. The nonparental private sector's (including businesses/employers and philanthropic organizations) role and influence in asserting the importance of and setting the vision for systemic transformation are essential. These stakeholders have the potential to play a critical role by advocating for policies and leveraging available dollars to support high-quality ECE services and systems, particularly during the transition from its current broken state to an effective, high-quality ECE system.

In short, the nonparental private sector, specifically private funders engaged in supporting high-quality early care and education, should work with public funders and other key stakeholders, including national and statewide coordinating bodies, as well as interested parent, provider, and ECE workforce representatives, to develop and implement local-, state-, and national-level strategic business plans to guide transitions toward a reformed financing structure for high-quality early care and education with a specific emphasis on business, financial, and systems strategies.

### Financing Workforce Transformation

**Recommendation 7:** Because compensation for the ECE workforce is not currently commensurate with desired qualifications, the ECE workforce should be provided with financial assistance to increase practitioners' knowledge and competencies and to achieve required qualifications through higher-education programs, credentialing programs, and other forms of professional learning. The incumbent ECE workforce should bear no cost for increasing practitioners' knowledge base, competencies, and qualifications, and the entering workforce should be assisted to limit costs to a reasonable proportion of postgraduate earnings, with a goal of maintaining and further promoting diversity in the pipeline of ECE professionals.

7a. Existing grant-based resources should be leveraged, and states and localities, along with colleges and universities, should work together to provide additional resources and supports to the incumbent workforce as practitioners further their qualifications as professionals in the ECE field.

7b. States and the federal government should provide financial and other appropriate supports to limit to a reasonable proportion of expected postgraduate earnings any tuition and fee expenses that are incurred by prospective ECE professionals and are not covered by existing financial aid programs.

**Recommendation 8:** States and the federal government should provide grants to institutions and systems of postsecondary education to develop faculty and ECE programs and to align ECE curricula with the science of child development and early learning and with principles of high-quality professional practice. Federal funding should be leveraged through grants that provide incentives to states, colleges, and universities to ensure higher-education programs are of high quality and aligned with workforce needs, including evaluating and monitoring student outcomes, curricula, and processes.

Resources to strengthen the qualifications and competencies of the ECE workforce will be critical both during the transition period and to sustain a high-quality ECE system. However, increasing per-child funding to programs is not guaranteed to lead to better compensation for the ECE workforce, and some policy leverage will likely be necessary to ensure that resources in the form of adequate wages are distributed to the workforce, at least initially. While the transition to a highly qualified and adequately compensated workforce is taking place, testing the market's response to changes and accountability to ensure that the workforce is receiving improved compensation will also be necessary.

Given the ECE workforce's low levels of compensation, asking ECE professionals to contribute out of pocket to their educational expenses or to cover them using loans that must be repaid with future wages is not feasible during the transition to high quality. A number of grant-based resources for higher education are currently available from a variety of sources, and these resources should be leveraged to offset the costs of tuition and fees for ECE professionals pursuing higher education. Additional funding will likely be necessary to ensure that ECE professionals are able to pursue higher education and other forms of credentialing at an affordable rate. States and localities should work with colleges and universities to provide these additional resources, especially to the incumbent workforce as they pursue additional qualifications as professionals in the ECE field.

Once compensation reaches adequate levels, it may be appropriate to ask ECE professionals to contribute to their costs of attaining additional qualifications as ECE professionals. However, states and colleges and universities should promote high-quality, affordable higher education for ECE

professionals by providing financial support to limit any tuition and fee expenses to a reasonable proportion of postgraduate earnings. Targeted financing mechanisms to support professionals with culturally, linguistically, and professionally diverse backgrounds who are pursuing opportunities for higher education and credentialing will also be needed, to reduce the racial and ethnic stratification across job roles that persists in the current ECE workforce.

States should also promote greater alignment of higher-education programs with the core competencies needed by ECE professionals and develop a pipeline of qualified ECE faculty to ensure positive outcomes for children. Federal funding could be used to further incentivize high-quality higher education by providing grants to state systems and to colleges and universities to both align curricula with the science of child development and early learning and ensure affordability for the ECE workforce.

### Assessing Progress Toward Quality

**Recommendation 9:** The federal and state governments, as well as other funders, should provide sustained funding for research and evaluation on early childhood education, particularly during the transition period to ensure efforts to improve the ECE system are resulting in positive outcomes for children and in the recruitment and retention of a highly qualified workforce.

**Recommendation 10:** The federal government should align its data collection requirements across all federal ECE funding streams to collect comprehensive information about the entire ECE sector and sustain investments in regular, national, data collection efforts from state and nationally representative samples that track changes in the ECE landscape over time, to better understand the experiences of ECE programs, the ECE workforce, and the developmental outcomes of children who participate in ECE programs.

As early care and education transitions from its current state into the coordinated system envisioned by the committee, it will be essential to monitor and evaluate the changes made, including the extent to which they are leading to improvements in the well-being of the workforce, families, and children. Systems for ongoing accountability and quality assurance are essential to an ECE system in general, but especially during the transition period. It will be critical to evaluate progress so that the system can be adapted if necessary, as it is being expanded. Creating continuous improvement in the ECE landscape also requires meaningful and sustained investments in research to ensure that efforts to transform the workforce and ECE jobs are successful.

Assessment of progress needs to be made at the levels of children and families, the workforce, the providers, the state, and the nation as a whole, using a diverse set of measures that include adequacy of resources, accessibility for families, workforce characteristics and well-being, program quality and costs, and ultimately, measures of children's development across a broad set of domains. It is essential that such a system allow for learning over time, ensure coverage across different types of programs, measure quality beyond structural inputs to include processes and outcomes, and use methodologies appropriate for studying policy and systems change to understand how progress on different quality components are operating in the context of each other. The committee offers specific guidance to fill research and data gaps in Chapter 7.

## CONCLUSION

Reliable, accessible high-quality early care and education for young children from birth to kindergarten entry, including a highly qualified and adequately compensated workforce, can be achieved, and there is great urgency in beginning the work to realize such a vision. The committee recommends that this be accomplished through greater harmonization and coordination among multiple financing mechanisms and revenue streams and through greater uniformity in standards to incentivize quality. It will require significant mobilization of financial and other resources shared across the public and private sector, including a more equitable distribution of the share from family contributions and a commitment to major increases in public investment.



## 1

## Introduction

Investments in the early care and education<sup>1</sup> of children from birth to kindergarten entry are critical to positive child development and have the potential to generate economic returns that benefit not only children and their families but also society at large. Traditionally, the provision of early care and education in the United States has had three goals: (1) to promote healthy child development and learning, (2) to provide parents the opportunity to fully participate in the economy, and (3) to develop human capital and prepare the nation's children to be productive members of the future workforce. In pursuit of these aims, early care and education may be considered both a child-development and economic-development strategy, yielding returns to society that exceed the resources invested and realizing the promise and utility of early investments in children (see, e.g., Garcia et al., 2017; Karoly, Killburn, and Cannon, 2005).

Early care and education (ECE) investments are critical because the early foundation needed for success in school and later in life is built during the beginning years of a child's life. During this period, brain development and early learning occur rapidly and are greatly influenced by environments, experiences, and relationships. Each interaction an infant, toddler, or prekindergartner has with the adults in his or her life can influence neural, cognitive, and social and emotional development. It is a period of

---

<sup>1</sup> Early care and education can be defined as nonparental care that is occurring outside the child's home. Given the report's focus on financing, the committee discusses only paid, nonparental care. ECE services may be delivered in center-based settings, a school-based setting, or home-based settings. See the section below on "Defining Early Care and Education."

incredible opportunity, where stimulating interactions, within the context of securely attached relationships, can put children on a positive trajectory (Institute of Medicine and National Research Council, 2015). Thus, not only families but also society more broadly depend on ECE programs and the ECE workforce to enable parents' participation in the workforce and to promote early learning and positive childhood development aimed at maximizing the potential of children and ensuring their futures as positive contributors to society. However, despite the great promise of investments in early care and education, its current financing structure only allows it to serve a fraction of the families who need high-quality care and hampers the development of a stable, highly qualified, and high-quality ECE workforce, making the financing structure neither sustainable nor adequate to provide the quality of care and learning children and families need. The consequences of this long-standing approach to financing have left many families without access to affordable, high-quality early care and education, perpetuating and driving inequality.

Early care and education enables parents to be employed and thus provides them an opportunity to contribute to the economy of the nation. Today, 82 percent of children live in households where all parents are employed (National Women's Law Center, 2014; Women's Bureau, 2016). As a result, children spend an average of about 34 hours a week in some type of ECE arrangement (Latham, 2017). These figures indicate that young children spend a significant amount of time in early care and education, making professionals in these settings stewards of critical investments in children and critical agents in children's learning and development. Given the prevalence of children growing up in households with working parents, families increasingly depend on ECE programs and the professionals in these settings to promote learning while they are working.

Moreover, for low-income families, early care and education can provide a critical avenue out of poverty by enabling parents to work and support their families. Today, more than 5 million (or approximately 1 in 5) children in the United States under the age of 6 live in poverty (Jiang, Granja, and Koball, 2017). These numbers are of particular concern because child poverty has been linked to lower academic performance and behavioral problems. According to the Children's Defense Fund, expanding access to high-quality early care and education has the potential to reduce the child poverty rate<sup>2</sup> by 3 percent (Giannarelli et al., 2015). Thus,

---

<sup>2</sup> Unless otherwise defined, "poverty rate" means the fraction of a group that lives under a specific ceiling-threshold level for poverty. In this case, the threshold for poverty is defined using the Census Bureau's Supplemental Poverty Measure as "the mean of expenditures on food, clothing, shelter, and utilities over all two-child consumer units in the 30th and 36th percentile range, multiplied by 1.2" (Renwick and Fox, 2016, p. 2).

investments in high-quality early care and education contribute to the nation's economy by making it easier for low-income parents to work, which has the potential to reduce child poverty and guard against its developmental consequences.

Beyond supporting positive child development and parents' involvement in the current workforce, early care and education is also an investment in human capital. Investments in early care and education develop the nation's future skilled and qualified workforce to meet the needs of employers and the economy. The economic growth and prosperity of the nation depends on sustaining and enhancing a workforce that is productive and can compete with workers in other countries in an increasingly globalized world. To meet the economy's need for a skilled workforce, investment in the early care and education of children is critical.

Increasing the qualifications and compensation of ECE educators would address the problem of a large share of the ECE workforce living in poverty. The ECE workforce comprises nearly 2 million practitioners, almost all of whom are women and many of whom live below the federal poverty level and rely on public subsidies to support themselves and their families. Investments in early care and education serve to promote the professionalization of this workforce and increase wages, reducing the economic strain facing those entering the field.

Studies show that disparities across socioeconomic and racial/ethnic groups in cognitive skills, health, behavior, and school readiness are apparent before children enter kindergarten (Reardon, 2011; Reardon and Portilla, 2016). This growing gap can be partly attributed to disparities in access to opportunities, as higher-income families have increased investments, including enrolling their children in early education, whereas high-quality early care and education remains inaccessible or unaffordable for many middle- and low-income families (Chaudry et al., 2017). As a result of these disparities, children may be placed in lower-quality early care and education that does not enhance learning and development or may even be harmful to their development. The inability of all American families to access affordable, high-quality early care and education increases the poverty rate among children and contributes to gaps in later educational outcomes across socioeconomic and racial/ethnic groups, resulting in a greater likelihood of lifelong poverty for these children.

Given these challenges, transforming the financing structure for early care and education to meet the needs of all children and families will require significant mobilization of financial and other resources. Assessments of resource needs, investments from government and nongovernmental sources, financing innovations, and changes in the ECE system will all be important. In short, the necessary changes will not come quickly, easily, or without



cost, but they are nonetheless critical to achieve if U.S. society is to realize the benefits of early care and education.

### CHARGE TO THE COMMITTEE

To this end, the National Academies of Sciences, Engineering, and Medicine appointed the Committee on Financing Early Care and Education with a Highly Qualified Workforce to prepare a report that would outline a framework for a funding strategy that will provide reliable, accessible high-quality early care and education for young children from birth to kindergarten entry, including a highly qualified and adequately compensated workforce that is consistent with the vision outlined in the 2015 Institute of Medicine and National Research Council report *Transforming the Workforce for Children Birth Through Age 8: A Unifying Foundation* (the *Transforming* report); the committee's complete statement of task

#### BOX 1-1 Statement of Task

An ad hoc committee under the auspices of the National Academies of Sciences, Engineering, and Medicine will study how to fund early care and education for children from birth to kindergarten entry that is accessible, affordable to families, and of high quality, including a well-qualified and adequately supported workforce consistent with the vision outlined in the report *Transforming the Workforce for Children Birth Through Age 8*.

As background to the study, the committee will briefly review and synthesize the available research and analysis on the resources needed to meet the true costs of high-quality early care and education, including resources for improving the quality, affordability and accessibility of higher education for the workforce; improving the quality and availability of professional learning during ongoing practice; and supporting well-qualified educators and administrators with adequate compensation through complete wage and benefit packages that are comparable across settings and children's ages. The committee may use available costing research, analyses, and tools to illustrate select aspects of the cost implications of the principles and frameworks for financing that they consider and recommend. It is not within the scope and funds of this study for the committee to carry out new comprehensive costing analyses of the approaches they consider or of their conclusions and recommendations.

To inform their primary analysis, the committee will gather information and review the available evidence on funding mechanisms across early care and education settings that are currently being employed successfully on a large scale as well as illustrative examples of funding mechanisms that are being employed on a smaller scale but have promise for expansion. The committee will also take into consideration lessons that can be drawn from financing of early care and

appears in Box 1-1. The *Transforming* report made recommendations to build a foundation for the workforce based on essential features of child development and early learning and on principles for high-quality professional practice at the levels of individual practitioners, practice environments, leadership, systems, policies, and resource allocation.

Funding for the committee's study and report was provided by the Alliance for Early Success; the Bill & Melinda Gates Foundation; the Buffett Early Childhood Fund; the Caplan Foundation for Early Childhood; the Foundation for Child Development; the Heising-Simons Foundation; the Kresge Foundation; the U.S. Department of Education; and the U.S. Department of Health and Human Services Administration for Children and Families; and with additional support from the Bruce Alberts Fund, the Cecil and Ida Green Fund, and the W.K. Kellogg Foundation Fund.

In undertaking the charge, the committee reviewed and synthesized available research on the resources needed to meet the costs of high-quality

education in other countries and from workforce development in sectors other than education.

The committee will use the information gathered to explore the following questions:

1. In most states the cost of a high-quality early learning program exceeds the cost of college tuition, making it unaffordable for most lower-income families. What changes need to be made to the funding structure of the early care and education system in order to ensure sufficient funds are available to support a quality of care and early learning that is consistent with the science of child development?
2. What are the implications for families of varying levels of costs of early care and education relative to their income and how can a reasonable share for families be determined?
3. What funding mechanisms at the federal, state and local levels have been effective at creating a strong element of support for the workforce (i.e., higher education; ongoing professional learning system; compensation; degree/credential attainment)?
4. What promising funding mechanisms at the federal, state, and local levels warrant further examination through a systematic approach to implementing and evaluating at scale?
5. What other workforce development considerations at the national, state, and local level affect the effective implementation of these funding mechanisms?
6. What frameworks or tools can support national, state, and local systems to develop funding mechanisms that are most likely to be effective in their contexts?

early care and education, including resources for improving the quality, affordability, and accessibility of higher education for the ECE workforce; improving the quality and availability of professional learning during ongoing practice; and supporting well-qualified educators and administrators with adequate compensation through complete wage and benefit packages that are comparable across settings and children's ages.

The committee examined existing funding structures and mechanisms as well as promising approaches at the national, state, and local levels. It reviewed existing costing tools and frameworks that support national, state, and local systems in developing financing mechanisms unique to their contexts. In addition, the committee considered evidence from international early care and education and from other sectors (see discussion below) to inform its analysis and recommendations on how to finance early care and education for children from birth to kindergarten entry that is accessible, affordable to families, and of high quality.

The committee's charge specifically asks it to provide a vision for financing that is consistent with the *Transforming* report's conclusions and recommendations, which were based on that committee's assessment of the available evidence, in the context of an evolving science and research base as well as an evolving policy and practice landscape in early care and education. While this committee acknowledges that there have been a range of perspectives in the field (as well as among this committee's members) as to the prudence of the *Transforming* report's recommendations about qualification requirements, it was not asked to review the evidence undergirding that report's recommendations. Adhering to our charge, this committee studied and analyzed the best ways to approach the financing of the *Transforming* report's recommended changes (see discussion below).

The committee was not asked to carry out new comprehensive costing analyses of the approaches it considered or of its conclusions and recommendations. In line with the study's scope, the committee outlined a structure and set of principles for financing that would inform context-specific costing. The committee also adapted existing cost calculators to produce an illustrative estimate of aggregate national cost. This illustrative example is useful for highlighting choices that will need to be weighed in making assumptions to determine costs and for providing a sense of the scale of the likely total resources needed to implement high-quality early care and education in the United States.

The committee was also not tasked to undertake a full economic evaluation of the recommended financing system. Given our charge, the focus of our investigations is naturally on the cost of the transformed system, and the report gives less attention to quantifying the potential benefits. In effect, an underlying premise of the study's charge is that further investment of public dollars in high-quality early care and education from birth to kindergarten

entry is socially beneficial. While a full economic evaluation of the cost and financial modeling is beyond this study's scope, we briefly review the argument for public subsidies. We also point to some of the limitations of the current evidence base that undergirds the economic argument; see Box 1-2.

The scope of the committee's charge also prohibited it from making recommendations regarding the balancing of entire federal, state, and local budgets. Though the committee recognizes that financing early care and education with a qualified workforce will require more funding than is currently in the system, we leave to elected officials the task of balancing budgets and making decisions regarding allocation of funds between, for example, health care and early care and education, or between the criminal justice system and early care and education. The committee does, however, discuss the implications of allocating costs between the local, state, and federal governments and the private sector, including families' share of costs. We also identify and discuss options for raising revenue and the tradeoffs inherent in those options, recognizing that policy and political decisions will affect the feasibility of different options in different contexts.

In this report, the committee presents a vision for ECE financing that will provide reliable, accessible high-quality early care and education, including a well-qualified and adequately compensated workforce, for young children from birth to kindergarten entry and across settings that include home-based care, center-based care, and prekindergarten classrooms.

## DEFINING EARLY CARE AND EDUCATION

Early care and education can be defined as nonparental care for children from birth to kindergarten entry that occurs outside a child's home. Because of this report's focus on financing, the committee focuses on paid, nonparental care. Such early care and education occurs in a variety of settings including centers, homes, and schools. A particular ECE setting may offer services for all children from birth to kindergarten entry or may serve only children of particular ages, as shown in Figure 1-1. Services across these settings may be offered on a full-day or part-day basis.

ECE settings also vary by type: some are publicly funded (such as Early Head Start, Head Start, and state-funded prekindergarten), some are private, market-based centers or homes relying on parent fees (many of which are subsidized by federal block grants to the states), while many ECE settings rely on a mix of public and private funding. Publicly funded programs may be targeted to specific children, such as children from low-income families or children with special needs, while others may be universal (i.e., offered to all children in a specific jurisdiction regardless of income or other characteristics). Private ECE providers may be for-profit or nonprofit businesses and may be licensed, unlicensed, or license exempt.

**BOX 1-2****Making the Case for Public Funding for High-Quality Early Care and Education for Infants, Toddlers, and Prekindergartners**

The essential argument for such public subsidies is that high-quality ECE produces both private benefits to participating children and their families and benefits to other members of society, both as taxpayers and as private citizens (Council of Economic Advisors, 2014). As a result of improved education outcomes, children who experience high-quality early care and education gain from higher lifetime earnings. Parents benefit directly from the ECE subsidies, but because of the ECE options available to them, they may also be able to work more or increase their professional education or training, and they may experience increased earnings over time as job experience rises and they augment their own human capital. Finally, other members of society as taxpayers realize lower public-sector costs and higher tax revenue from the improved life outcomes of ECE participants (e.g., education system savings from reduced use of special education, criminal justice system savings from lower crime, and increased taxes paid on higher lifetime earnings). They also gain as private citizens from reductions in crime and crime victimization, beyond the savings to the public sector.

The benefits to taxpayers and private citizens are positive spillovers (called *externalities* by economists) that families do not take into account when making their decisions about how much high-quality ECE to consume. In the classic economic framework, this leads to an underinvestment in ECE (relative to the investment that would produce the greatest *net benefit* for the economy) if families must pay the full cost, especially for lower-income families who cannot afford to pay the cost of high-quality early care and education and who cannot borrow against the private gains they and their children would experience in the future.

Empirical support for this economic argument would consist of (1) rigorous impact evaluations of high-quality ECE programs that demonstrate the short- and longer-term benefits for children and their families in terms of the parents' labor market success and the child's school readiness, educational performance, and outcomes in adulthood; and (2) comprehensive economic evaluations (e.g., benefit-cost analyses) to compare the upfront monetary costs of high-quality ECE programs with the short- and longer-term monetary benefits associated with the demonstrated outcomes. The positive economic returns arise when the streams of cost and benefits, appropriately discounted to account for the different value of money today versus its future value, produce total benefits that exceed total costs (National Academies of Sciences, Engineering, and Medicine, 2016a).

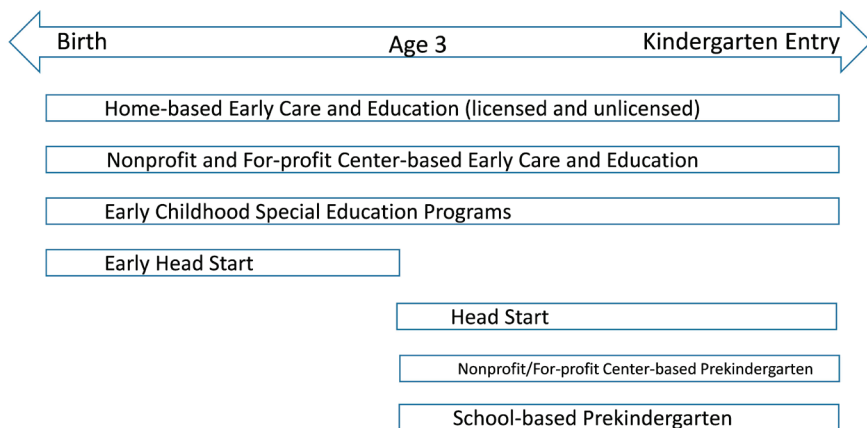
The most extensive evidence of ECE program impacts and economic returns is for high-quality 1- or 2-year prekindergarten programs, where dozens of rigorous experimental or quasi-experimental evaluations of model prekindergarten programs and scaled-up "real-world" programs have demonstrated significant favorable impacts from prekindergarten participation relative to no prekindergarten participation on such outcomes as school readiness, educational performance, high school graduation, and adult labor market success (see Karoly and Auger, 2016, for a recent review). Many of these impact evaluations have been accompanied by a benefit-cost analysis.

Although some prekindergarten programs, such as Perry Preschool, produce estimated returns of \$10 or more for every dollar invested, returns this high tend to be associated with demonstration programs (e.g., Perry Preschool) and those with longer-term follow-up (e.g., Perry Preschool and Chicago Child-Parents Center Program). Estimated returns for scaled-up “real-world” high-quality prekindergarten programs tend to fall in the range of \$3 to \$4 dollars for every dollar invested, a return that makes an equally strong case for the investment (Karoly, 2016). While much of the evidence for favorable economic returns is specific to prekindergarten programs serving lower-income children, there are universal prekindergarten programs that have also demonstrated positive economic returns for children across the income spectrum (Bartik, Gormley, and Adelstein, 2012; Cascio and Schanzenbach, 2013).

The evidence base is more limited regarding the impact and economic returns for high-quality ECE programs serving infants and toddlers, relative to a status quo of lower-quality care or parental care. One exception is the Abecedarian program, a full-time, year-round, education-based, child care and early learning program that served children from soon after birth to kindergarten entry. The program was evaluated using an experimental design for a very high-risk population in North Carolina in the 1970s. This evaluation found short- and longer-term favorable effects that translated into positive economic returns, as a result of improved parent and child outcomes (Garcia et al., 2017). While these results are impressive, the program has yet to be evaluated at scale and for broader populations, which raises concerns about whether the findings are replicable. The committee also points to results from the longitudinal Study of Early Child Care and Youth Development, which showed associations between higher-quality care from birth to age 5 and subsequent school performance, but the survey’s design did not permit a causal interpretation of the findings (National Institute of Child Health and Development Early Child Care Research Network, 2003, 2005).

Given these limitations in the current literature, especially regarding rigorous empirical evidence of the impact and economic returns of high-quality early care and education for younger children, the committee was mindful of the need for research and evaluation of any future expansion of public funding for such programs. For this reason, a comprehensive accountability system is among the key requirements the committee identified for an ECE financing system and is accounted for in the cost of such a system in the estimates detailed later in the report (see Chapter 6).

Although the focus of this study is on ECE programs from birth to age 5 years, there is a broader literature that evaluates the impacts and economic returns for a wide array of early childhood interventions, from home visiting during the prenatal period and first few years of life to parent education, as well as various combination of approaches (see Cannon et al., 2017, for a recent synthesis of this broader literature, as well as Box 1-3). Ultimately, a socially beneficial strategy would be to provide a portfolio of publicly funded early childhood interventions where the marginal social net benefit is equalized across early childhood intervention programs (Kilburn and Karoly, 2008). Exploring this portfolio-based approach is beyond the charge for our committee.



**FIGURE 1-1** Service delivery settings where children from birth to kindergarten entry receive early care and education.

SOURCE: Adapted from Institute of Medicine and National Research Council (2015, p. 44).

Taken together these ECE settings, programs, and services, in connection with the policies, regulations, and financing that shape their operation and the roles of and training for professionals in each setting, make up a “system” of early care and education. A “system” is defined by social scientists as an interrelated set of roles and expectations that tends to maintain itself over time (see, e.g., Parsons and Shils, 1965). The committee notes that, applying this definition, early care and education is a self-perpetuating system. As such, it is more difficult to reform than if there were truly “no system” (in the sense used by social scientists). The “financing structure” or “financing system” of early care and education is a subset of this broader ECE system and refers to the policies, regulations, funding streams, and financing mechanisms<sup>3</sup> that shape the financing of early care and education in the United States. Therefore, like the *Transforming* report, the committee uses the term “system” to refer to both “complex wholes and specified subsets (such as ‘professional learning systems’)” (Institute of Medicine and National Research Council, 2015, p. 28).

Of course, the ECE system is not the only influence on a child’s early learning and development prior to entering kindergarten. Professionals in the health and social services sectors, as well as parents, family, and

<sup>3</sup> Financing mechanisms are the method by which funds are distributed to entities such as providers, families, or the workforce; see Chapter 3 for further discussion of financing mechanisms, specifically Box 3-1.



communities, interact with children and have the potential to support their early learning and positive development (Institute of Medicine and National Research Council, 2015, p. 24). Because the *Transforming* report—and as a result, this committee’s charge—focuses upon early care and education as defined above, this report does not examine these other influences on young children. Interventions such as home visiting programs, prenatal programs, and parental education programs are discussed in another report from the National Academies of Sciences, Engineering, and Medicine (2016b): *Parenting Matters: Supporting Parents of Children Ages 0-8*. The findings of that report are briefly summarized in Box 1-3.

### TRANSFORMING THE EARLY CARE AND EDUCATION WORKFORCE

According to the *Transforming* report, the science of child development and early learning underscores the importance and complexity of working with young children. That science elucidates the need for consistency and continuity in early care and education, both over time as children develop and across systems and services. Despite this need, the care and education of young children takes place in many different settings with different practitioner traditions and cultures and operates under the management or regulatory oversight of diverse agencies with varying policies, goals, incentives, funding requirements, and constraints (Institute of Medicine and National Research Council, 2015, pp. 19–20, 30, 51). The roughly 2 million paid professionals that provide early care and education to children from birth to kindergarten entry in the United States work in disparate systems and delivery settings.

The relevant systems and services are diverse, fragmented, and often decentralized at a time when children would benefit most from high-quality experiences that build on each other consistently over time (Institute of Medicine and National Research Council, 2015). Despite their shared objective of nurturing and securing the future success of young children, ECE professionals are neither acknowledged nor respected as a unified workforce; these professionals make a shared contribution to outcomes for young children and need a common knowledge base and consistent set of competencies to effectively perform their jobs. The *Transforming* report concluded that current policies and systems fall short of placing enough value on the knowledge and competencies required, and the expectations and conditions of ECE educators’ employment do not adequately and consistently reflect their significant and critical contribution (Institute of Medicine and National Research Council, 2015, p. 483).

To address this shortfall, the *Transforming* report offered a blueprint to build a unifying foundation for workforce development. This foundation



### BOX 1-3 Findings from *Parenting Matters*

The committee abstracted the following findings from passages in *Parenting Matters* (National Academies of Sciences, Engineering, and Medicine, 2016b, pp. 125–203).

**Home visiting:** Home visiting programs focus on providing parents with support and education in their homes through ongoing visits by a professional or paraprofessional. These programs are often targeted to families at higher risk of poor child outcomes, and include services such as facilitating positive parent-child interactions, encouraging good parenting practices, and reducing risks of harm. Individual evaluations and systematic reviews of home visiting program models have been performed; these assessments have attempted to deduce whether the programs have a positive, negative, or ambiguous impact on outcomes such as parenting practices, child health, and child development and school readiness. While individual evaluations of some programs have shown positive effects, there is no strong pattern of effects evident across studies or even within the same models.

**Prenatal interventions:** Regular prenatal care is an important component of maternal and child health and well-being. In the United States, most pregnant women receive prenatal care, making it a potentially promising opportunity to connect with and educate expectant parents about issues such as feeding, sleep, child development, and parenting. Prenatal interventions can take many forms, including education from an individual provider, group care, and information kits. In general, there is some evidence that providing information about pregnancy and childhood to expectant parents is associated with an increase in knowledge about positive parenting practices and knowledge about how to access needed services. Group prenatal care has been shown to be associated with improved parental knowledge and better birth outcomes.

**Parental education:** There are a number of interventions designed to promote positive parenting practices through the education and counseling of parents, often delivered in the context of the child's classroom. For example, some ECE programs offer parental education in order to improve the parents' knowledge, attitudes, and practices to support the child's development and well-being. Head Start and Early Head Start programs are required to provide activities for parents, including parenting education and group parenting support classes. Evidence for the benefits of these types of programs is mixed. There is little evidence that the Head Start parental components have a positive impact on parenting practices, although positive changes in child outcomes have been observed in some studies.

encompasses: essential features of child development and early learning, shared knowledge and competencies for ECE professionals, principles for high-quality professional practice at both the individual level and the level of systems that support them, and principles for effective professional learning (i.e., the preparatory and continuing education of ECE professionals) (Institute of Medicine and National Research Council, 2015, p. 40).

Professional learning and ECE workforce development need to complement each other and build together to lead to quality professional practice. These aspects include qualification requirements, higher-education program options (e.g., certificate programs as well as traditional postbaccalaureate degrees), professional learning during ongoing practice, and evaluation and assessment of professional practice. These elements are further influenced by two other important elements: interprofessional practice (how professionals with different roles interact) and well-informed, capable leadership. According to the *Transforming* report, implementing these recommendations will require coordinated and coherent changes across systems at three levels: individual practitioners and leaders, organizations, and policies. To that end, the report's blueprint also included recommendations for coherent funding, policies, guidance, and standards; for supporting models of comprehensive planning and implementation; and for improving the knowledge base. Together these recommendations, if implemented, would align specific actions to improve workforce development and professional learning across localities, states, and nationally to ensure changes work in synchronicity (Institute of Medicine and National Research Council, 2015, pp. 491–492).

While some specific aspects of the *Transforming* report's recommendations are highlighted briefly in the sections that follow, readers of this report are strongly encouraged to read Chapter 12 of that report, which describes in depth the blueprint developed by that report's authoring committee. It contains extensive discussion of context and considerations for implementation that are not duplicated in this report but that, taken together with this committee's framework for financing, serve to inform both particular key decisions and any comprehensive planning process for improving the quality of early care and education.

### Qualification Requirements

Expectations and requirements for preparation and credentials currently differ widely, depending on an ECE professional's role, ages of children with whom he or she works, practice setting, purpose of service, and which agency or institution sets qualification criteria and funding requirements (Whitebook, McLean, and Austin, 2016). For example, one-quarter (26%) of center-based educators had a 4-year degree in 2013, while 16 to 19 percent of home-based educators had a bachelor's degree or higher

(National Survey of Early Care and Education Project Team, 2013).<sup>4</sup> Variation also occurs across ages within centers: only 19 percent of center-based educators of children ages 0 to 3 years had a bachelor's degree, while 45 percent of center-based educators of children ages 3 to 5 years had a bachelor's degree (National Survey of Early Care and Education Project Team, 2013, p. 3). In contrast, 93 percent of elementary and middle school educators in 2011 held a bachelor's degree, and 48 percent of that degreed group also held a master's degree (Whitebook, 2014). Similar variations exist in other forms of required and voluntary certifications and credentials for ECE professionals (Institute of Medicine and National Research Council, 2015). These variations are often based more on historical traditions for different roles and settings or on what systems can afford, rather than on what the science of child development and early learning reveals about what children need in order to progress to their full potential. This variability can lead to substantial variations in knowledge and competencies and in the quality of professional practice in different settings (Institute of Medicine and National Research Council, 2015, pp. 508–513).

Given these variations in professional qualifications and credentials, the *Transforming* report called for strengthening competency-based qualification requirements for all ECE professionals working with children from birth through age 8. These requirements, according to that report, should reflect foundational knowledge and competencies shared across professional roles, as well as specific and differentiated knowledge and competencies matched to the practice needs and expectations for specific roles (Institute of Medicine and National Research Council, 2015, Recommendation 2, p. 513). Specifically, for lead educators<sup>5</sup> working with young children, the report called for phased, multiyear pathways to transition to a minimum requirement of a bachelor's degree with specialized knowledge and competencies and for strengthening of practice-based qualification requirements.

The relationship among an ECE professional's level of education, high-quality professional practice, and outcomes for children is complex, as are the policy decisions around setting such qualification requirements. The authoring committee of the *Transforming* report found the empirical evidence about the effects of a bachelor's degree on practitioner performance to be inconclusive and insufficiently informative. They concluded that a decision to maintain the status quo and a decision to transition to a higher level of education as a minimum requirement entail similar degrees of uncertainty,

---

<sup>4</sup> Sixteen percent of educators working in listed home-based settings had a bachelor's degree or higher, while 19 percent of educators working in unlisted home-based settings had a bachelor's degree or higher.

<sup>5</sup> The *Transforming* report defines "lead educators" as "those who bear primary responsibility for the instructional and other activities for children in formal care and education environments" (Institute of Medicine and National Research Council, 2015, p. 513).

with near-equal potential consequence for outcomes for children. The committee therefore chose to recommend a transition to a minimum expectation of a bachelor's degree with specialized knowledge and competencies on several grounds (Institute of Medicine and National Research Council, 2015, pp. 513–521).

First, while a college education alone was not found to guarantee better instruction and improved child outcomes, according to the *Transforming* report, the quality of educators' prior learning experiences in higher education and the extent of specialization in child development and early learning, including instructional practices did play an important role in enabling effective teaching and learning. Second, the differential that existed at that time (and continues now) in education requirements among early educators was inconsistent with the science of child development and early learning, which indicated clearly to the authoring committee that educating young children of all ages requires the same level of sophisticated knowledge and competencies. Finally, the *Transforming* report emphasized that holding lower educational expectations for ECE practitioners in general than for elementary school educators perpetuates the perception that educating children before kindergarten requires less expertise than educating early elementary students. Different degree requirements also affect the job market, both between elementary schools and early care and education and within early care and education, as a result of requirements for lead educators in Head Start and publicly funded prekindergarten programs to have a bachelor's degree while lead educators working in center- or home-based settings generally do not have to meet the same requirements. The *Transforming* report committee saw this disparity in requirements perpetuating a cycle of disparity in the quality of learning experiences for young children (Institute of Medicine and National Research Council, 2015, pp. 434–439). Moreover, public school educators from kindergarten to grade 12 are required to have, at a minimum, a bachelor's degree, as well as certification, before they begin teaching (Whitebook, 2014).

For the reasons described above, the authoring committee of the *Transforming* report chose to recommend a transition to a minimum expectation of a bachelor's degree with specialized knowledge and competencies. However, these requirements for higher levels of education and competencies, according to the *Transforming* Report, must be combined with fair compensation to recognize the professionalization of the workforce and to ensure workforce retention. Compensation of ECE professionals varies not only by program site but also by the age of children served. According to data from the National Survey of Early Care and Education, the median hourly wage for center-based practitioners working with children ages 0 to 3 was \$9.30, while the median hourly wages of center-based practitioners working with children ages 3 to 5 was \$11.90 (National Survey of Early

Care and Education Project Team, 2013, p. 12). At these low wages, nearly one-half of these professionals participate in public support programs, which is twice the fraction for the labor force at large (Whitebook, 2014). Without linking qualification requirements to compensation, more highly qualified ECE educators will seek higher paying jobs in other settings or with older children, making recruiting and retention of highly qualified professionals for younger children difficult (Institute of Medicine and National Research Council, 2015, pp. 469, 471, 521).

The *Transforming* report also emphasized the need to combine fair compensation with other improved supports for ECE professionals in their practice environments, such as instructional supports (e.g., curricula, tools, and materials; mentoring and coaching; supervision); noncontact time for planning and assessments, supportive leadership, and opportunities for collegial sharing that foster ongoing professional learning; facilities and a physical environment conducive to learning; and linkages to interprofessional support to promote the ECE workforce's professional development and mental and emotional well-being.

### Higher Education and Ongoing Professional Learning

The *Transforming* report found a need for greater consistency in professional learning supports, both in higher education and during ongoing practice. It emphasized that simply instituting policies requiring a bachelor's degree is not sufficient. The report recommended changes to improve the content and quality of higher-education programs that prepare educators to work with young children, as well as considerations to enable access to and affordability of those programs for both the future and incumbent workforce.

With respect to learning as a part of ongoing practice, the *Transforming* report concluded that there is great variability in the availability of and access to high-quality learning activities across professional roles and practice settings (Institute of Medicine and National Research Council, 2015, p. 410). Therefore, it recommended strengthening incentives and systems to promote adoption and implementation of best practices for high-quality professional learning; it also offered guidance on sequencing. To affect practice, high-quality programs need to be widely available, accessible, and affordable as well as implemented in a practice environment that supports improvements and professional development. Such practice environments need to be structured to allow ECE professionals to proactively engage in quality improvement activities and should include time for reflection and planning and for sharing with colleagues (Institute of Medicine and National Research Council, 2015, p. 533).

### Evaluation and Assessment of Professional Practice

In addition, the *Transforming* report recommended developing new approaches for assessing the quality of professional practice for ECE professionals. According to that report, continuous quality improvement systems should align with the science of child development and learning, be comprehensive in scope, reflect day-to-day practice, be tied to access to professional learning, and account for setting- and community-level factors that affect the capacity of educators to practice effectively, such as insufficient non-childcare time for planning and assessment, overcrowded classrooms, and poorly resourced settings. The *Transforming* report also acknowledged the critical role of a supportive infrastructure for enacting good practice, and it recommended specific actions to bolster the supports that will make these changes to workforce development feasible, such as a well-informed and capable leadership; coherent policies, guidance, and standards; quality practice environments that support professional well-being; and a connection to the evolving knowledge base (Institute of Medicine and National Research Council, 2015, pp. 534–536).

In summary, transforming the ECE workforce requires attention to various elements that contribute to quality professional practice, as illustrated in Figure 1-2. These elements of quality professional practice include the systems and processes that contribute directly to the development of knowledge and competencies for the ECE workforce, but they also extend beyond to encompass elements such as the practice environment, policies and regulations affecting professional requirements, staffing structures and career advancement pathways, evaluation systems, and the status and well-being of these professionals. As the *Transforming* report made clear, ensuring that the ECE workforce is highly qualified and well supported is integral to supporting the positive childhood development of all children.

### Implementing Transformative Change

The *Transforming* report emphasized the challenges of the complex, long-term systems change required to implement its recommendations, and it acknowledged the uncertainties within each of the areas for which recommendations were made and around how best to design, prioritize, and phase in the interdependent changes. Acting on that report's blueprint (see Chapter 12 of the *Transforming* report) requires context-specific policy and political decisions. Full implementation in some cases could take years or even decades. At the same time, the report emphasized the urgency of the need to improve the quality, continuity, and consistency of professional practice for children from birth through age 8 (Institute of Medicine and National Research Council, 2015, p. 5).

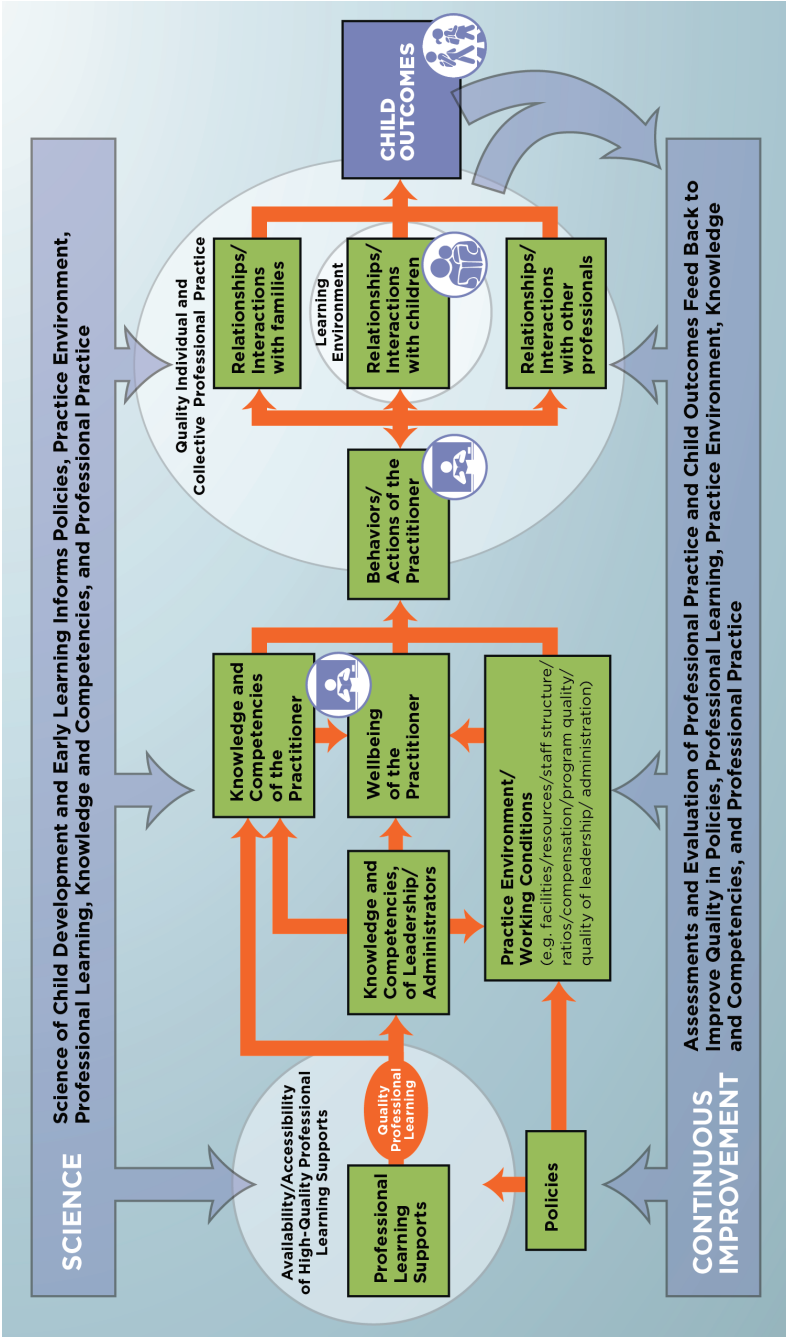


FIGURE 1-2 Elements that contribute to quality professional practice.  
SOURCE: Institute of Medicine and National Research Council (2015, p. 359).



In articulating some of the considerations to balance the reality of the challenges with the urgency of need, the report called for strategic prioritization of immediate actions as well as long-term goals with clearly articulated intermediate steps. Further, the report made recommendations to support that process with coherent policies, guidance, and standards, to support and learn from models of comprehensive planning and implementation, and to improve the knowledge base through monitoring, evaluation, and research as changes are made to transform the ECE workforce (Institute of Medicine and National Research Council, 2015, p. 492).

The steps needed will depend on factors that are specific to the context of different state and local environments, which will have different strengths and gaps at the outset, in addition to different population characteristics, infrastructure for professional learning, and labor markets, all of which affect both the current workforce and the pipeline for the potential future workforce. The specific approach and pace of progress will thus depend on the baseline status, existing infrastructure, and political will in different localities (Institute of Medicine and National Research Council, 2015, p. 492).

The *Transforming* report also recognized that significant mobilization of resources will be required, that the amount and sources of financial and other resources vary in different contexts, and that information about costs are a key input to policy and political decisions. However, the committee authoring the *Transforming* report was charged, in approaching its task, to set aside questions of cost and financing to avoid foregone conclusions about the availability of resources in interpreting the evidence and the current state of the field (Institute of Medicine and National Research Council, 2015, p. 492). It is now the charge of this committee to pick up this critical piece of the puzzle.

## FINANCING HIGH-QUALITY EARLY CARE AND EDUCATION

A wide range of resources contribute to supporting the health, well-being, development, and learning of children from birth to kindergarten entry. Federal funds, as well as state and local funds, support child development and early learning. In addition, funds invested in children come from nongovernmental sources including philanthropy and the business sector. However, families' share of ECE costs contributes the largest portion of the total cost for early care and education. Funds supporting early care and education from other sources are distributed to service delivery providers, families, and the ECE workforce through a number of financing mechanisms, such as tax preferences, vouchers, and contracts or grants.



This patchwork of financing with different funding sources and financing mechanisms leads to inequities in access, quality, affordability, and accountability. Each funding source and financing mechanism is subject to the policies of the agency or institution from which it derives, and “each has its own requirements as to scope of services allowed, quality standards (or lack thereof), eligibility criteria (including ages served), and reporting and accountability” (Institute of Medicine and National Research Council, 2015, p. 51). This fragmentation, coupled with underfunding of services, results in uneven quality and access to services and places the burden for financing early care and education on parents through the family’s share of costs and on the ECE workforce in the form of low wages. In addition, the current piecemeal approach to financing results in inefficiencies in administration; difficulty in collecting, across various programs, the data needed for system improvement; and an inability to attract and retain a highly qualified workforce (see Chapters 2 and 3 of this report.) The resulting inequities in access to affordable high-quality early care and education drive and perpetuate socioeconomic and racial/ethnic inequalities in the United States.

Drawing from the *Transforming* report and the science of child development and early learning, this committee has extracted six principles for high-quality early care and education and from these principles developed a set of criteria by which to judge the current financing structure. These six principles, presented in Box 1-4, and the criteria developed from them (see Chapter 3) guided the committee’s assessment of financing strategies for promoting implementation of and access to affordable, high-quality early care and education for children from birth to kindergarten entry. The rationale for each principle is presented below.

First, *high-quality early care and education requires a diverse, competent, effective, well-compensated, and professionally supported workforce across the various roles of ECE professionals*. High-quality care for children rests upon the knowledge, skills, well-being, and stability of the ECE workforce. According to the *Transforming* report, “Adults who are under-informed, underprepared, or subject to chronic stress themselves may contribute to children’s experiences of adversity and stress and undermine their development and learning” (Institute of Medicine and National Research Council, 2015, p. 4). That is, this workforce needs the competencies and compensation commensurate with the responsibility of caring for and guiding the development of young children. It also requires adequate supports to ensure that all ECE professionals are able to perform their duties at a high level, to foster the positive development of children in their care. However, across and within states, the current qualification requirements for regulated home-based and center-based ECE programs and public pre-kindergarten educators vary. For example, only 11 states set consistent entry-level requirements across licensed settings, and qualifications set by the

### **BOX 1-4** **Principles of High-Quality Early Care and Education**

1. High-quality early care and education requires a diverse, competent, effective, well-compensated, and professionally supported workforce across the various roles of ECE professionals.
2. High-quality early care and education requires that all children and families have equitable access to affordable services across all ethnic, racial, socioeconomic, and ability\* statuses as well as across geographic regions.
3. High-quality early care and education requires financing that is adequate, equitable, and sustainable, with incentives for quality. Moreover, it requires financing that is efficient, easy to navigate, easy to administer, and transparent.
4. High-quality early care and education requires a variety of high-quality service delivery options that are financially sustainable.
5. High-quality early care and education requires adequate financing for high-quality facilities.
6. High-quality early care and education requires systems for ongoing accountability, including learning from feedback, evaluation, and continuous improvement.

---

\*Ability status refers to special needs, including physical, emotional, and linguistic.

federal government for federally funded programs add further complexity to the array of requirements in a given community (Whitebook, McLean, and Austin, 2016). As a result, the qualification requirements for an ECE professional depend upon the funding source for the program in which he or she is employed, rather than the developmental needs of the children under care (Gould, Austin, and Whitebook, 2017; Whitebook, McLean, and Austin, 2016).

Because of traditionally low-qualification requirements, the ECE field has generally been perceived as low-skilled work, which contributes to low wages for this workforce. ECE professionals are among the country's lowest-paid workers and typically do not receive benefits such as health insurance.<sup>6</sup> In the current system, the median hourly wage for center-based ECE practitioners is \$10.60. If employed full time, that amounts to about \$22,000 per year, which is just slightly above the federal poverty level for a family of three. Even center-based practitioners who have a bachelor's degree or higher are paid at significantly lower levels than other professionals with a similar level of education, garnering a median hourly wage of

---

<sup>6</sup> See Bureau of Labor Statistics, Occupational Employment Statistics, Occupational Employment and Wages, May 2016 data on "child care worker" and "preschool teacher." Available: <https://www.bls.gov/oes/current/oes399011.htm>; <https://www.bls.gov/oes/current/oes252011.htm> [December 2017].

only \$14.70 (National Survey of Early Care and Education Project Team, 2013, p. 12).

Moreover, compensation varies among ECE practitioners working in different types of settings, with different age groups of children, and with different funding sources. Across ECE centers, for example, the median wage for practitioners with a high school degree or less ranges from a low of \$8 per hour to a high of \$11.80 per hour, depending on whether the center received any public financing and of what type. Across all educational attainment levels, median wages are highest—from one-third to almost 50 percent higher than other settings—in public school–sponsored ECE programs (Dastur et al., 2017).

These low wages are largely the result of an inadequately financed system where the cost burden falls on families and the ECE workforce. Together, low wages and wage variation within the ECE workforce contribute to stress among staff, relatively high job turnover rates, and instability in the workforce, all of which can decrease the quality and increase the cost of programs. For example, high staff turnover affects continuity of care for children, inhibits quality improvement, disrupts attachment between children and practitioners, and increases program costs (Whitebook, Phillips, and Howes, 2014). Therefore, adequate compensation results in a more stable, economically secure workforce, which benefits all children (Bueno, Darling-Hammond, and Gonzales, 2010; Whitebook, Phillips, and Howes, 2014).

Moreover, though the increasing diversity of the child population requires educators to be knowledgeable and skilled in meeting the needs of children from a range of cultural and linguistic backgrounds, the current ECE workforce tends to be stratified racially and ethnically by role and educational attainment (Whitebook, 2014; Whitebook, McLean, and Austin, 2016, p. 31). This stratification is partially the result of a financing structure that is inadequate to support the incumbent workforce’s professional development and attainment of the higher qualifications necessary to take on leadership roles.

Our second principle is that *high-quality early care and education requires that all children and families have equitable access to affordable services, across all ethnic, racial, socioeconomic, and ability statuses as well as across geographic regions*. Disparate access to high-quality early care and education contributes to achievement gaps between children from low- and high-income families. Disparities by income in terms of cognitive skills, health, and behavior have been found as early as 9 months of age, and children from low-income families are, on average, 12 to 14 months behind their higher-income peers in pre-literacy and language skills when they start kindergarten (Fernald, Marchman, and Weisleder, 2013; Halle et al., 2009; National Research Council and Institute of Medicine, 2000; Yoshikawa et al., 2013).

The inability of families to access high-quality early care and education stems from a financing structure that places a large burden to pay for early care and education directly on families in the form of fees and tuition, making high-quality early care and education prohibitively expensive for many families with low income. Average weekly expenditures for all children, ages 0 to 5 years, among households that pay for early care and education is slightly more than \$130 per week, but one-quarter of families using either paid home-based care or center-based care paid more than \$180 per week (Latham, 2017; see also Loewenberg, 2017).<sup>7</sup> In 30 states and the District of Columbia, the average yearly cost for an infant in full-time center-based care exceeds the cost of a year's tuition and fees at a 4-year public university (Child Care Aware of America, 2016). As a whole, families pay 52 percent of the cost of early care and education in the United States, making it the only part of this country's education pathway in which parents shoulder the majority of the financial burden (BUILD Initiative, 2017). Even for those families that qualify for subsidized programs, many are not receiving assistance because the ECE system is underfunded. Only about one-sixth of children eligible for subsidized early care and education receive it (Burgess et al., 2017).

The current financing structure positions a child's early learning and development as dependent upon that family's socioeconomic status and geography, rather than basing it on the child's developmental and learning needs. This structure weakens the potential of early care and education to spur positive childhood development and enhance adult-life outcomes.

Our third principle states that *high-quality early care and education requires financing that is adequate, equitable, and sustainable, with incentives for quality. Moreover, it requires financing that is efficient, easy to navigate, easy to administer, and transparent.* As described above, the current financing structure is underfunded, placing a heavy cost burden on families and the ECE workforce. In addition, the cost burden on families is not equitable in the sense that the lowest-earning households contribute a higher percentage of their income to ECE costs than do higher-income families. (Chapter 2 addresses this issue in detail, see Table 2-4 in particular.) While most families in poverty do not make payments for early care and education, some families in poverty spend more than one-third of their income on it, and those with incomes at one to two times the federal poverty line spend about one-fifth of their income on early care and education (Latham, 2017). Even middle-income families may be priced out of the center-based ECE market at current costs, as the data suggest that middle-income families use relatively less center-based, and more home-based, early care and education

---

<sup>7</sup> The average price for full-time care in child care centers for children, ages 0 to 4 years, is \$9,589 a year (Loewenberg, 2017).

than do either low-income families (who are likely to receive assistance) or upper-income families (who have greater discretionary income) (Latham, 2017). Again, the current financing structure forces many families to choose an ECE option based upon their budget, rather than their children's developmental needs. The ECE financing structure also affects quality; as documented in detail in Chapter 3, the current financing mechanisms are insufficient to promote high-quality early care and education.

Moreover, public programs meant to assist families in finding and affording high-quality early care and education are often disconnected from one another. Families are left navigating among these complex and often confusing systems. For example, the various financing mechanisms supporting early care and education have eligibility requirements that vary between programs, which can result in ECE instability when a family's circumstances change. This scattershot approach to ECE financing makes it enormously difficult for families to negotiate the complex eligibility criteria, find and access ECE programs, and afford their share of the cost. Furthermore, most providers receive funding through multiple financing mechanisms, each with its own standards and requirements. As a result of this piecemeal approach to ECE financing, providers bear the administrative burden of combining and coordinating across funding sources.

Our fourth principle is that *high-quality early care and education requires a variety of high-quality service delivery options that are financially sustainable*. Families have diverse needs: some need care for their children during standard business hours, others need care during the evening or weekend hours, while still other families may prefer to enroll their children in home-based care settings or center-based care. A financing structure that allows and supports access to a diversity of service delivery options for all families is required to meet these diverse needs.

Our fifth principle states that *high-quality early care and education requires adequate financing of high-quality facilities*. The *Transforming* report outlined the relationship between high-quality ECE facilities and the intellectual and psychosocial development of young children. A well-designed learning environment can promote exploratory learning and physical activity, facilitate positive interactions, and keep children safe and healthy. For example, well-designed facilities with semiprivate reading areas encourage one-on-one interactions between educators and young children that are necessary for building healthy relationships with adults (Institute of Medicine and National Research Council, 2015). Children further benefit from both indoor and outdoor spaces with age-appropriate materials that are engaging and promote social and intellectual development (Workman and Ullrich, 2017). Other scholars have suggested that appropriately designed spaces facilitate creative play and minimize conflicts among children, and

outdoor play is associated with reduced stress and obesity levels in young children, as well as stronger immune systems (Centers for Disease Control and Prevention, 2016; Fjortoft, 2004; Gillman, Raynor, and Young, 2011; Mead, 2016; Pardee, 2011). These studies demonstrate the importance of facilities in creating high-quality environments and promoting children's health, safety, and development.

The committee's sixth and final principle states that *high-quality early care and education requires systems for ongoing accountability, including learning from feedback, evaluation, and continuous improvement*. As discussed in the *Transforming* report, accountability systems employing several data sources can be used to improve instructional practices, the delivery of services, ECE programs, and ongoing professional learning, as well as to inform the efficient allocation of financial resources (Kauerz and Coffman, 2013; Tout et al., 2013). If properly aligned, accountability systems can thus influence child development by enhancing the ability of ECE professionals to foster greater consistency and continuity for children and families throughout the continuum from birth to kindergarten entry. However, there is currently no comprehensive data system that collects data from the wide variety of ECE programs and providers, nor is there any comprehensive accountability system for tracking and incentivizing quality. Decision makers who design accountability systems must make a complex set of decisions about which programs will be held accountable, how quality will be measured, how improvement will be incentivized and supported, and how to share information with parents in a way that will help them find high-quality learning opportunities for their children. Often these critical design issues are decided on "best guesses," and because of the current financing structure, they are commonly constrained by limited financial resources.

Applied together, these six principles constitute the committee's understanding of what high quality means in early care and education; they have informed our development of a new vision for a financing structure that can provide reliable, accessible, and affordable high-quality early care and education, provided by a well-qualified workforce, for all of the nation's young children from birth to kindergarten entry.

## STUDY METHODS

To understand the current landscape of financing for early care and education in the United States, the committee reviewed multiple sources of information. Our assessment focused primarily on the existing research literature in disciplines, such as early care and education, financing and fiscal management, economics and labor economics, and public policy. The

committee reviewed public documents, such as federal appropriations legislation and state and local governments' budgets, as well as recent reports and articles on the state of early care and education in the United States. As outlined in its charge, the committee also reviewed and analyzed ECE financing structures in other countries. Our review included an analysis of each country's funding structure, including financing mechanisms, funding levels, and cost distributions, as well as regulations and local labor market variations that may influence costs. Of course, early care and education in every country is deeply contextual and reflects the local, political, and cultural/religious traditions of that society, as it does here in the United States. Some countries have well-established, high-quality systems, while others have only recently initiated efforts to transform their systems to achieve high quality. Some countries, like the United States, have market-based systems, but other countries use a publicly financed system; countries organize these systems in different ways with regard to the age range of children covered by the system and the concept of early care and education that informs the system. These context-specific characteristics were vital for drawing valid lessons from these international examples, as the committee grappled with the feasibility of adopting various approaches in the United States.

The committee held four in-person meetings and conducted additional deliberations by teleconference and electronic communications during the course of the study. The first and third in-person meetings were information-gathering meetings during which the committee heard presentations from a variety of stakeholders, including the study's sponsors, representatives from federal and state governments, employers supporting high-quality early care and education, researchers, and policy advocates. The committee also heard from experts in the housing, higher education, and health care fields regarding affordability and distributions of costs in other sectors, as well as an expert on international early care and education. The second and final meetings were closed to the public in order for the committee to deliberate on our report and finalize our conclusions and recommendations.

Consistent with the complexity and uncertainty inherent in making significant policy and systems changes, and especially given the large amount of resources under consideration, various committee members held a range of views on which changes within the blueprint provided by the *Transforming* report have the strongest case for prioritizing investment, on the needed sequencing and pace of the recommended changes, and on the best ways to approach the financing of those changes. Given that revisiting the *Transforming* report's recommendations were outside this committee's charge (see the section above on the "Charge to the Committee"), the committee discussed how to finance the changes recommended in the *Transforming* report and the relative potential benefits and negative consequences



of assuming different priorities in financing high-quality early care and education, especially for changes that are large cost drivers, such as implementing degree requirements for lead educators, the level of appropriate compensation for ECE professionals, and whether early care and education with no fees should be available to families. All of these alternatives have both independent and interdependent implications for costs of the end-state system and costs of the interim stages toward achieving it.

These discussions highlighted the importance of acknowledging that as local communities and states experiment and diligently work on improving early care and education, the vision that informed the recommendations from the *Transforming* report and provided a starting point for this report will need to be adjusted to find how, in a given context, to move most rapidly and efficiently to a system that meets the needs of children, families, and the ECE workforce. Our final report represents the consensus of the committee, and its framework of options and tradeoffs that need to be considered captures the richness of the range of views and discourse that emerged through the committee process.

## ORGANIZATION OF THE REPORT

The committee's report on financing early care and education has been organized into seven chapters. Following this introduction, Chapter 2 describes the landscape of the current financing system and estimates the total funds currently invested in early care and education in the United States. Chapters 3, 4, and 5 analyze the current financing of early care and education using the principles described above. Chapter 3 focuses on financing a highly qualified workforce, Chapter 4 focuses on financing for early care and education that is accessible and affordable for all families, and Chapter 5 assesses financing for incentivizing quality. Chapter 6 reviews the cost drivers of high-quality early care and education and uses a hypothetical estimate of the costs of a high-quality ECE system to illustrate the factors that inform options and the choices that are likely to require decision. That chapter also summarizes the relevant considerations necessary to produce such a cost estimation for a real-world option. Chapter 7 builds upon lessons learned from states and localities, from international early care and education, and from sectors other than early care and education, in order to make recommendations for a new future in financing early care and education in the United States.

In addition to the main chapters, the first three of four appendixes supply background information important for this study. Appendix A provides an explanation of the policy choices and assumptions, necessary to estimate onsite cost, that form the basis for the committee's illustrative estimate of



the total cost of a high-quality ECE system. Different policy choices and assumptions would, of course, lead to changes in the estimate, so this appendix is important for moving beyond the example to real-world options and decisions. Appendix B presents key attributes and considerations for desirable outputs of cost models, in addition to a description of various cost models that are currently available. Appendix C discusses methods to determine a reasonable share of costs for families to pay for high-quality early care and education. Appendix D provides biographical sketches of the committee's members and staff.

## 2

## Landscape of Early Care and Education Financing

Early care and education—and the policies, programs, and funding that support it—have a long and complicated history in the United States. Unlike kindergarten through 12th grade (K–12) education, the early care and education (ECE) “system” is a hodgepodge of different programs with different goals, constituencies, and requirements, implemented with great variation across states and localities. Today’s landscape reflects the various goals of ECE policy that were prioritized at different times. These goals were sometimes based on the role of adults in children’s lives and at other times were directed toward specific groups of children (e.g., Head Start for low-income children), but they were not always based on, nor consistent with, the developmental needs of all children as we understand them today.

This chapter has two parts. It begins with an overview of the history and evolution of early care and education in the United States, with an emphasis on federal policies and funding of early care and education. The second section of the chapter presents an overview of the current financing structure for early care and education. That section covers the major sources that cover ECE costs—primarily families and the federal and state governments—and describes the financing mechanisms that are used to fund ECE programs. This discussion lays the foundation for the committee’s assessment in Chapters 3, 4, and 5 of how the current financing structure compares to the six principles set forth in Chapter 1 (see Box 1-4 and accompanying discussion).

## HISTORY AND EVOLUTION OF EARLY CARE AND EDUCATION POLICY IN THE UNITED STATES

Historically, early care and education in the United States has been delivered through multiple systems with multiple goals, with the most marked bifurcation being between programs for middle- to upper-class children and programs for poor children. The history of early care and education in the United States also demonstrates that approaches to financing have varied by child age, as exemplified by the gradual incorporation into the K-12 system of education and care for older children in the birth to age 8 range.

### Early Care and Education before 1960

The first formal ECE programs (for children from birth to school-entry), which were modeled after German kindergartens, were founded in the mid-1800s. These programs served children from toddler age to six or seven, and took a variety of forms. Some were kindergartens that were funded with parental fees and had the goal of enriching and educating the middle- and upper-class children who participated (Cahan, 1989). There were also free kindergartens designed for immigrant and poor children, as well as day nurseries, both of which were generally run and funded by charitable organizations. These nurseries gave poor mothers a safe place to leave their children while the mothers worked, but they also focused on teaching “moral habits” to poor and immigrant children, based on the view that these families “were incapable of properly socializing their children” (Cahan, 1989, p. 10). These early ECE programs often had an educational component into the programs, though many were primarily custodial in nature.

However, around the turn of the century, critics began more vocally speaking out against day nurseries, arguing that the “physical and moral well-being of the mother and the children is seriously menaced” when the mother works long hours and has little time or energy left to nurture her children (Cahan, 1989, p. 18). The idea that “home was the only proper place for children and that the mother was the best caretaker” chipped away at support for day nurseries, and attention turned toward policies that would support mothers while they stayed home (Cahan, 1989, p. 19). A 1909 White House Conference on Children reflected this view, with speakers stating that “home life is the highest and finest product of civilizations,” and that children should be kept with their parents with “aid being given as necessary” to families “suffering from temporary misfortune” and “mothers who are without the support of the normal breadwinners” (Lombardi, 2003, p. 32). Efforts at the state level—often led by critics of the day nurseries—resulted in the passage of mothers’ pensions legislation in 39 states,

plus Alaska and Hawaii (not yet states), by 1919 (Cahan, 1989). These programs provided direct financial assistance to poor mothers, enabling them to stay home with their children rather than work. However, restrictive rules about who was eligible for such assistance meant that many mothers, particularly minority women, could not receive aid (Lombardi, 2003). To be eligible, mothers had to be judged “physically, morally, and mentally fit to have custody of their children” and had to be widowed, divorced, or married to men who were incapable of breadwinning (Cahan, 1989, p. 20). Mothers who were deemed ineligible for aid remained in the workforce, and their children remained at day nurseries—which had by then become stigmatized as places for the “unworthy” poor (Cahan, 1989, p. 21).

Up until the 1930s, the federal government had largely stayed out of funding ECE programs. However, two national emergencies spurred the federal government to begin funding them: the Great Depression and World War II.

As part of New Deal policies to address the effects of the Great Depression, the federal government began to provide direct financial assistance to mothers in 1935 with the Aid to Dependent Children provision of the Social Security Act. This program, later renamed Aid to Families with Dependent Children (AFDC), provided cash assistance to mothers in need, but like the state programs before it, AFDC was made unavailable to or difficult to obtain by minority mothers or mothers of “illegitimate” children (Gordon and Batlan, 2011).

In addition, in an effort to boost the economy and support struggling workers during the Depression, President Roosevelt committed public funds to establish nursery schools around the country. The primary purpose of these schools was to provide work for unemployed teachers and other school staff, with the secondary purpose being to safeguard the “physical and mental well-being of preschool children from needy, under-privileged families” (Cahan, 1989, p. 26; University Libraries, n.d.). The public nursery school program was a temporary measure meant to alleviate some of the pressures of the economic downturn and to ensure that children of struggling families would get proper nutrition and health services. Middle-class enrollment in private nursery schools that emphasized education and play-based programs also grew during this period. Educators in both public and private nursery schools were required to undertake ECE-specific training.

As World War II began and the U.S. economy began to recover, the federal government’s role in funding early care and education turned from economic recovery to supporting the war effort. The Lanham Act of 1940 provided grants to communities, which also had to contribute funds, to provide care for the children of mothers who worked in the defense industry, marking the first time that the federal government funded early care and

education for nonpoor families (Herbst, 2017). However, the government made it clear that this program was funded “solely as a war emergency measure,” and was to be seen neither as an educational program nor as an expansion of the welfare state (Cahan, 1989, p. 29; Herbst, 2017). The quality of these programs and the training required for staff varied substantially from community to community; the federal government recommended a training course for staff and volunteers and a child-to-educator ratio of 10:1, but a lack of resources and staff impeded efforts toward quality (Herbst, 2017).

As the war came to an end, so did the federal funding for ECE programs (although in some instances, local communities took over financial responsibility for their ECE programs and centers). However, the need and demand for early care and education did not subside. Many women who had entered the workforce as a result of the war remained in the workforce after the war, while women—particularly poor women and women of color—who had been members of the workforce long before the war continued to work outside the home. By 1950, there were three times as many working mothers as there had been before World War II, amounting to 33.9 percent of women in the paid workforce, but public opinion still leaned heavily against this trend (Lombardi, 2003; U.S. Department of Labor, 2016):

A deep ambivalence characterized the entrance of women into the labor force, causing the country to close its eyes to the fact that more children, at increasingly younger ages, were spending many hours in settings outside their homes. Despite widespread concern that poor child care might harm children, the public seemed uninterested in doing anything about it. It was as if recognizing the problem and supporting working parents would create a giant magnet, drawing women into the workforce, disarming their maternal instincts, and leaving their children neglected.

(Lombardi, 2003, pp. 2–3)

Due in part to this attitude toward working mothers, public funding for early care and education was sparse, and most families relied on private or informal home care (Cahan, 1989). A federal tax deduction for childcare expenses was enacted in 1954, but limits on marital status, income level, and eligible expenses reflected the societal opinion that mothers should only work outside the home due to financial necessity (Wolfman, 1984). Private nursery schools and kindergartens continued to operate as a part-day supplement for the education and socialization of middle-class children (Cahan, 1989).

### ECE Evolution since 1960

A confluence of factors in the 1960s brought early care and education into the spotlight. First, there was an increasing awareness of the importance of early childhood development, based on emerging research that suggested that the first few years of life could have an enormous effect on future success. Second, women continued to enter the workforce, including women with young children. In 1950, 33.9 percent of women worked outside the home, rising to 37.7 percent in 1960 and 43.3 percent in 1970. Among women whose youngest child was under 6 years old, 39 percent were in the workforce by 1975 (U.S. Department of Labor, 2016). Third, President Lyndon Johnson declared a “War on Poverty” in 1964, setting in motion an expansion of federal funding directed at relieving and ending poverty. The combination of the first two factors—new evidence about childhood development and more women in the workplace—contributed to a dramatic expansion of private ECE programs for middle-class families, particularly an expansion into full-day care (Institute of Medicine and National Research Council, 2015). The 1960s and 1970s also saw a growing interest in states funding kindergarten as part of the public school system: by the mid-1960s, about half of states provided funding for public kindergarten and many more began to do so over the next decade.<sup>1</sup>

The combination of the first and third factors—new evidence about childhood development and the War on Poverty—resulted in the establishment of Head Start in 1964. In acknowledgment of the importance of the first few years of life, Head Start was intended to break the cycle of poverty by providing children with early education while giving parents information about improving the home environment (Johnson, 1965). Head Start began initially as a summer school program to help low-income children catch up to their peers before starting elementary school. In 1966, Congress expanded the scope of Head Start to a 9-month program, and in 1967 a demonstration project began that offered services to parents with children from birth to 3 years old. Up to this point, public expenditures for early

---

<sup>1</sup> As noted above, kindergartens in the United States had begun as privately funded programs in the mid-1800s but had moved into the school systems over the first half of the 20th century. When kindergartens became part of the public schools, they were restricted to children age 5 and older, leaving the remainder of the birth to 8 age span outside the school system. Many of these programs were funded primarily with local funds: as of the mid-1960s, nearly one-half of states did not provide state funding for kindergarten programs. Over the next decade, 19 states began funding kindergarten, and by 1980 only two states did not fund kindergarten (Cascio, 2010). These state-funding initiatives resulted in a significant increase in the number of children enrolled in kindergarten; the average state saw a 30 percent increase in enrollment within 2 years (Cascio, 2010). Cascio (2010) suggested that the motivations behind this movement were twofold: first, to provide working mothers with subsidized care, and second, to improve children’s educational outcomes.

care had been seen as temporary measures, either to help low-income mothers who had fallen on hard times or to support the country during national crises. Head Start retained this focus on low-income families and the good of the nation, but took a longer view. Instead of funding short-term assistance to poor families, the early investment in children through Head Start was designed to “strike at the basic cause of poverty” and to “rescue these children from the poverty which otherwise could pursue them all their lives” (Johnson, 1965). In 1969, in a statement to Congress regarding the nation’s antipoverty programs, President Richard Nixon stated, “So crucial is the matter of early growth that we must make a national commitment to providing all American children an opportunity for healthful and stimulating development during the first five years of life” (Nixon, 1969). The 1971 White House Conference on Children (the seventh conference of a series that began with the 1909 conference discussed above) echoed this call, with the recommendation that “the Federal government fund comprehensive child care programs, which will be family-centered, locally controlled, and universally available” (White House Conference on Children, 1971, p. 244). The conference report noted that “most experts agree that a large share of a child’s mental growth takes place long before he enters school, and that society should help to enrich these early years” and called upon the government to commit to funding “quality child services for all” (White House Conference on Children, 1971, p. 11).

Lawmakers in Congress took these messages to heart, and in 1971 Congress passed the Comprehensive Child Development Act (CCDA). The CCDA, a bipartisan effort that passed the Senate 63-17 and the House 211-187, created a system “to meet the developmental needs of all children, regardless of family income, by investing major new federal funds to establish high quality comprehensive programs with federal standards under a coordinated delivery system” (Edelman, 2016). The system created under the CCDA allowed significant control at the state and local level, with unified federal standards, and provided financial support for childcare on a sliding income scale. A broad-based coalition supported the CCDA, including educators, faith leaders, child advocates, poverty and civil rights organizations, labor unions, and women’s groups (Edelman, 2016). The CCDA attempted to blend multiple purposes of early care and education into one program: support for low-income families, support for working parents, and attention to child development and education. Senator Walter Mondale, a cosponsor of the bill, noted that he did not want it to be a “poor person’s program”; everyone would be eligible to participate, and most middle-income families would receive some subsidy (Collins, 2009).

However, in 1972 President Nixon vetoed the bill, calling the legislation “radical” and citing ballooning costs, the unproven need for such a program, and his view that the program would “lead toward altering the

family relationship” and instead foster “communal approaches to child rearing” (Nixon, 1972). Nixon’s veto came as a surprise to many, as the bill had enjoyed broad bipartisan support. The CCDA would have represented a new era for early care and education: child development and custodial care of children were addressed together in a comprehensive way, rather than in separate and unrelated programs. When the CCDA was vetoed, child development programs such as Head Start and custodial care programs “continued to move along separate tracks” (Lombardi, 2003, p. 38).

In the two decades following the failure to enact the CCDA, there were only minor federal policy advances in support of early care and education, even as women’s level of participation in the workforce continued to rise. Starting in 1974, Title XX of the Social Services Amendments allocated funds for states to subsidize early care and education for the working poor as well as welfare recipients. However, in 1981, the Social Services Block Grant replaced Title XX, with an overall funding cut and elimination of funds earmarked for childcare (Cohen, 1996). In 1988, the Family Support Act was enacted, which required that most welfare recipients, including parents of young children, either work, go to school, or participate in job training. This law included childcare assistance for families receiving welfare, as well as for families who had left the welfare rolls in the past year (Lombardi, 2003). While this change represented progress in the fight to expand assistance to families, there was still only “minimal support” for low-income families who had never been on welfare or had been off welfare for more than a year (Lombardi, 2003, p. 39). In addition, during this period changes were made to the dependent care tax benefit that had first been enacted in 1954: the income cap on eligibility for the benefit was raised and eventually removed (a sliding scale remained that phased out the benefit as income increased), the deduction became a nonrefundable credit,<sup>2</sup> the amount a taxpayer could claim was raised, and the credit became available to families in which parents worked part time or attended school (Cohen, 1996).

In the latter half of the 20th century, families increasingly relied on ECE programs, particularly center-based care. In 1977, 13 percent of children were cared for in center-based programs; by 1993 this had increased to 30 percent (Child Trends, 2016). Attention turned toward the quality of these programs and the workforce who staffed them. Since the advent of the day nurseries, many ECE programs had not required much, if any, formal

---

<sup>2</sup> A nonrefundable tax credit is one that is paid only up to the amount of taxes otherwise due, meaning a nonrefundable credit cannot reduce a taxpayer’s tax liability beyond zero. If the amount of the credit exceeds the amount of taxes due before applying the credit, the remainder of the credit is not refunded to the taxpayer. See <https://www.irs.com/articles/refundable-vs-non-refundable-tax-credits> [December 2017].



education or training for staff members (Institute of Medicine and National Research Council, 2015, Appendix D). Private nursery school educators were trained in private colleges or home economics departments; there were few state teachers' colleges that addressed the early years of childhood. The federal funding for ECE centers during World War II was not accompanied by any educator training requirements. When Head Start began, there was no requirement that staff members be formally trained in early education.

Related to this lack of qualification requirements, the ECE workforce was also inadequately compensated for their work. Whitebook, Howes, and Phillips (1989) suggested that the lack of professional preparation and the inadequate compensation were due to a view that working in early care and education is an "extension of women's familial role of rearing children" (Whitebook, Howes, and Phillips, 1989, p. 2). In 1989 the first National Child Care Staffing Study (NCCSS) revealed that ECE educators were underpaid, undersupported, and leaving their jobs at an alarmingly high rate—turnover in the field was greater than 40 percent (Whitebook, Howes, and Phillips, 1989). The study found that these workforce issues not only affected the staff but also had an enormous impact on the quality of the care and education that children received: "The education and work environments of child care teachers are essential determinants of the quality of care. Teaching staff provided more sensitive and appropriate caregiving if they completed more years of formal education, received early childhood training at the college level, and earned higher wages and better benefits" (Whitebook, Howes, and Phillips, 1989, p. 112).

The release of the first NCCSS coincided with several major federal policy developments in early care and education. While much of the federal attention was on improving access to early care and education, particularly for low-income parents, there was a small but persistent trend toward looking at workforce issues and quality, including the relationship between the two. The Military Child Care Act of 1989 (MCCA) established a system of high-quality ECE programs for military families. Family contributions to an ECE program were determined on a sliding scale, with the family contribution increasing as income increased. The MCCA directed the Secretary of Defense to implement a training program for ECE employees and to ensure that at least one employee at each center was a "specialist in training and curriculum development" (MCCA, Section 1792). Further, this law required that employees be paid a competitive rate, equivalent to the pay of other employees with similar training, seniority, and experience (see Box 2-1 for further discussion of the MCCA).

In 1990, Congress passed the Child Care and Development Block Grant (CCDBG) Act, which authorized the Child Care and Development Fund (CCDF). This legislation marked the first time that the federal government provided ECE resources for low-income families who had never been

on welfare (Lombardi, 2003). The funding was primarily in the form of vouchers, which ensured payment to the providers that parents chose for their children. States were required to develop an ECE plan and had the flexibility to set eligibility criteria and quality standards. Funding through CCDF focused primarily on access, but it did specify that 5 percent of state funding was to be used for quality improvements, which could include staff compensation. Though the CCDBG Act was a major step in ECE policy, serious limitations remained: low funding levels meant that states could only reach a limited number of qualifying families, quality standards varied considerably by state, and little of the federal funding could be used for quality improvements. Also in 1990, the Head Start Expansion and Quality Improvement Act was passed, which reauthorized funding for Head Start and required that 10 percent of funds be used for quality improvement activities, including staff compensation and training.

In 1996, President Clinton signed the Personal Responsibility and Work Opportunity Act of 1996, which replaced AFDC with Temporary Assistance to Needy Families (TANF) and was a major shift in welfare policy. This law eliminated the previous guarantee of subsidized early care and education for recipients and added work requirements. But it also increased federal ECE funding by \$4 billion and set aside 4 percent of federal CCDF funding for use in quality improvement (Whitebook, Phillips, and Howes, 2014).

The 1990s also saw an increased interest in prekindergarten programs at the state level, fueled by long-term research that suggested that prekindergarten programs could improve educational attainment, career prospects, and lifelong earnings, while decreasing the need for special education or other services (O'Brien and Dervarics, 2007). States began investing in prekindergarten programs, in the hope of seeing both short-term benefits for children and long-term benefits to their states in the form of cost savings and a better prepared workforce. Prior to 1980, only seven states had appropriated state money for prekindergarten programs, but by 2016 43 states and the District of Columbia had state-funded prekindergarten programs (Barnett et al., 2003, 2017). These programs drew on the established goals of early care and education, such as child development, work support for parents, and preparation for K–12, while also considering the impact that early care and education could have on the financial health of the state itself (Lynch and Vaghul, 2015). However, despite the research supporting these programs and the interest at the state level, there has not been broad support to fund these programs at a level adequate to benefit all children and to support a skilled and stable workforce. For further discussion of equitable access to high-quality ECE services, see the section “Equitable Access” in Chapter 4.

The 2000s did not bring any major restructuring to ECE public policies or programs; the main federal programs remained Head Start and CCDF,

**BOX 2-1**  
**The U.S. Department of Defense's**  
**Early Care and Education System**

The U.S. Department of Defense (DoD) provides an example of successfully overhauling and improving a previously inadequate ECE system. The MCCA was the impetus for developing a high-quality childcare system, providing and subsidizing care to children from 6 weeks to 12 years of age. The care is provided in child development centers (CDCs), home-based settings, and school-age care programs (Floyd and Phillips, 2013; Military One Source, n.d.). In the early 1980s, the military childcare system suffered from poor facilities, high staff turnover, and low-quality care (see Cardoza, 2015). However, in comparison with the military childcare programs, the military prekindergarten programs were significantly better, with higher worker qualifications and compensation. The MCCA was designed to address this discontinuity between programs within the ECE system and to ensure that all programs were of high quality.

As part of the MCCA, training for staff of CDCs was to be significantly improved and specialists were to be hired to provide this training and develop curriculum. As a result, the DoD implemented a comprehensive training program for staff who provide direct care to children and for paraprofessionals. As a condition of employment, staff members are required to initially complete 6 to 8 hours of training, finish another 36 hours of training within 6 months, participate in ongoing training, and demonstrate competence (Floyd and Phillips, 2013; Thompson, 2017). Another outcome of the MCCA was that each CDC must hire a training and curriculum specialist. This specialist develops program curriculum and acts as a trainer, mentor, and coach for the staff, with the aim of making all staff members high-quality early childhood educators. In doing so, the specialist assists staff to move along an educational continuum toward obtaining a Child Development Associate credential, an associate's degree, or a bachelor's degree (Thompson,

while state prekindergarten programs continued to grow. However, emphasis on quality and workforce issues continued to increase. In 2007, the Head Start reauthorization act set ambitious goals for educator qualifications. It required that by 2013, at least half of Head Start educators nationwide have a bachelor's degree or higher in early education or a related field. However, these requirements were not accompanied by funding for commensurate compensation for the ECE workforce. The reauthorization of the CCDBG Act in 2014 further emphasized quality of care, with an increase in the portion of funds that had to be spent on quality improvement activities. A new provision required improving infant and toddler early care and education. The reauthorization also required states to establish professional development and training requirements, but like Head Start, did not contain any provision for commensurate compensation of the ECE workforce (Office of Child Care, 2014). Despite these efforts to improve quality and some funding increases, funding levels for Head Start remained

2017). The training and curriculum specialist must have, at a minimum, a combination of a bachelor's degree in early childhood education, child development, or a related field of study and 3 years of experience working with children (Military One Source, n.d.). These specialists also receive initial training and have access to additional online programs to improve their effectiveness (Ackerman, 2007).

The MCCA also requires that ECE employees be paid competitively with other DoD workers having similar backgrounds, training, and expertise. The salaries of ECE employees are based on the level of their credentials, which helps to decrease turnover and increase the number of qualified staff in the system (Floyd and Phillips, 2013; Thompson, 2017).

The entire ECE system in the military is funded through a combination of funds appropriated by Congress and parent fees (Floyd and Phillips, 2013). A mandate of the MCCA is that the appropriated funds match the totality of parent fees. All parents must pay a fee, which is set by a sliding scale that increases with family income. The current weekly "child development fee" ranges from \$59 to \$147 per child, which is 5 percent to 12 percent of family income. The fee includes 50 hours of care per week plus two meals and snacks per day (Thompson, 2017). In a study conducted in 2002, the average annual cost per child ages 6 weeks to 5 years being cared for in a DoD CDC ranged from \$6,594 for preschool (3–5 years) to \$12,133 for infants, depending upon the age of the child and the parent's branch of service. The average annual cost per child in a family ECE program ranged from \$4,512 for prekindergarten to \$5,014 for infants (Zellman and Gates, 2002).

An additional component of this high-quality ECE system is the annual unannounced inspections conducted by a multidisciplinary team, to ensure programs and providers funded by the military comply with DoD procedures, including health and safety requirements. The military also requires that all CDCs be accredited by the National Association for the Education of Young Children (Floyd and Phillips, 2013).

below the level necessary to serve all eligible children (National Head Start Association, 2017; see also Chapter 4).

Although there were no major policy changes during this time, there was an undercurrent of ongoing research that influenced public opinion and the tenor of policy discussions. The advisability of any early care and education was questioned when Belsky published an article in 1986 that concluded that early care and education for infants was a risk factor for insecure attachment, aggression, and disobedience (Belsky, 1986). Others in the field disagreed with this conclusion, arguing that confounding factors were to blame, rather than early care and education itself (e.g., Scarr et al., 1990). This tension in the field prompted the National Institute of Child Health and Human Development to launch its Study of Early Child Care and Youth Development survey in 1991, which collected information from children and their families from birth to age 15 and made the survey data available to researchers. New research was also conducted on the quality

of early care and education. The Cost, Quality, and Child Outcomes study, which was published in 1995 (Helburn, 1995), examined how the quality of care affected children's outcomes and which children were more sensitive to the effects of quality. These studies—and the debates over their findings—continue to affect the ongoing discussions surrounding early care and education and the issues related to how best to use public funds to ensure positive outcomes for children and families.

### Summary

By design, early care and education has multiple purposes, each of which has been reflected in the evolution of ECE policies over the past century. For parents, early care and education provides care and supervision of children so that parents can work, go to school, get a respite from parenting, or complete a myriad other tasks. For children, it provides learning, positive development, socialization, nurturing, play, and—particularly as they near kindergarten—a bridge to formal education. For society at large, high-quality early care and education can play an important role in preparing the next generation to be productive and educated citizens. These purposes, as well as others, have variously received priority through different ECE policies throughout U.S. history. In addition, varying and conflicting cultural beliefs and assumptions surrounding early care and education, including society's responsibility for helping the poor, the appropriateness of nonparental care of young children, the government's role in supporting working parents, whether mothers should work outside the home, and the developmental needs of children during their early years, have also shaped ECE policies. As a result, the ECE "system" in the United States is a layering of separate programs upon one another, with little cohesion or alignment between programs, inconsistent quality and attention to supporting the workforce, and a bifurcated system between ECE for low-income children and ECE for middle- and upper-class children.

### CURRENT EARLY CARE AND EDUCATION FINANCING LANDSCAPE

The use of early care and education in the United States is largely paid for by families and the public sector. Whereas public K–12 education, which is available to all children, is financed almost entirely by the public sector (local, state, and federal funding sources), early care and education typically involves substantial family funding and may include a range of public as well as other private funding streams (e.g., employers of the parents, church-related funding, foundations). According to a 2017 estimate developed by the BUILD Initiative, families pay approximately 52 percent of the

total cost of early care and education, the public sector (including federal, state, and local governments) pays about 46 percent, and the private sector (including employers and philanthropic entities) covers approximately 2 percent (BUILD Initiative, 2017).

The myriad funding streams for early care and education reflect the myriad priorities and goals—ranging from helping poor mothers work outside the home to boosting the national economy, fighting generational poverty, and narrowing the adult-life achievement gap for lower-income and racial/ethnic minority children—that have historically shaped ECE public policy in the United States. As a result, some ECE programs (and the financing that structures them) emphasize child development and education, while others focus on the role that early care and education plays in enabling parents (especially mothers) to participate more fully in the paid workforce. This section reviews the current range of sources for ECE funding: families, the public sector, and private sector stakeholders in early care and education.

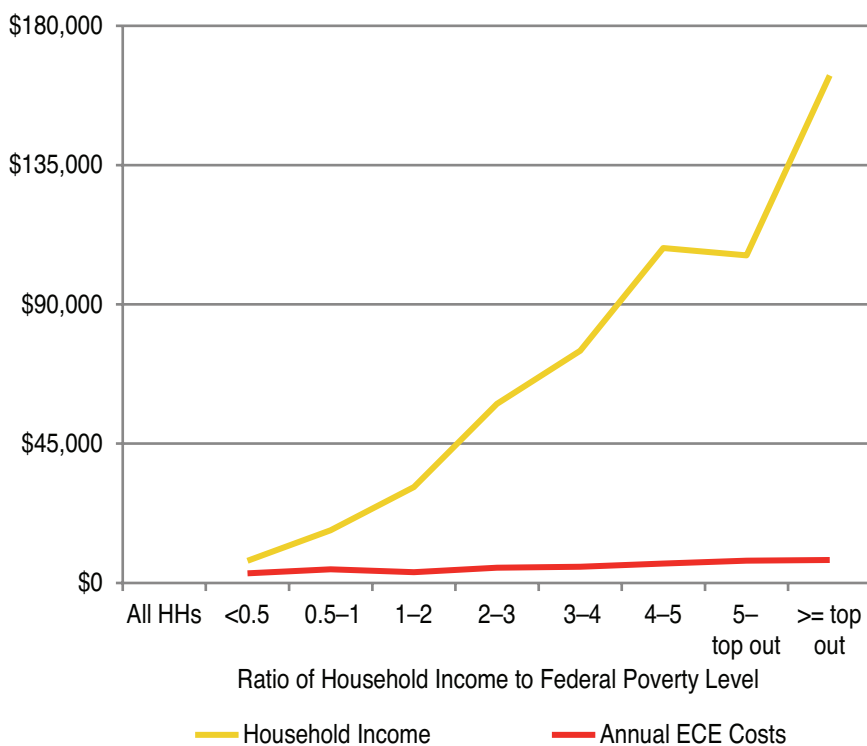
### Families

In the United States, the care and education of children younger than kindergarten age is primarily the responsibility of their families. As noted earlier, families bear the majority of ECE expenses, covering an estimated 52 percent of the costs of early care and education (BUILD Initiative, 2017). In contrast, public K–12 education is provided on a no-fee basis to all children, with about 90 percent of school-age children in the United States enrolled in the public system (Institute of Education Sciences, 2015).

The variation in types and weekly hours of early care and education used lead to wide differences in ECE expenditures across families. Nearly 70 percent of families with children ages 0 to 5 years (families who may also have children in K–12 schools and higher education) have at least one regular ECE arrangement, and three-quarters of these families incur out-of-pocket ECE costs. Average weekly expenditures for all children ages 0 to 5 years among households that pay for ECE services were slightly more than \$130 per week per child, whether the family primarily used paid home-based or center-based care. However, wide variation exists in the amount families spend on early care and education. Some families pay more because they have more children in care; other cost variations reflect the age of the child(ren), the type(s) of ECE services used, ECE prices in the family's location, and the availability (or lack) of no-fee or partially subsidized ECE options. One-quarter of families using either paid home-based care or center-based care paid more than \$180 per week per child in total ECE costs (Latham, 2017, Table 2.1). Expenditures generally rise with family income; low-income families pay, on average, under \$100 per

week, whereas those with incomes five times the federal poverty level average \$164 per week. However, while the payment amount rises gradually as income rises, the difference between payment amount and household income increases dramatically as income rises. That is, families with higher incomes have significantly more discretionary income available after paying ECE costs (see Figure 2-1).

While lower-income families may spend less on early care and education, these expenditures require a much greater fraction of the family's budget, on average, than do the ECE costs of higher-income families. As shown in Table 2-1, those with incomes below the federal poverty level spend



**FIGURE 2-1** Household income and ECE payments by household groups defined by ratio of household income to federal poverty level.

NOTE: For the purposes of assigning families to income groups and computing average income per group, a maximum income eligibility level, the level above which families would receive no assistance, was estimated. This is referred to as the “top-out income level.”

SOURCE: Data from Latham (2017), using data from the 2012 National Survey of Early Care and Education Public Data Set.

TABLE 2-1 Expenditures and Share of Income Spent on Early Care and Education (ECE), by Federal Poverty Level (FPL), Median Household Expenditure for All Children Ages 0 to 5 Years Not in Kindergarten

Household Category	All Households	<0.5 FPL	0.5–1 FPL	1–2 FPL	2–3 FPL	3–4 FPL	4–5 FPL	>5 FPL
Only Households That Pay for ECE								
Weekly expenditures	\$100	\$60	\$84	\$68	\$96	\$100	\$120	\$143
Share of income	0.10	0.21	0.19	0.14	0.11	0.10	0.09	0.06
All Households That Use ECE								
Weekly expenditures	\$44	\$0	\$0	\$23	\$47	\$80	\$86	\$113
Share of income	0.04	0	0	0.04	0.05	0.06	0.06	

NOTE: Because a small number of families spend considerably more than average on early care and education, the median weekly expenditures and share of income are presented, rather than the mean (average) expenditures.

SOURCE: Data from Latham (2017) using data from the 2012 National Survey of Early Care and Education Public Data Set.



about 20 percent of their income on early care and education, whereas those with incomes at one to two times the federal poverty level spend about 14 percent. The income share spent on early care and education declines with income, falling to 6 percent for the median-expense family with income above five times the federal poverty level. Many families, particularly those with low incomes, do not pay out-of-pocket for early care and education because they are able to access no-fee options (such as Head Start). Looking at all households that use early care and education, the median family with income below the federal poverty level does not pay for early care and education (that is, median ECE expenditures equal zero). The median family with income just above the federal poverty level, including those using no-fee care, pays 4 percent of income for ECE expenditures. For further discussion of affordability of early care and education for families, see Chapter 4.

ECE use also depends on the number of children in the family. Approximately 30 percent of children ages 0 to 5 years have a sibling who is also ages 0 to 5 years, and use of nonparental care drops off substantially for families with more than two children under the age of 5 (Latham, 2017). While some ECE providers offer a small discount for serving multiple children from the same family, ECE costs typically increase substantially for each additional child. Given the out-of-pocket cost to the family with multiple children ages 0 to 5 years, a parent may choose not to work outside the home in order to care for these children.

In sum, these patterns of ECE use and expenditures by households reflect decisions parents face in the current ECE system, with its patchwork of programs and multiple purposes. While the decision to not use nonparental care reflects parents' preferences and what is available in their local area, ECE expenditures are a sizable portion of many families' budgets; as a result, many families find ECE costs to be too high, relative to their budget (see Chapter 4).

### Federal Funding for Early Care and Education

While families bear the largest fraction of total costs for early care and education, public sector funding—from federal, state, and local sources—is estimated to contribute a nearly equivalent share. We begin with a focus on the major federal ECE funding mechanisms before turning to state and local funding.

In its most recent assessment of federal funding for early care and education, the U.S. Government Accountability Office identified 44 separate programs that, as of fiscal 2015, “(1) funded or supported early learning or child care services, (2) were provided to children ages 5 and under, and (3) delivered services in an educational or child care setting” (U.S. Government Accountability Office, 2017, p. 1). Of those 44 programs, 9 had an explicit

focus on early care and education, while the other 35 programs could be used to, but were not required to, provide various types of support for ECE programs. Another three funding mechanisms subsidized early care and education through the tax code. These federal programs, which spanned multiple federal agencies including the U.S. Departments of Agriculture, Education, Health and Human Services, Housing and Urban Development, Interior, and Justice, illustrate the complexity of public sector ECE funding at the federal level. This range of programs, with their varying purposes, eligibility criteria, and quality standards, illustrate the challenge of estimating the contribution of federal sources to early care and education.

Among the nine programs providing direct support for early care and education, 90 percent of the \$15 billion in funding as of fiscal 2015 came through two programs: Head Start (including Early Head Start) and CCDF (U.S. Government Accountability Office, 2017). Subsidized childcare through TANF is closely related to CCDF, but smaller in size. As shown in Table 2-2, ECE funding as of fiscal 2016 for the two major programs totaled \$9.2 billion for Head Start and \$4.2 billion for CCDF, while TANF added another 0.8 billion.<sup>3</sup> Table 2-2 also shows the federal tax-based expenditure programs, which together account for as much as \$5.6 billion in additional federal investment. (This figure overstates ECE support because it includes subsidies for school-age children and adults that cannot be readily separated from those for early care and education.) For each program, the table also records the target population and the financing mechanism. In the case of CCDF and TANF, while the programs in Table 2-2 originate at the federal level and are governed by federal regulations, they require or allow state contributions and allow states to establish their own eligibility or quality criteria. In general, total public funding for early care and education for children from birth to 3 years is limited, compared to funding for children of ages 4 and 5 years, even though the costs per child of high-quality ECE services are greater in the younger years (see Chapter 6). The disparity largely arises from a combination of the lack of settings serving infants, parents' desire to have younger children stay with relatives, and the fact that the bulk of funding for early care and education is allocated to programs serving only 4- and 5-year-olds.

In addition to the programs discussed in detail in this section, there are a number of other federal funding sources that are used to fund aspects of early care and education. While the total amount available for early care and education from these sources is less than the other sources described in this section, these programs provide important services and funding and are described briefly in Box 2-2.

---

<sup>3</sup> CCDF provides subsidies for children up to age 13 years. We have estimated the share of funding for children from birth to age 5 years, as indicated in the NOTES to Table 2-2.

**TABLE 2-2** Major Sources of Federal and State ECE Funding in Fiscal 2016

Program	Population Targeted	Financing Mechanism	Funding (\$billions)	
			Federal	State/Local
Subsidized Care				
Early Head Start/Head Start <sup>a</sup>	Families with income < FPL, ages 0–5 years	Direct to providers	\$9.168	–
CCDF <sup>b</sup>	Qualifying low-income families, ages 0–12 years	To providers via vouchers or contracts	3.427 <sup>f</sup>	1.307 <sup>f</sup>
TANF transfer to CCDF <sup>c</sup>	Qualifying low-income families, ages 0–12 years	To providers via vouchers or contracts	0.792 <sup>f</sup>	–
TANF direct child care <sup>c</sup>	Qualifying TANF recipients, ages 0–12 years	To providers via vouchers or contracts	0.782 <sup>f</sup>	2.776 <sup>f</sup>
State-funded prekindergarten <sup>d</sup>	Targeted or universal, ages 3–5 years	To providers via vouchers, scholarships, contracts, grants, or school-funding formulae	–	7.391
Locally funded prekindergarten	Same as state-funded	Same as state-funded	–	Not available
Tax-Based Subsidies				
CDCTC <sup>e</sup>	Working families with tax liability, ages 0–12 years (and adults)	Personal income tax credit (refundable in some states)	4.590	Not available for equivalent state programs
DCAP <sup>e</sup>	Working families with tax liability, ages 0–12 years (and adults)	Employer-administered account to pay for eligible expenses with pre-tax dollars	1.000	–

TABLE 2-2 Continued

Program	Population Targeted	Financing Mechanism	Funding (\$billions)	
			Federal	State/Local
Employer-provided child care credit <sup>e</sup>	Working families with qualifying employer, ages 0–12 years	Employer tax credit	0.010	Not available for equivalent state programs
Total			\$17.5–\$19.8	\$11.5+

CCDF = Child Care and Development Fund, DCAP = Dependent Care Assistance Program, FPL = federal poverty level, TANF = Temporary Assistance to Needy Families.

NOTES: Figures in *italics* include subsidies for school-age children or adults.

<sup>a</sup>Inclusive of all Head Start and Early Head Start spending, includes territories.

<sup>b</sup>Total federal funding for CCDF in fiscal 2016 for ages 0–12 years was \$5,711,934,663, and state contribution was \$2.1784 (Office of Child Care, 2016b). Amounts shown in table for ages 0–5 years are estimated based on the age distribution of all children served and summing up to 5, plus 50% of those ages 5–6 years, which gives an estimated 60% share of all children in the target age group. The committee applied this 60% share to total funding amounts to get an estimate of ECE funding as shown in the table (see Office of Child Care, 2016a).

<sup>c</sup>Based on data for fiscal 2015. Amount in table is an estimate of TANF childcare and prekindergarten amounts and transfers from TANF to CCDF; estimate applies same 60% share of all children in the target age group as calculated above for ages 0–5 years (see Administration for Children and Families, 2015).

<sup>d</sup>Data are from Barnett et al. (2017, Tables 2 and 6), and include total from all sources, including nonstate funds reported in some states.

<sup>e</sup>The Child and Dependent Care Tax Credit (CDCTC), Dependent Care Assistance Program (DCAP), and employer tax credit amounts are Internal Revenue Service estimates for fiscal 2016 (see Internal Revenue Service, 2016, Table 1).

<sup>f</sup>Estimated funding for children ages 0–5 years.

SOURCES: Administration for Children and Families (2015), Internal Revenue Service (2016), Office of Child Care (2016a, 2016b), Office of Head Start (2016a).

### Head Start

Head Start aims to “promote school readiness of children ages birth to five from low-income families by supporting their development in a comprehensive way” (Office of Head Start, 2017). Head Start began as a program for prekindergarten-age children and was later expanded to include Early Head Start, which directs services to infants, toddlers, and pregnant women. The majority of Head Start funding is used to support prekindergarten programs for 3- and 4-year-olds, but funds are also used for family-oriented services such as home visits, health screenings, and parental support, as well as ECE funding for infants and toddlers. Head Start serves around 1 million children each year through 1,700 agencies in local communities. It awards grants to public agencies, private organizations, tribal governments, and school systems for the purpose of operating local programs. In fiscal 2016,

### BOX 2-2 Other Sources of Funding

**The Individuals with Disabilities Education Act (IDEA)** was signed into law in 1975 with the stated goal of guaranteeing access to a free, appropriate public education for children with disabilities. Subsequent amendments of IDEA have expanded the program to include provision of services to children with disabilities from ages birth to 21 years. Specific parts of IDEA are relevant to ECE: Part B includes Special Education Preschool Grants, while Part C focuses on early intervention for children ages birth to 2 years. Congress appropriated \$368 million in fiscal 2016 for Part B's prekindergarten grants and \$459 million for Part C.

**Title I of the Elementary and Secondary Education Act** provides federal funds to local educational agencies and community providers in order to help ensure that all children are able to meet state standards for education. The funds may be used for educational programs from birth to the age at which children enter free public education. The appropriation for Title I grants to local educational agencies was \$14.4 billion for fiscal 2015, and about 2.5 percent of children enrolled in Title I-funded programs are prekindergartners.

**The Child and Adult Care Food Program** is administered by the Food and Nutrition Service of the U.S. Department of Agriculture and reimburses licensed childcare providers for the cost of serving meals and snacks to children. The food served must meet specific nutritional guidelines, and providers are reimbursed using a formula that takes into account the family income levels of the children enrolled. About 4.2 million children per year benefit from the program; this number includes children enrolled in afterschool care, childcare centers, day-care homes, and emergency shelters.

**TANF funds** are used to provide temporary financial assistance and other services to needy families. However, some of these funds may be used by states to support childcare, either directly or by transferring TANF funds to CCDF. In fiscal 2016, \$792 million in federal TANF funds were transferred to CCDF, while \$782 million federal and \$2.776 billion state TANF funds were used to pay directly for childcare.

the appropriation for Head Start programs was just over \$9 billion, or about \$9,000 per child served. Grantees must “match” the federal money with a 20 percent share of nonfederal funds, which may include cash and in-kind contributions such as space or volunteer hours.

To be eligible for Head Start programs, families must earn no more than 100 percent of the federal poverty level,<sup>4</sup> be homeless, or receive

<sup>4</sup> Programs may enroll up to 10 percent of children from families with incomes above the federal poverty level and up to 35 percent of children from families with incomes between 100 percent and 130 percent of the federal poverty level, if certain conditions are met.

public assistance.<sup>5</sup> Children in the foster care system are eligible regardless of income level. The federal poverty level is determined each year and is adjusted for families of different sizes; in 2017, the income level for a family of four in the contiguous United States to qualify for Head Start services was \$24,600 (Office of Assistant Secretary for Planning and Evaluation, n.d.). No fees for Head Start are charged to families who meet the eligibility criteria. Nevertheless, in fiscal 2016, only 31 percent of eligible children ages 3 to 5 years were served by Head Start and only 6 percent of children under 3 years were served by Early Head Start, due to inadequate funding levels (National Head Start Association, 2017). Figure 2-2 shows the age and race of Head Start beneficiaries in fiscal 2016, as well as the proportion of Head Start and Early Head Start services that were center based or home based in that year.

In 2016, the Head Start Program Performance Standards were revised in order to improve the quality of Head Start programs—the first major overhaul of these standards since 1975. The new standards have a number of provisions aimed at quality, which include

- expanding full school-day and full school-year program offerings;
- requiring professional development activities, including mentoring and coaching;
- requiring systematic use of assessment data in order to improve services; and
- aligning teaching practices, program curricula, and assessments with the Head Start Early Learning Outcomes Framework (Administration for Children and Families, n.d.).

In addition to these new standards, Head Start rules require certain qualifications of Head Start staff. The requirements include both specific competencies and formal education (commensurate compensation is not addressed; see Chapter 3). The competency requirements require that each Head Start center-based classroom must include one educator with demonstrated abilities including:

- (A) planning and implementing learning experiences that advance the intellectual and physical development of children, including improving the readiness of children for school by developing their literacy, phonemic, and print awareness, their understanding and use of language, their understanding and use of increasingly complex and varied vocabulary, their appreciation of books, their

---

<sup>5</sup> 42 U.S.C. 9840 Sec. 645.

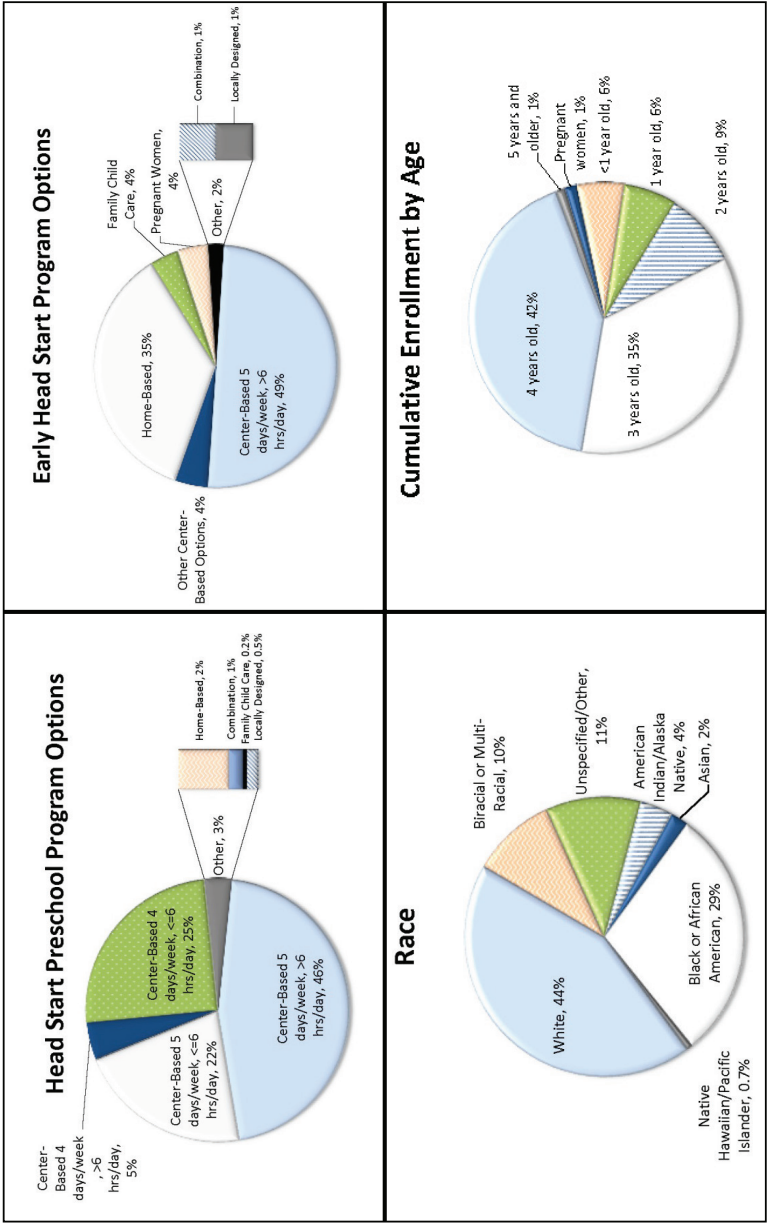


FIGURE 2-2 Head Start and Early Head Start program overview, fiscal 2016.  
NOTE: Head Start administrative data do not report race and ethnicity separately.  
SOURCE: Office of Head Start (2016a, pp. 5–7).

- understanding of early math and early science, their problem-solving abilities, and their approaches to learning;
- (B) establishing and maintaining a safe, healthy learning environment;
- (C) supporting the social and emotional development of children; and
- (D) encouraging the involvement of the families of the children in a Head Start program and supporting the development of relationships between children and their families.

(Head Start Early Childhood Learning & Knowledge Center, n.d.).

Regarding formal education, Head Start regulations require that 50 percent of Head Start educators nationwide must have either at least a bachelor's degree in early childhood education or at least a bachelor's degree and coursework equivalent to an ECE major, with experience teaching prekindergarten-age children (Head Start Early Childhood Learning & Knowledge Center, n.d.). In 2016, 60 percent of center-based Head Start prekindergarten educators held bachelor's degrees in early care and education or a related field, with 13 percent holding more-advanced degrees (Office of Head Start, 2016a). At minimum, Head Start assistant teachers must obtain either a Child Development Associate credential or enroll in a program that leads to such a credential or to an associate's or bachelor's degree.

### *The CCDBG Act and CCDF*

The CCDBG Act, first enacted in 1990 and reauthorized in 2014, provides funding through CCDF to states, territories, and tribes to help families access ECE programs. The reauthorization act lists the purposes of the CCDBG Act as:

- to allow states flexibility in developing ECE programs;
- to empower working parents to make decisions regarding ECE services;
- to help parents make informed choices about ECE services;
- to assist states in delivering high-quality early care and education in order to “maximize parents’ options and support parents trying to achieve independence from public assistance”;
- to improve the quality of ECE programs;
- to improve the care and development of the children who participate; and
- to “increase the number and percentage of low-income children in high-quality” ECE programs.<sup>6</sup>

<sup>6</sup> S. 1086 *Child Care and Development Block Grant Act of 2014*, 113th Cong., 2nd Sess. Available: <https://www.congress.gov/113/bills/s1086/BILLS-113s1086enr.pdf> [September 2017].



The CCDBG Act requires that states contribute funds to the program (Administration for Children and Families, 2016a). CCDF is primarily used for Child Care Assistance Programs (CCAP) to help families pay for ECE programs. In addition to CCDF, states may also spend federal TANF funds directly to subsidize the cost of early care and education, or they may transfer money from TANF to CCDF.

CCAP are sometimes called “voucher programs” because the family chooses the provider from which to obtain care (subject to minimum health and safety guidelines) and the state ensures that the provider is paid for the subsidized child. Some states’ CCAP use contracted slots, whereby the provider receives funds to create slots for children who are eligible for CCAP assistance.<sup>7</sup> States must “set aside” a portion of CCDBG funds to be used to improve the ECE quality generally and specifically to improve the quality of early care and education for infants and toddlers (in fiscal 2017, these set-aside portions were 7 percent and 3 percent of funding, respectively).<sup>8</sup> Whereas federal law sets a minimum for these quality-improvement expenditures, states may choose to spend more. States are required to report on their progress in improving the quality of ECE programs and are required to establish a system for professional development and training of educators and staff (Office of Child Care, n.d.). Because states set their own standards for teacher qualifications—unlike Head Start where there are national standards—there is inconsistency among states.

CCDF subsidizes care of children under the age of 13. To receive assistance, parents must be either working or participating in educational or training activities as defined by the state of residence. To be eligible, family income must not exceed 85 percent of the state median income (for a family of the same size), but states may set their eligibility criteria lower than

---

<sup>7</sup> The Administration for Children and Families, in its “Frequently Asked Questions” regarding CCDF reauthorization states, “States can award grants and contracts to providers in order to provide financial incentives to offer care for special populations, require higher quality standards, and guarantee certain numbers of slots to be available for low-income children eligible for CCDF financial assistance. Grants and contracts can provide financial stability for childcare providers by paying in regular installments, paying based on maintenance of enrollment, or paying prospectively rather than on a reimbursement basis. Without stable funding, it can be difficult for providers to pay for the higher costs associated with providing high-quality child care, particularly those in low-income or rural communities. ACF [Administration for Children and Families] encourages States to explore how grants and contracts can be used as part of a strategy to increase the supply of high-quality care and anticipates providing further guidance on the use of grants and contracts” (see <https://www.acf.hhs.gov/occ/resource/ccdf-reauthorization-faq-archived>).

<sup>8</sup> The portion of CCDBG funds that are set aside for quality (7% in fiscal 2017) must be used for 1 or more of 10 federally specified activities, which include training and professional development of the ECE workforce, a tiered quality-rating system for early care and education, improving supply and quality of ECE services for infants and toddlers, and supporting ECE providers in their pursuit of accreditation.

this federally mandated threshold. States are also responsible for setting the structure of family copayments; approximately 78 percent of families with any reported income pay some copayment for the ECE subsidy from CCDF.

Nearly 1.5 million children receive ECE subsidies from CCDF every month; 27 percent of these children are under age 3 and 28 percent are ages 3–4. In fiscal 2015, most families (49%) were below the federal poverty level, with another 27 percent of families between 100 percent and 150 percent of that threshold and 13 percent with still higher incomes. Children receiving the subsidies were cared for in a variety of settings: 73 percent in center-based care, 23 percent in paid home-based care, and 3 percent were cared for in their own homes. As noted above, 78 percent of families with reported income paid a copayment, and these copayments averaged 6 percent of family income (Office of Child Care, 2015). However, CCDBG funding levels only support a fraction of the children who qualify for the subsidies. For example, in 2012 only 15 percent of eligible children received CCDF subsidies (Chien, 2015). For further discussion of adequacy of funding and equitable access to ECE services, see the section in Chapter 4 titled “Equitable Access.”

### *Federal Tax-Based Expenditures*

Two major federal income tax benefits are designed to help lessen the burden of family ECE costs: the Child and Dependent Care Tax Credit (CDCTC) and the Dependent Care Assistance Program (DCAP). The CDCTC is a tax provision that can reduce the cost of early care and education by allowing families to claim a federal tax credit of up to 35 percent of the first \$3,000 spent on qualifying care for one qualifying child<sup>9</sup> or up to 35 percent of \$6,000 for two or more qualifying children.<sup>10</sup> The credit for a given household is determined on a sliding scale based on household adjusted gross income, with the percentage credit declining from 35 percent for lower-income families to 20 percent for higher-income families.<sup>11</sup> Thus, the value of the credit ranges from \$600 to \$1,050 for one child and from

<sup>9</sup> A qualifying child is the taxpayer’s “dependent and who was under age 13 when the care was provided” (Internal Revenue Service, 2017c, p. 3).

<sup>10</sup> The taxpayer (and the taxpayer’s spouse if filing jointly) must have earned income during the year to qualify for the credit. If an individual or spouse’s earned income is less than the amount spent on qualifying expenses, the family can claim a federal tax credit of up to 35 percent of the earned income amount. An exception to the earned income test is if the taxpayer’s spouse is a student or not able to care for themselves (Internal Revenue Service, 2017a, 2017b, 2017c).

<sup>11</sup> For tax year 2017, households earning more than \$0 but not more than \$15,000 qualified to claim 35 percent of qualifying expenses, while households earning more than \$43,000 could claim 20 percent of qualifying expenses (Internal Revenue Service, 2016, 2017b).

\$1,200 to \$2,150 for two or more children. Figure 2-3 shows the requirements a taxpayer must meet to claim a credit for child and dependent care expenses.

The CDCTC is nonrefundable; that is, families who owe less federal income tax, before the credit is applied, than the calculated amount of their potential credit receive no refund for the portion of their CDCTC that exceeds the tax owed. In cases where no federal income tax is owed, the CDCTC credit, therefore, cannot reduce a taxpayer's tax liability beyond zero, meaning it will have no value for families with no federal income tax liability. To be eligible to claim the CDCTC, ECE services must be used in order to allow a parent or guardian to work, look for work, or participate in a qualifying education or training program. Because the CDCTC is a tax credit, families must pay upfront for the ECE services and then recoup any benefit from the credit when filing their federal income tax return. Benefits apply for childcare expenses for children up to age 13, as well as care for qualifying dependent adults.

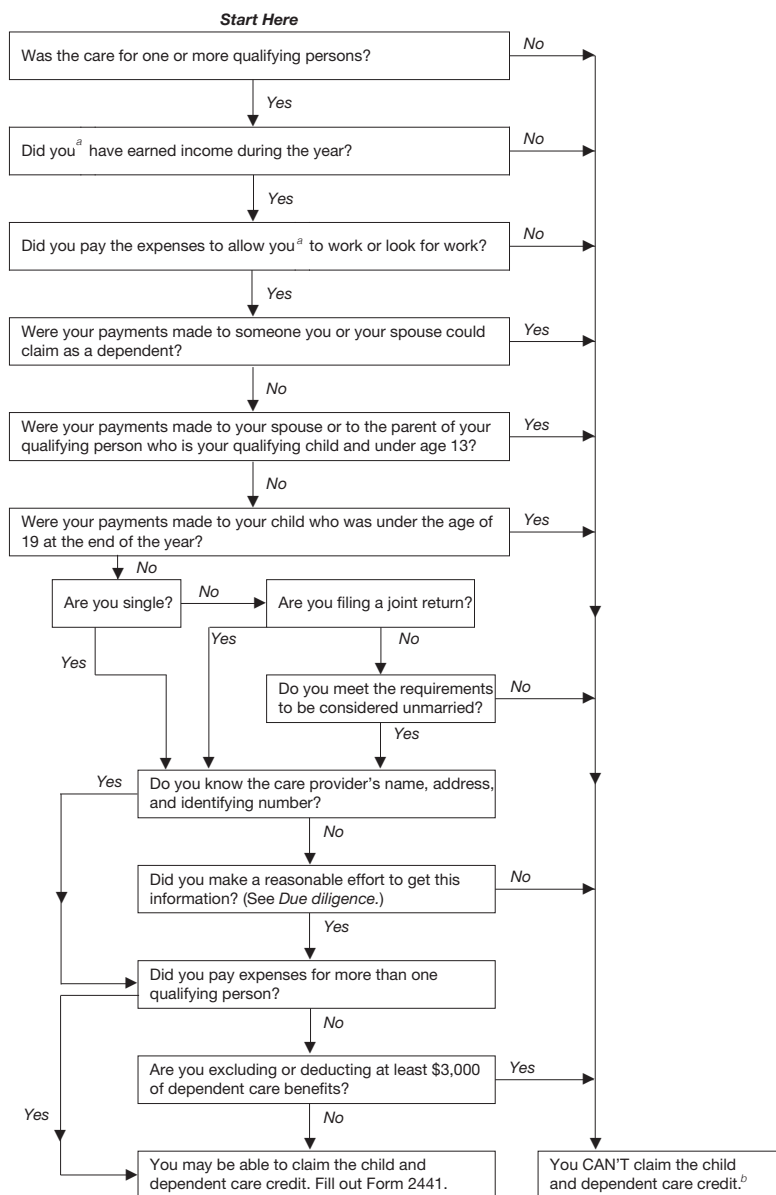
The DCAP allows parents to set aside pretax funds in a flexible spending account to pay for child or dependent care, again for children up to age 13 and for qualifying dependent adults. Households may set aside up to \$5,000 per year; the amount does not vary based on number of children.<sup>12</sup> The family benefits through a reduction in their taxable income in the amount of their contribution to a DCAP plan. Thus, if they are in a 25 percent tax bracket, and they contribute \$5,000 a year, their tax liability is reduced by \$1,250. Only parents whose employers offer a DCAP plan are eligible to participate, and set-aside funds that are unused at the end of the year are forfeited.

As of fiscal 2016, the CDCTC and DCAP were estimated by the Internal Revenue Service (IRS) to account for around \$4.6 billion and \$1.0 billion, respectively, in foregone tax revenue (Internal Revenue Service, 2016). However, these estimated totals apply to all eligible types of care, including school-age children and dependent adults; the share specific to children from birth to age 5 years is not reported, nor is it readily estimated. What is known is that the majority of the families that receive these benefits are middle-income or higher; families with adjusted gross incomes over \$100,000 receive 52 percent of the benefits, while families with incomes under \$40,000 receive less than 15 percent of the benefits (Magg, 2015).

Beyond the ECE subsidies available to families through the tax code, the IRS also encourages employers to contribute to the costs of early care and education through the federal Employer-Provided Child Care Credit (26 USC § 45F).<sup>13</sup> This credit allows businesses to deduct 25 percent of

<sup>12</sup> Taxpayers filing as "married filing separately" may only set aside \$2,500 per year (26 U.S.C. § 129).

<sup>13</sup> Available: <https://www.law.cornell.edu/uscode/text/26/45F> [April 2017].



**FIGURE 2-3** Eligibility flowchart describing who can claim the child and dependent care tax credit.

<sup>a</sup>This also applies to the taxpayer's spouse, unless the spouse was disabled or a full-time student.

<sup>b</sup>If the taxpayer had expenses that met the requirements for the previous year, except that the taxpayer did not pay them until the current year, the taxpayer may be able to claim those expenses on the current year's return.

SOURCE: Adapted from Internal Revenue Service (2017a, p. 5).

qualified childcare expenditures, as well as 10 percent of resource and referral expenditures, not to exceed \$150,000 annually. As of fiscal 2016, the foregone federal tax revenue associated with this credit was estimated at \$10 million (Internal Revenue Service, 2016).

### *State and Local Funding for Early Care and Education*

States and local communities have long been at the forefront of supporting early care and education, dating back to the earliest preschools and kindergartens started in cities at the turn of the 20th century. Currently, states and localities invest a considerable amount of money in early care and education, contributing significantly to total funding under the CCDBG Act and paying for virtually all of publicly state-funded prekindergarten programs.<sup>14</sup> Importantly, through their financing of these programs, states and localities have been responsible for setting and implementing most of the policies determining quality of and access to ECE services and coordination across the array of different ECE programs in the United States. At the same time, the ability to quantify the resources invested below the federal level is largely limited to the contributions from state governments. The resources invested by a growing number of counties and cities in pre-kindergarten programs are not yet routinely tracked.

### *Cost Sharing with Federal Early Care and Education Subsidy Programs*

As shown in Table 2-2 (above), states contribute significant funding to CCDF, and they are responsible for setting policies on key issues including eligibility, copayments, and quality. The 2014 reauthorization of the CCDBG Act sets specific parameters for these policies. For example, to promote continuity of care and desired child outcomes for children whose parents may change employment status, states must now use a 12-month window for redetermination of eligibility, rather than shorter time frames allowed previously. In addition, though a portion of CCDF funds must be “set aside” for activities that improve the quality of childcare, states have a great deal of flexibility in how they spend those funds and can choose to focus their attentions on specific areas of interest or need. States are required, however, to submit ECE plans to the federal government, and these plans must address an array of systems issues including quality assurances, workforce development, and eligibility requirements.

<sup>14</sup> Barnett and Kasmin (2016, p. 17) reported that in 2015 states contributed \$6.1 billion to state prekindergarten programs, while the federal government contributed \$0.7 billion with \$0.7 billion from local governments. State contributions to public prekindergarten increased to almost \$7.4 billion in 2016, with more than \$634 million in local funds and \$434 million in non-TANF federal funds (including preschool development grants) (Barnett et al., 2017, p. 8).

*State Funding for Prekindergarten Programs*

States invested about \$7.4 billion in prekindergarten programs during the 2015–2016 school year. These programs, which served almost 1.5 million children nationwide (Barnett et al., 2017), are heavily skewed toward older children, serving 32 percent of 4-year-olds and 5 percent of 3-year-olds in the United States. A majority of states invest some funds, with only seven states not allocating any state funds to prekindergarten programs. Both funding for and enrollment in state-supported prekindergarten programs have increased in recent years. In 2002, only 3 states served more than 30 percent of 4-year-olds in the state, but by 2016, 18 states plus the District of Columbia served more than 30 percent of their 4-year-olds. However, not all states are making significant progress; 15 states—including those that have no prekindergarten program—served less than 5 percent of their 4-year-olds in the 2015–2016 school year. While most state prekindergarten funding goes toward direct provision of early care and education, there are some funds that target specific needs of ECE programs. For example, California allocated a one-time \$10 million fund for state prekindergarten facilities in fiscal 2015 (Taylor, 2014).

State programs vary widely, both in the target population of their programs and in the specifics and standards of the program. Thirty-five of 59 state-funded prekindergarten programs require lead educators to have a bachelor's degree (Barnett et al., 2017). Thirty-four states target their programs to lower-income children, using an income requirement for eligibility. Thirty-seven programs operate only during the academic year, with two states operating year-round and the remainder determining duration of the service year at the local level. The number and percentage of children enrolled in state programs varies enormously by state. In the District of Columbia, 81.2 percent of 4-year-olds and 70 percent of 3-year-olds are enrolled. Minnesota, in contrast, enrolls only 1.2 percent of 4-year-olds and 1.1 percent of 3-year-olds. Many states focus almost entirely on 4-year-olds: Florida enrolls 76 percent of 4-year-olds and zero percent of 3-year-olds, and Oklahoma enrolls 73.8 percent of 4-year-olds and 3.1 percent of 3-year-olds in state-funded prekindergarten programs. The District of Columbia has by far the highest enrollment percentage, at 75.7 percent of 3- and 4-year-olds; Vermont follows with 55.2 percent of 3- and 4-year-olds. Per-enrolled student spending also varies, from a high of \$17,875 in the District of Columbia<sup>15</sup> to a low of \$2,328 in Kansas,<sup>16</sup> with a national average of \$5,696 per child (Barnett et al., 2017).

<sup>15</sup> The District of Columbia offers free prekindergarten to all children 3 and 4 years of age (District of Columbia Public Schools, 2017).

<sup>16</sup> To enroll in state-funded prekindergarten in Kansas, children must meet one of eight risk factors, including being eligible for a free or reduced-price lunch or having household income not greater than 185 percent of the federal poverty level (Barnett et al., 2017).

The National Institute for Early Education Research began tracking the quality of these state prekindergarten programs in 2003, using a checklist of 10 quality-standard benchmarks. These benchmarks were selected to represent “the minimum resources necessary to support high quality.” In 2016, the institute reported that most programs met at least 7 of the benchmarks, with 6 states meeting all 10 benchmarks and 13 state programs meeting 9 out of 10. However, 9 programs met fewer than half of the benchmarks (Barnett et al., 2017).

### *State Tax-Based Expenditures*

In addition to the three ECE-related federal tax expenditures, states also offer tax incentives, including tax credits, to offset the direct costs of early care and education incurred by families, as well as tax credits for employers, and business more generally, that contribute to the cost of early care and education (Save the Children, 2017; Stoney and Mitchell, 2007). Notably, 23 states have a state-level child and dependent care tax credit, similar to the credit available at the federal level (Tax Credits for Workers and Their Families, 2016). These credits allow parents to recoup some of the costs of early care and education by subtracting the credit amount from the amount of state tax owed. The credit amount is determined by the state but is often based on the amount claimed on the federal tax return for the CDCTC (e.g., usually a percentage of the amount spent on childcare, up to a maximum amount, and sometimes on a sliding scale that decreases with increasing income). Unlike the federal tax credit, 12 states have made their credit partially or fully refundable, which means that families can benefit from it regardless of whether they owe state tax (any amount of the credit above the state tax owed before applying the credit is refunded to the household). These credits range in maximum annual value to families from \$192 (Montana) to \$2,310 (New York). The aggregate value of the foregone-tax cost of the credit across the relevant states is not readily available (National Women’s Law Center, 2016).

In addition to the state tax credit available to families, employer-based tax credits are in place in some states to subsidize employer contributions to ECE costs. For example, in Pennsylvania, mirroring the federal credit, employers can receive a tax credit equal to 25 percent of costs incurred for employee early care and education and 10 percent of costs incurred for ECE resources and referrals for employees. Pennsylvania also has an Educational Improvement Tax Credit, which allows businesses to take a tax credit equal to 75 percent of their contributions to approved nonprofit ECE organizations (e.g., scholarship or educational improvement organizations). Louisiana has a number of state tax credits to benefit early care and education, including refundable credits for childcare providers, directors, and



staff and a dollar-for-dollar refundable credit for individuals or businesses that give up to \$5,000 to ECE resource and referral agencies (ChangeLab Solutions, 2016).

### Other Stakeholders in the Private Sector

The nonparental private sector (including employers, other businesses, corporate foundations, and philanthropic organizations) currently plays an important role in championing early care and education, but its financial contributions to ECE services and programs, although difficult to quantify, are small relative to the contributions of families and the public sector. Because of the service that early care and education can provide as a work-and-life support for working parents, a limited number of private employers have been leaders in offering their employees onsite care or ECE cost assistance as an employment benefit. Visionary companies have established family-friendly policies and practices that have resulted in documented greater job satisfaction, employee retention, and productivity from these expenditures (Horizons Workforce Consulting, 2016; Marcario, 2016). Some corporations and economic development entities have developed position statements in support of investment in early care and education, have established funded programs to advance recognition of the importance of early care and education and other investment in human capital in the earliest years, or have taken both these steps.<sup>17</sup> In many communities, place-based philanthropies address critical local ECE needs, including augmenting local funds to expand access to quality ECE services in their communities, building awareness of ECE options and relevant policy issues, incubating innovations and pilot programs, and supporting research and evaluation (see e.g., PNC Financial Services Group, 2017). In addition, local and national philanthropic investments in technical assistance and systems change contribute to improving quality in the ECE system.<sup>18</sup> These contributions from employers, corporate and private philanthropy, and economic development entities are discussed separately below.

### *Employers*

In addition to public funding and payments from families, another part of the funding for early care and education in the United States comes from employers. Typically, these employer contributions take the form of employee benefits or incentives, such as an onsite ECE program, resource

<sup>17</sup> See, e.g., <https://www.strongnation.org/readynation/our-work> [December 2017]; Stevens, 2017.

<sup>18</sup> See, e.g., <https://www.fcd-us.org/about-us/> [December 2017].



and referral services for finding an ECE provider, or support for quality ECE services through a direct contribution to service providers. Paid family leave policies for employees, which may allow families to delay enrolling infants in a nonparental care option, are discussed in Box 2-3.

The Society for Human Resource Management's *2016 National Study of Employers*<sup>19</sup> identified seven forms of ECE assistance that companies most often adopt (Matos, Galinsky, and Bond, 2017). These forms of assistance are listed below, along with the share (percentage in parentheses) of surveyed employers that reported offering the benefit:

1. DCAP plans that allow employees to pay ECE costs with pretax dollars (56%)
2. Access to information to help locate ECE services in the community, also known as Child Care Resource and Referral services (41%)
3. ECE option provided at or near the work site (7%)
4. Back-up ECE option for employees when regular arrangements fall through (5%)
5. Sick care for employees' children (4%)
6. Childcare for school-age children on vacation (3%)
7. Payment for ECE cost with vouchers or other subsidies that are a direct cost to the organization (2%)

As the percentages indicate, direct provision of an ECE option by employers was considerably less prevalent among these employers than allowing employees to take advantage of an employment-based tax subsidy for ECE costs they incur (discussed earlier).

Large employers<sup>20</sup> were considerably more likely to offer multiple forms of ECE assistance than smaller employers, especially forms of assistance that incurred direct costs to the employer (e.g., onsite ECE program) or indirect costs, such as compensating human resources personnel for hours spent on administering and maintaining benefits under the employer's DCAP plan. Smaller employers were more likely to provide forms of assistance such as ECE resource and referral materials or more scheduling flexibility in emergency situations than forms of assistance with direct costs to the employer (Matos, Galinsky, and Bond, 2017).

<sup>19</sup> The *2016 National Study of Employers* sample included 920 employers with 50 or more employees. Seventy-eight percent of businesses surveyed were "for profit," while the other 22 percent were nonprofit. Thirty-eight percent of businesses operated from only one location, and 62 percent operated from multiple locations (Matos, Galinsky, and Bond, 2017).

<sup>20</sup> The *2016 National Study of Employers* defined large employers as those with 1,000 or more employees and small employers as those with 50–99 employees.

### BOX 2-3 Paid Family Leave Policies

According to the report *Parenting Matters*, “access to parental leave is associated with increases in breastfeeding rates and duration, reduced risk of infant mortality, and increased likelihood of infants receiving well-baby care and vaccinations” (National Academies of Sciences, Engineering, and Medicine, 2016b, p. 197). Furthermore, parental leave can benefit maternal health and improve labor force attachment for women (see e.g., Baum and Ruhm, 2013; Berger and Waldfogel, 2004; Houser and Vartanian, 2012; Rossin-Slater, Ruhm, and Waldfogel, 2013).

The federal Family and Medical Leave Act of 1993 (FMLA) requires employers with 50 or more employees within a 75-mile radius to grant 12 *unpaid* weeks of job-guaranteed parental leave, among other types of leave. The 2016 *National Study of Employers* found that even for unpaid leave, only 75 percent of employers had policies that granted leave for all of the reasons mandated by the FMLA. Of the 25 percent of employers who do not abide by all of the tenets of the FMLA, 93 percent reported that they do not provide 12 weeks of unpaid spouse/partner (paternity) leave for parents.

Although federal requirements do not state that parents must be paid during parental leave time, sometimes employees receive a percentage of their salary as *replacement pay*. Employers surveyed in 2016 indicated that 58 percent of women received at least some replacement pay, while only 15 percent of men on paternity leave received any pay (Matos, Galinsky, and Bond, 2017). However, if the percentage of the employee’s salary that is paid is too low or an employee receives no pay, family leave is not likely to be used by lower-income people who depend on their full income to support their families (Han and Waldfogel, 2003).

Despite high-profile cases of companies such as Yahoo! extending their parental leave policies, the 2016 *National Survey of Employers* found no significant change in paid parental leave benefits for either women or men from 2012 to 2016 (Matos, Galinsky, and Bond, 2017).

In contrast, many European countries offer *paid* parental leave. The general availability of paid parental leave arrangements keeps demand for care for children under the age of 1 relatively low, as compared to demand for care for older children. For instance, Norway, which offers generous paid parental leave, saw only 3.2 percent of children under the age of 1 in ECE arrangements (Penn, 2017).

The *Parenting Matters* report notes that while some states are considering paid parental leave policies along the lines of these European models, “the implications of these policies for parents and children, as well as employers, the economy, and society, are yet to be determined” (National Academies of Sciences, Engineering, and Medicine, 2016b, p. 119). Chaudry and colleagues (2017) proposed a national paid parental leave policy as an alternative to subsidizing infant care, which according to their estimates would cost about \$19 billion per year.

As noted earlier, employers can deduct from their federal income tax (and in some cases, from state income tax) a portion of the cost of direct ECE subsidies provided to employees or the cost of ECE resource and referral services, up to a maximum amount (i.e., a cap). The IRS estimate of \$10 million in foregone tax revenue annually from the federal employer-based credit, as of fiscal 2016, can be used to generate a very rough estimate of the value of this employer-provided care. In particular, assuming a marginal federal corporate tax rate of 35 percent and assuming that all corporate deductions were for the direct provision of an ECE cost subsidy, the value of employer-provided ECE cost subsidies as of fiscal 2016 would amount to at least \$29 million (given the cap on the deduction). This is a very modest amount in comparison with the billions of dollars contributed by families, as well as the billions of dollars in subsidies provided by federal, state, and local governments.

Although an employer-based ECE subsidy may be viewed as directly or indirectly supporting the cost of ECE services for employees, these contributions effectively constitute a component of employee compensation. As with other types of nonwage compensation or fringe benefits such as health insurance, pension benefits, and so on, theoretical and empirical research by economists suggests that at least some, if not much, of the cost associated with these benefits is borne by employees in the form of lower cash compensation (Gruber, 1994; Gruber and Krueger, 1991; Olson, 2002). Thus, to the extent that employers may be counted as contributing to ECE costs, at least a portion of that contribution would be more accurately classified as being a cost borne by the employees themselves (as foregone cash compensation).<sup>21</sup> Of course, public spending on early care and education is derived from revenues from taxes on individuals and businesses, and in this way, employers are indirectly contributing to ECE spending.

### Private and Corporate Philanthropy

Private philanthropic organizations support ECE programs in a variety of ways, although estimates of the total contribution are not readily available. Examples of this sector's support for early care and education include financial contributions and leadership in piloting innovation, system-building, and quality improvement; public-private partnerships including pay for success models and shared services alliances; and advocacy for public policies to support the development of high-quality early care and education. While the committee is unaware of a systematic review of the

---

<sup>21</sup> However, ECE-related benefits are only claimed by a small share of employees in any given year. Thus, a relatively large benefit to the small share of employees with young children is paid for by a small loss of compensation for the larger group of employees.

effects of these efforts on the ECE landscape, this section describes a range of current efforts that have the potential to improve the quality of ECE services and, thus, bear further examination.

While philanthropic programs tend to be limited in scope and relatively small in their financial contributions to early care and education, compared to the contribution from families and the public sector, they may serve as models for future expansions of similar programs. Field-testing innovations through targeted pilots can provide insights and models for the public sector to consider and adopt at larger scale. Especially when combined with rigorous evaluation of results, corporate philanthropy can serve a role of incubating innovation for the more risk-averse public sector.

For example, business and community leaders created the Minnesota Early Learning Foundation in 2005 with \$20 million in private funds to seed several strategies to learn more about improving the quality of early care and education in targeted Minnesota communities. These leaders were deliberate in their insistence that the venture be purely privately funded in its beginning stage and that a rigorous evaluation of pilot efforts be conducted. The innovative effort included testing a market-based quality rating and improvement system called Parent Aware and a scholarship program for low-income children in St. Paul to access high-quality early care and education.<sup>22</sup>

Another means for contribution toward funding early care and education by corporate philanthropy is through direct contributions to community efforts and to providers, often targeting those serving at-risk children. For example, PNC is a financial services group that sponsors two early child care initiatives: Grow Up Great and Crezca con Éxito. These programs were designed to help prepare children, particularly underserved children, from birth to 5 years for subsequent success in school and life.<sup>23</sup>

Public-private partnerships have also been used to fund innovative models. Educare, for example, uses Early Head Start funds (and other federal funds), as well as funds from private philanthropy, to support 21 programs in 18 cities across the United States. Comprehensive services, including supports for families, are provided on a full-day and year-round

---

<sup>22</sup> While participation in Parent Aware was voluntary, participating ECE providers received benefits including grants and technical assistance for implementing best practices. Parent Aware aimed to drive improvements in quality through rewards and to use ratings to ensure that public dollars for childcare subsidies were distributed only to those centers that performed well with best-practice implementation. The scholarship model tested initially in St. Paul was designed to be user-friendly for parents, portable across ECE programs, and to drive parental choice of high-quality ECE options by requiring selected centers to demonstrate best practice through participation in Parent Aware.

<sup>23</sup> See: <https://www.pnc.com/en/about-pnc/topics/pnc-pov/commentary/pnc-pov-mccrady-investment-in-childrens-future.html> [January 2018].

basis to children from birth to 5 years who come from low-income families (Yazejian et al., 2017).<sup>24</sup> Focusing on data utilization, coaching and ongoing professional learning, high-quality interactions between adults and children, and school and family partnerships, Educare has shown a positive association with receptive language outcomes, significantly fewer problem behaviors, and greater auditory and expressive language skills (Yazejian et al., 2015, 2017).

In recent years, there has been growing interest in exploring pay-for-success strategies as a public-private investment in early care and education. Perhaps the most widely known example is Goldman Sachs's creation of a social impact bond for Utah's prekindergarten program.<sup>25</sup> While interest in pay-for-success is keen, implementation is still nascent and the outcomes are unknown.

Shared Services Alliances (SSAs) are another example of direct contributions to ECE services. Most ECE centers are small enterprises, with a median of 8 teaching staff and 50 enrolled children, and are thus prone to diseconomies of scale (National Survey of Early Care and Education Project Team, 2014). SSAs attempt to rectify this issue by bringing efficiencies and economies of scale to the otherwise fragmented market of early care and education, which is infamous for thin profit margins. In an SSA, a centralized hub entity provides "back-office" supports such as bookkeeping, payroll, bulk purchasing, collections, facility maintenance, and custodial services for a cluster of otherwise autonomous private ECE providers. The theory behind SSAs is that cost savings on the business side can enable greater investment in high-quality staff and pedagogical supports, increasing the quality of ECE services and ultimately leading to better outcomes for children (Opportunities Exchange, n.d.). Box 2-4 describes an SSA initiative supported by the David and Laura Merage Foundation in Colorado.

### Economic Development Entities

Organizations focused on economic and workforce development can also contribute to improving early care and education and call attention to the importance of high-quality ECE services as priorities for the vitality of communities, states, and the nation. While these contributions are rarely financial in nature, they serve a role in bringing influential attention to the need for greater public investment. Initiatives from Ready Nation, the Committee for Economic Development, and the Business Roundtable,

<sup>24</sup> Yazejian and colleagues (2017) reported that costs per child at Educare schools amount on average to \$18,268 per year.

<sup>25</sup> See <http://www.goldmansachs.com/what-we-do/investing-and-lending/impact-investing/case-studies/impact-bond-slc-multimedia/fact-sheet-pdf.pdf> [December 2017].

### **BOX 2-4**

#### **Early Learning Ventures: An SSA Example**

An innovative avenue for private philanthropy to support quality improvements in ECE service delivery is through underwriting the start-up costs for an SSA. One such initiative has been funded by the David and Laura Merage Foundation in Colorado. In 2009, these venture philanthropists launched Early Learning Ventures (ELV), a nonprofit organization committed to all children accessing early learning foundations through high-quality early care and education. The Merages believe SSAs to be a results-oriented, nonregulatory innovation that supports sustainable reform in the ECE sector. ELV formed the ELV Alliance model to build shared services among affiliates (ECE providers). Through the ELV Alliance model, high-capacity nonprofits serve as centralized hubs addressing the business-side operations for ECE providers, resulting in higher quality early care and education at a lower cost. To date, 600 ECE providers have participated in ELV, serving 35,000 Colorado children (Early Learning Ventures, n.d.).

The ELV Alliance offers three levels of service: Tiers I, II, and III. With Tier I the Alliance provides training opportunities, procurement discounts, and access to the ELV Platform, including web-based tools and resources. Tier II includes all services delivered in Tier I and adds access to CORE, an ECE management software tool, along with the option to have the ELV Alliance act as a food-program sponsor. Through CORE, technical assistance for enrollment, state licensing, and quality improvements is offered. Tier III adds comprehensive billing services for the Affiliate to all of the services available in Tiers I and II (Silverstein and Hansen, 2012).

An evaluation of the initiative analyzed the return on investment (ROI) for every dollar invested in the ELV Alliance model by both center-based and home-based affiliates. It found positive ROI for most providers, particularly for center-based providers. The ROI varied based on the level of service selected by the provider. Center-based providers experienced an ROI of \$8.08 per dollar invested for Tier I services, \$6.17 for Tier II, and \$0.61 for Tier III. The home-based providers experienced smaller ROIs of \$0.35 for Tier I, \$0.04 for Tier II, and a negative ROI, -\$0.10, for Tier III services. Since billing is a minimal cost to most home-based providers, the benefit of using this additional Tier III service was less than their cost (Silverstein and Hansen, 2012). The evaluation did not show whether these savings were passed on to the workforce in the form of increased compensation or professional supports.

for example, have been influential in raising awareness and calling attention to the significance of high-quality early childhood education as a key workforce and economic issue.<sup>26</sup> In 2017, the U.S. Chamber of Commerce Foundation launched an effort called “Workforce of Today; Workforce of Tomorrow: The Business Case of High-Quality Child Care” (Stevens, 2017), and the Virginia Chamber of Commerce released “Blueprint 2025,” the state’s economic competitiveness plan with recommendations to support high-quality early care and education in Virginia.<sup>27</sup>

## CONCLUSION

The current ECE system is a patchwork of programs with different funding streams, constituencies, and quality standards. Programs have evolved with very different goals and are situated across different areas of the government and across public and private sectors and funders. As a consequence of this piecemeal approach, the financing structure for ECE is not cohesive, with a myriad of eligibility requirements across programs. Moreover, families shoulder a heavy burden in paying for their contribution to the cost of ECE, especially low- and middle-income families, many of whom are priced out of participating in licensed, higher-quality ECE options and have to enroll their children in mediocre or low-quality programs or use unlicensed care arrangements. While a number of programs have recently dedicated funding for quality improvements and the professionalization of the ECE workforce, quality remains inconsistent across programs. These issues are explored further in Chapter 3.

---

<sup>26</sup> See <https://www.strongnation.org/readynation> [January 2018]; <https://www.ced.org/> [January 2018]; <http://businessroundtable.org/> [January 2018].

<sup>27</sup> The recommendations include: “improve access to affordable, high-quality early childhood education for Virginia’s working families; encourage employer policies and strategies that support access to high-quality early learning for families; protect the early education workforce by ensuring access to affordable, competency-building credentials and exploring strategies that value and retain this talent pool; expand public-private partnerships and mixed delivery of the Virginia Preschool Initiative; establish an integrated early childhood data system to inform financing and policymaking decisions and promote accountability; create an integrated public-private financing model that promotes innovative, flexible, and collaborative approaches to high-quality early childhood services for at-risk children; explore performance-based financing policies that incentivize and sustain high-quality early childhood services as part of Virginia’s quality improvement framework” (Virginia Chamber of Commerce, 2017, p. 10).

## 3

## Current Financing for Early Care and Education: Financing a Highly Qualified Workforce (Principle 1)

As described in Chapter 2, early care and education in the United States is funded in a variety of ways, with funding from both public and private sources. These funds are distributed through financing mechanisms, defined here as methods by which funds are distributed to entities, including providers, families, and the early care and education (ECE) workforce, in order to support the provision of early care and education. These financing mechanisms have consequences for the accessibility and quality of ECE programs. The ways in which funds are distributed and to whom can have effects on which children are served, which families benefit, and whether the care delivered is of high quality, as well as affecting the well-being and qualifications of the ECE workforce. All of these factors ultimately affect the development and well-being of the children served. Financing mechanisms may be provider oriented, family oriented, workforce oriented, or systems oriented. For example, financing that is designed to offset the cost of service delivery may be distributed directly to a provider, or financing that is designed to support pursuing credentials and other professional qualifications may be paid directly to ECE professionals. Provider-oriented financing mechanisms, family-oriented financing mechanisms, workforce-oriented financing mechanisms, and system-oriented financing mechanisms are described in Box 3-1.

In Chapters 3, 4, and 5, the current ECE financing mechanisms are analyzed with respect to the criteria that the committee developed in light of the six principles of high-quality early care and education set out in Chapter 1. The six principles with the criteria derived from them are shown in Box 3-2. In each of the three chapters, the committee discusses the advantages



**BOX 3-1****Provider-Oriented, Family-Oriented, Workforce-Oriented,  
and System-Oriented Financing Mechanisms**

Provider-oriented mechanisms, family-oriented mechanisms, workforce-oriented mechanisms, and system-oriented mechanisms all support the provision of ECE services, either directly or indirectly, and in practice these mechanisms are often combined by public agencies or provider entities.

**Provider-Oriented Financing Mechanisms**

Public or private funds that are distributed through provider-oriented mechanisms for service delivery are administered through grants or contracts to service providers. In some cases, these funds may be intended to cover the full cost of early care and education, reducing family costs to zero or near-zero. In other situations, the funds supply a share of provider revenues, relieving some financial pressure on families but still requiring some share of provider revenue to come from fees paid by or on behalf of families. As discussed in Chapter 2, the term “provider” refers to a for-profit or nonprofit entity (including schools) that provides ECE services directly to children. It does not refer to the educators or other staff as such, although in the case of home-based care, the provider and educator may be the same person. Provider-oriented mechanisms provide funds directly to these entities.

The two major programs that distribute funds through provider-oriented mechanisms are Head Start and public prekindergarten programs that are funded primarily by states or local jurisdictions (see Chapter 2 for details on these programs).

**Family-Oriented Financing Mechanisms**

Family-oriented financing mechanisms provide financial support for early care and education directly to or on behalf of individual families and enable families to pay in part or in whole the cost of purchasing early care and education. For the purposes of this discussion, vouchers are considered family-oriented mechanisms because the family chooses where to “spend” the voucher, subject to the restrictions of the voucher program. Providers only receive funding with regard to serving those individual families.

The two largest categories of family-oriented financing mechanisms are state Child Care Assistance Programs (CCAP), which are funded by both federal Child Care and Development Block Grant (CCDBG) funds and state matching funds, and federal and state income tax preferences for individual households. For the purposes of this report's discussions, vouchers are considered family-oriented mechanisms because the family is choosing where to "spend" the voucher, subject to the restrictions of the voucher program, and because providers only receive funding with regard to serving those individual families that select them. Personal income tax preferences are a family-oriented mechanism in which the financial benefit accrues directly to eligible families as an offset to ECE costs they incur.

CCAP funds are issued to families on a sliding scale, with the subsidy amount inversely related to family income, and can be used to "purchase" ECE services. Although issued to families, such funds are usually not given directly to families; rather, the funds are distributed to the provider of the family's choice, based on an agreement that the provider will accept the subsidized child. The Child and Dependent Care Tax Credit is a federal tax credit that can offset the cost of purchasing early care and education; 26 states have similar tax credits. The Dependent Care Assistance Plan allows a family to contribute pretax income to an account, from which withdrawals can be made to pay ECE costs. (See Chapter 2 for more details on these programs.)

#### Workforce-Oriented Financing Mechanisms

Workforce-oriented financing mechanisms distribute funds directly to the ECE workforce. Examples include scholarships, pay incentives, tax preferences, and reduced-rate loans.

#### System-Oriented Financing Mechanisms

System-oriented financing mechanisms distribute funds to system-level actors or organizations. For example, system-oriented financing mechanisms may support statewide quality rating and assurance systems, quality improvements in higher education, or professional development systems. In addition, state and municipal funding of colleges and universities, which sustains programs and relieves students of tuition costs, is a major system-level financing mechanism.

**BOX 3-2****Principles of High-Quality Early Care and Education  
and the Criteria Derived from Them for  
Assessing ECE Financing Mechanisms**

The committee identified six principles for a high-quality ECE system, as detailed in Chapter 1. Drawing on these principles (in *italics* below), the committee established a set of criteria by which to assess current ECE financing mechanisms that support the provision of a highly qualified workforce, adequate facilities, and continuing quality improvement. The criteria are shown as a bulleted list of questions under the principle to which they most directly apply.

1. *High-quality early care and education requires a diverse, competent, effective, well-compensated, and professionally supported workforce across the various roles of ECE professionals.*
  - Are the total funds available, combining private and public support, adequate to cover the full costs of high-quality early care and education, including the costs of recruiting and retaining a highly qualified workforce?
  - Do the financing mechanisms promote the maintenance or creation of a racially, ethnically, and linguistically diverse workforce across job roles?
  - Are funds available to facilitate the development of a highly qualified workforce, with support for higher education and ongoing professional learning?
  - Are funds available to ensure work environments support effective educator practice and promote the well-being of the workforce?
  - Do the financing mechanisms promote rational workforce compensation commensurate with qualifications, responsibilities, and competencies, across funding streams and ages of children served?
  - Are financing mechanisms available to support training for the ECE workforce in leadership, administration, and financial management?
2. *High-quality early care and education requires that all children and families have equitable access to affordable services across all ethnic, racial, socioeconomic, and ability statuses as well as across geographic regions.*
  - Are funds allocated with consideration of the differential needs of families from all income and social groups and from different types of communities?
  - Do funding levels reflect the needs (physical, emotional, and cognitive) of infants, toddlers, and prekindergarten-age children, including children with special needs (e.g., children with disabilities, refugees and immigrants, and children learning English as a second language)?
  - Do the mechanisms recognize the cost to families of providing early care and education to more than one child in a family at a time?
  - Is assistance available to all families who cannot afford high-quality early care and education, and is the level of assistance sufficient to cover the full costs?

3. *High-quality early care and education requires financing that is adequate, equitable, and sustainable, with incentives for quality. Moreover, it requires financing that is efficient, easy to navigate, easy to administer, and transparent.*
  - Are financing mechanisms designed such that ECE providers have sufficient incentives to improve and maintain the quality of service offered and that parents have sufficient incentives to seek or change to higher-quality arrangements?
  - Do federal policies offer sufficient incentives for state and local ECE programs to meet adequacy and equity goals?
  - Are financing mechanisms flexible enough to respond to broader economic changes, such as increased needs (e.g., the increased needs of families and providers associated with economic contractions)?
4. *High-quality early care and education requires a variety of high-quality service delivery options that are financially sustainable.*
  - Do financing mechanisms sufficiently consider the various times during which ECE services are needed by families; e.g., daytime, evening, weekend, or summer hours?
  - Are incentives designed to meet the constraints of different types of ECE providers, such as center-based or home-based providers? Are supports available to ensure the sustainability of rural providers, providers led by people of color, and providers in underserved communities?
  - Do financing mechanisms offer support to varying evidence-based, culturally competent approaches to development and pedagogy, while requiring that high quality-standards are met?
5. *High-quality early care and education requires adequate financing for high-quality facilities.*
  - Are financing mechanisms available and adequate to sustain quality facilities that are developmentally appropriate for children?
  - Are the financing mechanisms available to providers for facilities easy to navigate and administer?
  - Are funds available and adequate to build and maintain or rent and rehabilitate quality facilities that promote and support effective educator practice and the well-being of the workforce?
  - Are funds available and adequate to build and maintain quality facilities that serve a variety of children, including children with physical, mental, and emotional disabilities?
6. *High-quality early care and education requires systems for ongoing accountability, including learning from feedback, evaluation, and continuous improvement.*
  - Are funds available for planning and designing accountability and data systems?
  - Are funds available for monitoring and evaluation and for systemwide quality improvements?
  - Are effective processes instituted for accountability at the educator, program, and systems levels?

and disadvantages of the existing financing mechanisms and assesses the mechanisms against the criteria. This chapter examines the committee's first principle: *High-quality early care and education requires a diverse, competent, effective, well-compensated, and professionally supported workforce across the various roles of ECE professionals.*<sup>1</sup>

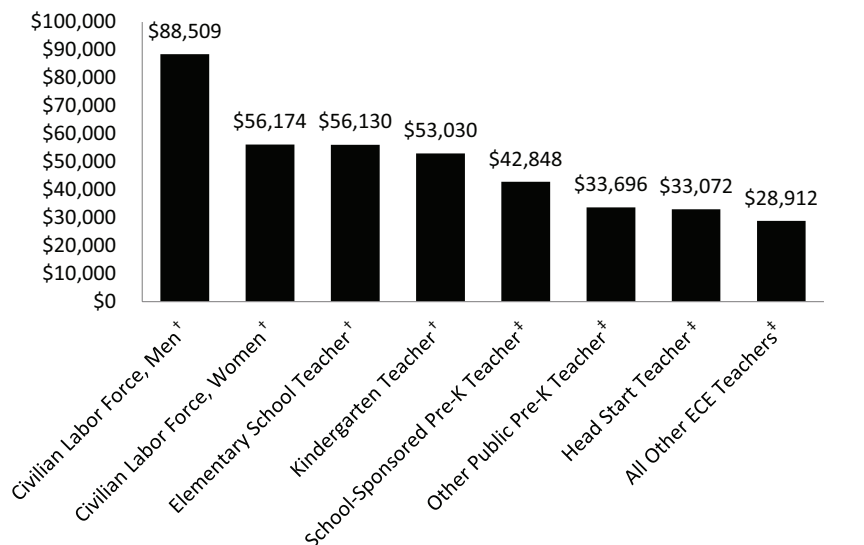
A highly qualified ECE workforce is essential to the provision of high-quality early care and education. For a workforce to be well qualified, educators and staff need to be well compensated, have affordable opportunities to access higher education, and receive appropriate ongoing support and professional development. This section explores the various mechanisms of financing a highly qualified workforce, at both the service delivery and system levels. It examines three workforce-specific aspects of early care and education: compensation; onsite staff supports and professional development; and system-level workforce development supports, including higher education and ongoing professional learning. Financing mechanisms to support the workforce can be directed either at providers or at individuals entering or already in the ECE workforce, or they may be directed at other entities such as institutions of higher education or nonprofit organizations that provide workforce development activities.

### IMPROVED COMPENSATION

Despite an increased emphasis on raising the qualifications and education level of ECE educators over the past two decades, there has not been a commensurate emphasis on raising the compensation of the workforce. The ECE workforce is paid at significantly lower levels than other professionals with a similar level of education (National Survey of Early Care and Education Project Team, 2013). Compensation for the ECE workforce, as compared to the civilian labor force as a whole and to other elementary educators, is shown in Figure 3-1. In addition, benefits for ECE professionals are limited, and these professionals are often expected to meet their professional responsibilities during unpaid hours (Institute of Medicine and National Research Council, 2015, p. 466). As a result, many ECE professionals are economically insecure and must rely on federal income supports to sustain themselves and their families. According to data from the American Community Survey (2007–2011), ECE professionals participated in public support programs at state-level rates ranging from 30 percent

---

<sup>1</sup> Chapter 4 discusses the committee's second principle that all families must have equitable access to affordable, high-quality early care and education, and Chapter 5 discusses principles 3 through 6, which focus on ensuring high-quality service delivery across a variety of settings.



Labor Force Participants	Mean Annual Salary for BA Degree or Higher, 2012	Percentage of Mean Earnings of Women in the Civilian Labor Force with BA or Higher Degree	Percentage of Mean Earnings of Men in the Civilian Labor Force with BA or Higher Degree
Civilian Labor Force, Men <sup>†</sup>	\$88,509		
Civilian Labor Force,	\$56,174		
Elementary School Teacher <sup>†</sup>	\$56,130	99	63
Kindergarten Teacher <sup>†</sup>	\$53,030	94	59
School-Sponsored Pre-K Teacher <sup>†</sup>	\$42,848	76	48
Other Public Pre-K Teacher <sup>†</sup>	\$33,696	59	38
Head Start Teacher <sup>†</sup>	\$33,072	58	37
All Other Early Care and Education Teachers <sup>†</sup>	\$28,912	51	32

**FIGURE 3-1** Compensation for the ECE workforce, 2012.

NOTES: Annual wages calculated by multiplying the hourly mean wage by 40 hours per week, 52 weeks per year. ECE = early care and education.

<sup>†</sup>The wages are based on 1,360,380 elementary school teachers and 157,370 kindergarten teachers (Bureau of Labor Statistics, 2014).

<sup>‡</sup>Data from National Survey of Early Care and Education Project Team (2013, Table 17).

SOURCE: Institute of Medicine and National Research Council (2015, p. 467) (adapted from Whitebook, Phillips, and Howes, 2014). Reprinted with permission from the Center for the Study of Child Care Employment, Institute for Research on Labor and Employment, University of California, Berkeley.

(Minnesota) to 59 percent (New York).<sup>2</sup> This economic insecurity, with its many stressors, undermines the ECE workforce's ability to provide quality care for young children (Bueno, Darling-Hammond, and Gonzales, 2010; Whitebook, Phillips, and Howes, 2014). See Chapter 1 for further discussion of the current financial insecurity of the ECE workforce.

Moreover, as reported in the *Transforming* report, benefits for the ECE workforce are limited and vary greatly by job title and ECE setting (National Research Council, 2012, pp. 134-138).<sup>3</sup> For home-based providers in particular, it is uncommon for ECE professionals to receive paid benefits (Child Care Services Association, 2012).

Inadequate compensation also contributes to instability in the workforce. According to Whitebook, Phillips, and Howes (2014), nearly one-third of ECE practitioners who have left Head Start jobs have done so because of inadequate compensation.<sup>4</sup> In 2012, the mean turnover rate for ECE educators in centers was 13 percent (which varied by type of center from a 27 percent turnover rate for educators working in for-profit centers to an 8 percent turnover rate for educators working in religious organization-sponsored not-for-profit centers) compared to a less than 8 percent turnover rate for kindergarten through grade 12 (K-12) educators (Whitebook, Phillips, and Howes, 2014, p. 30; Goldring, Taie, and Riddles, 2014, p. 6). This instability in the workforce can decrease the quality of ECE services by disrupting the continuity of care for children, inhibiting quality improvement, and increasing program costs (Whitebook, Phillips, and Howes, 2014).

The *Transforming* report concluded that requirements for higher levels of education and competencies must be linked with fair compensation in order to recognize the professionalization of the ECE workforce and promote workforce recruitment and retention (Institute of Medicine and National Research Council, 2015, p. 478). Turnover of the ECE workforce,

---

<sup>2</sup> The 2007–2011 America Community Survey measured annual program participation rates in public support programs (the Earned Income Tax Credit, Medicaid, Medicaid/Children's Health Insurance Program, and food stamps [the Supplemental Nutrition Assistance Program]) for families of ECE professionals (Whitebook, Phillips, and Howes, 2014, p. 90).

<sup>3</sup> Thirty-one percent of center-based ECE practitioners had access to health care benefits according to data from the 2010 Bureau of Labor Statistic's National Compensation Survey, compared to 60 percent of practitioners working in elementary and secondary schools. Similarly, only 30 percent of center-based employees and 47 percent of prekindergarten educators had access to retirement benefits, as compared to 69 percent of employees in all industries (National Research Council, 2012).

<sup>4</sup> According to Kaplan and Mead (2017, p. 14): At the time of the 2007 reauthorization, Head Start teacher turnover was 11 percent annually. In the last eight years, turnover has increased to 16.5 percent. Among Head Start teachers who leave, 33 percent report leaving for higher compensation. For the last three years, Head Start has lost over 6,000 teachers during each school year, and this only reflects teachers who leave during the school year.

like workforce turnover in other settings, also carries costs, as providers incur additional costs for hiring and training of new employees (Whitebook and Sakia, 2004).

Given that ECE compensation is low and stagnant, relative to growth in compensation for other occupations, adequate compensation linked to qualification requirements is needed (see, e.g., Blau, 2000; Institute of Medicine and National Research Council, 2015). Three main mechanisms for raising compensation are available: provider-oriented and family-oriented financing mechanisms aimed at increasing base pay, and workforce-oriented financing mechanisms in the form of wage supplements and tax credits. The advantages and disadvantages of each mechanism, with respect to the committee's first principle, are discussed below.

### **Provider-Oriented and Family-Oriented Mechanisms**

Increasing base pay can be done through contracts between funders and providers (a provider-oriented financing mechanism) that set compensation levels or compensation parity requirements. While this is the most direct way to guarantee that ECE professionals are adequately compensated, initiatives to increase base pay are “rare within the early childhood field” (Whitebook, McLean, and Austin, 2016). New Jersey's, Oklahoma's, and Alabama's prekindergarten programs are exceptions where compensation stipulations have been built into the programs. In New Jersey, the state-implemented regulations require that school districts ensure that compensation for lead educators and assistant educators in Head Start settings and private providers under contract is comparable to that of K–12 educators or educator assistants employed by the school district. In Alabama, prekindergarten educators across settings receive the same starting salary and receive annual raises in line with the raises for K–12 educators (McLean, Dichter, and Whitebook, 2017). Likewise, the military ECE program (see Box 2-1 in Chapter 2) benchmarks compensation to the federal pay scale, ensuring parity with other similarly qualified professionals.

These programs are making strides to increase compensation for their workforce, and a growing number of programs, especially state-funded prekindergarten programs are pursuing this approach (Barnett and Kasmin, 2017). Conversely, publicly funded programs such as Head Start and CCAP have largely dealt with improved compensation as an add-on rather than as a cost of the service, or they have ignored the issue all together. Individual Head Start programs set their own salaries, with no ongoing policy or guidance from the federal government and only sporadic allocation of additional federal funds for compensation. Federal funding for wage increases for Head Start educators was allocated in the mid-1990s, but compensation for Head Start educators has not been directly addressed since then, despite



raising the requirements for education level and qualifications of the Head Start workforce. Head Start pay levels for baccalaureate-level educators are substantially below pay for baccalaureate-level educators in school-sponsored ECE programs and even further below the average salaries of other occupations that require a baccalaureate-level degree (Whitebook, Philips, and Howe, 2014). State initiatives on ECE workforce compensation through the Child Care and Development Fund (CCDF) have similarly employed add-ons to deal with the problem of inadequate compensation, using quality set-aside funds to enhance compensation, rather than integrating improved compensation for the workforce into the cost of providing early care and education (Kaplan and Mead, 2017). Moreover, family-oriented mechanisms, particularly tax preferences, are not well suited to improving the compensation and qualifications of the workforce. While tax preferences can help relieve the financial burden on families, this does not translate to additional money in the system for supporting the workforce.

### **Workforce-Oriented Mechanisms**

Workforce-oriented mechanisms distribute funds directly to the workforce. Workforce-oriented mechanisms that attempt to periodically improve the compensation of the ECE workforce include wage supplements and tax credits (neither of which lead to lasting and stable increases in compensation).

#### *Wage Supplementation*

Wage supplementation strategies—methods for delivering compensation for employment that is in addition to regular, ordinary wages—have also been used to increase the compensation of the ECE workforce (Whitebook, McLean, and Austin, 2016). Wage supplementation is often designed to complement higher education or professional training of the workforce, in that the supplements are aimed at preventing workforce attrition once ECE educators earn higher-education credentials. Wage supplementation may also be intended to promote stability in the ECE workforce by rewarding educators who remain employed by their center for specified time periods (e.g., every 6 months). Wage supplementation awards vary by type of payment and method of dispersion. Some states pay participating ECE educators directly (see Box 3-3 for one example), while others entrust ECE centers with distributing funds to their employees (Mitchell, 2012). In addition to cash awards, wage supplements can be allotted in the form of better employee benefits. For example, employees of ECE centers that participate in higher-education plans, such as North Carolina’s Teacher Education and Compensation Helps (T.E.A.C.H.) program, may be eligible for lower-cost group health insurance programs (Child Care Services Association, 2017b).

**BOX 3-3****The Child Care WAGE\$ Project for Wage Supplementation**

The Child Care WAGE\$ Project is administered by nonprofit organizations in 5 of the 24 states that participate in the T.E.A.C.H. program. This project, which began in North Carolina in 1994, aims to reduce both center turnover and barriers to increasing ECE educator education levels.<sup>a</sup> The program provides education-based salary increases to induce retention in the ECE workforce by implementing wage-supplement levels with ascending bonuses for each level of education or for hours of education completed toward a degree.<sup>b</sup> For example, Florida offers eight levels of wage supplements ranging from \$200 for educators with 6 hours of coursework in early care and education and a state credential to \$3,000 for educators with a master's degree in early care and education or a bachelor's degree in early care and education plus 18 hours of additional coursework. The Florida program provided \$9.1 million in salary increases for 5,355 educators in 2016. Of these participants, 62 percent were people of color or of Hispanic origin, and virtually all were women (T.E.A.C.H. Early Childhood National Center, n.d.). Ninety-one percent of WAGE\$ recipients are in center-based settings (Head Start, prekindergarten, other ECE centers), while 9 percent are in home-based care (T.E.A.C.H. Early Childhood National Center, 2016).

<sup>a</sup> See <http://teachnationalcenter.org/child-care-wage/the-history-of-wage/> [November 2017].

<sup>b</sup> The eligibility requirement to participate in Child Care WAGE\$ is often the same as the requirement for T.E.A.C.H., although the minimum work hours per week is sometimes lower.

Although wage supplementation is the most common strategy for increasing compensation, there are several disadvantages to how it has been implemented to date, in terms of ensuring the well-being and adequate compensation of the ECE workforce. First, the typical amount of current supplements is low and not sufficient to raise compensation levels to levels adequate for supporting recruitment and retention of a highly qualified ECE workforce. For example, the Child Care WAGE\$ Program described in Box 3-3 provided an average of about \$1,700 per educator in 2016 (T.E.A.C.H. Early Childhood National Center, 2016). Moreover, current wage supplements are not at levels high enough to give ECE professionals economic security, which adversely affects their well-being and their ability to deliver quality services to the children in their care (Whitebook, McLean, and Austin, 2016).

Second, wage supplements are used by less than one-third of states (15 states in 2012) and reach less than 2 percent (or 28,688 professionals) of the workforce in 2012 (Administration for Children and Families, 2013a). Moreover, they are usually restricted to particular groups of ECE professionals in the state: only those making below a certain amount or working

in particular programs or only those who meet particular education and training requirements. In their current form, they are therefore insufficient to address the needs of all ECE professionals.

Third, over time, wage supplements may replace the amount of compensation increase a provider would have paid in response to inflation and labor market demands (often referred to as “fiscal substitution”) and thus ultimately may not result in a net increase in compensation (Brandon and Scarpa, 2006). Finally, because funding for supplements is an add-on to ECE budgets, it is vulnerable to budget cuts and economic downturns, making it difficult to recruit and retain professionals who cannot rely on insecure funds when making employment decisions.

### *Tax Credits*

Another method for increasing the net value of compensation to the ECE workforce is the use of state tax credits. Both Louisiana and Nebraska use this approach to supplement wages, rather than offering cash awards. Louisiana’s system offers refundable tax credits for ECE professionals. To be eligible, ECE professionals must work in centers that participate in the state’s quality rating and improvement system, and the benefit is offered as a refundable credit. When originally implemented in 2008, the credits ranged from \$1,500 to \$3,000, based on the ECE professional’s level of education; the amount has increased annually based upon the consumer price index (Mitchell, 2012). The main priority of the program is retention; specifically, to encourage highly qualified ECE professionals to work in lower-rated programs in order to close the quality gap among centers (Louisiana Department of Education, 2017b).<sup>5</sup>

Similarly, Nebraska’s refundable tax credit is available to professionals who have attained the minimum qualification of a child development associate (CDA) credential and who are employed by a provider that participates in the state’s Step Up to Quality program.<sup>6</sup> In addition, professionals must participate in additional ECE professional development to get the credit. The amount of the credit ranges from \$500 to \$1,500 (Nebraska Department of Education, n.d.).

Though these tax credit initiatives provide financial benefits for some ECE professionals, again, implementation of tax credits for ECE

---

<sup>5</sup> While the tax credits aim to increase compensation for the ECE workforce, they have also incentivized and assisted in the attainment of credentials for ECE practitioners in the states. Since the establishment of the tax credits in 2008, the number of ECE professionals in Louisiana engaged in professional development activities has increased from 1,247 to 5,853, and the number of ECE professionals that strengthened their credentials increased from 284 to 2,156 (Louisiana Policy Institute for Children, 2016).

<sup>6</sup> The Nebraska program is capped at a certain level and is scheduled to sunset. Therefore, it may not be available to eligible ECE professionals in the state.

professionals is limited. The example of Louisiana indicates that refundable tax credits for ECE professionals is a valuable strategy for increasing qualifications among the ECE workforce, but the amount of the currently available credits is low and while providing some financial relief do not make up for low base wages. For example, the median wage for ECE professionals in Nebraska was \$9.43 per hour in 2015, and the median wage for preschool educators was \$15.31. Nebraska's maximum tax credit is \$1,500, or less than an additional dollar per hour for those working full-time (Center for the Study of Child Care Employment, 2016). Moreover, the credits do not increase monthly take-home pay; rather, professionals must wait until the end of the tax year to access the funds.<sup>7</sup> However, as compared to wage supplements, tax credits might provide greater stability in that they could be designed so as not to be subject to the vagaries of annual appropriations, and legislative changes to the tax code itself would be required to dissolve the tax credits. Greater stability allows professionals making career decisions or students choosing a career path to rely upon more dependable components of total compensation as a factor in their decision making.

### Summary: Improved Compensation

In sum, efforts to date have been inadequate to increase the compensation of ECE professionals to levels equivalent to the compensation of peers with similar education in other occupations. Financing mechanisms such as wage supplements and tax credits, while useful for temporarily providing some financial relief to some ECE professionals, do not markedly change the underlying base salary that the ECE workforce receives. In addition, most of the existing programs are small relative to the size of the workforce and limited to a specific subset of ECE professionals.

Raising base pay for the ECE workforce through contracts is the most direct way to ensure that adequate compensation reaches them and provides a predictable and steady increased annual salary for prospective and current educators. However, current efforts to raise base pay are constrained by insufficient levels of funding for direct service delivery. Moreover, compensation levels for ECE educators are already highly variable across funding streams, ages of the children served, and center- or home-based settings; mechanisms that raise compensation for only some of the ECE workforce may exacerbate these differences, rather than ameliorating them. Effective mechanisms for improving compensation across the board are needed.

In a field with a largely non-unionized workforce and a substantial for-profit sector, it is unlikely that the labor market for ECE educators will

---

<sup>7</sup> Of course, some professionals may prefer annual lump-sum credits for financial planning purposes, as these lump-sum amounts may be easily invested to improve long-term financial sustainability such as making a down payment on a car or home.

adjust upward due to a few targeted mechanisms that supplement compensation in specific programs, absent some standards or guidelines related to the distribution of funds to the workforce. What is needed is implementation of policies that ensure adequate compensation, while ensuring that costs do not fall on already overburdened families.

## ONGOING PROFESSIONAL LEARNING AND HIGHER EDUCATION

Improving the knowledge and competencies of the ECE workforce requires access to affordable, high-quality preservice training, including higher education, for those entering the field, as well as high-quality ongoing professional learning and training for the incumbent workforce.<sup>8</sup> Onsite professional learning and professional development supports are financed at the service delivery level, while additional workforce development supports and financing for system-level workforce development supports—including ongoing professional learning and higher education—are financed at the system level. As noted above, in the current system the cost of direct service delivery does not adequately cover these components. Instead, payment for direct service delivery covers basic, day-to-day early care and education, with often inadequate funds carved out for workforce supports.

In the sections below, the committee reviews the financing mechanisms currently available to support the professional development of the ECE workforce—through higher education and ongoing professional learning—and examines whether these mechanisms facilitate the development and support of a highly qualified workforce by increasing affordability and access to high-quality training and education and whether they promote the maintenance or creation of a diverse workforce across job roles.

### Higher Education

This section reviews the workforce-oriented and system-oriented financing mechanisms available to the ECE workforce to pursue higher education credentials. While pursuit of bachelor's-level degrees or higher is important for lead teachers, the *Transforming* report also emphasized the need to build pathways toward this qualification. For this reason, financing to support ECE professionals in pursuing CDA credentials, associate's

---

<sup>8</sup> Currently, the educational backgrounds of the ECE workforce vary greatly across settings, ranging from educator staff with limited formal education to educator staff with bachelor's degrees or higher. According to Whitebook, McLean, and Austin (2016, p. 31), "people of color are disproportionately concentrated in lower-status and lower-paying jobs in certain settings and have limited representation in administrator and director roles or in lead educator and other team-leadership roles" (see also Chapter 1).

degrees, and other professional credentials is important. Box 3-4 describes examples of innovative supports for strengthening the qualifications of the ECE workforce and building pathways toward a BA-level degree, and Box 3-5 describes ways in which the workforce development system can be used to support the development of the ECE workforce.

### **BOX 3-4** **Initiatives to Build ECE Workforce Qualifications**

Apprenticeship programs are one way to build ECE workforce qualifications. As a member of the 2016 Compete Midwest initiative, the University Children's Center and LUME Institute in St. Louis, Missouri, for example, developed a state-run apprenticeship program to further the state's ECE improvement goals. Missouri's ECE apprenticeship program provides a path for individuals who are unemployed or from minority backgrounds to learn and benefit from paid supervised training in early care and education. Target applicants include members of traditionally underserved groups such as veterans, minorities, and young people. Specifically, the city of St. Louis aims to recruit potential apprentices who reside in public housing projects or are single mothers. A high school degree is required to participate.<sup>a</sup>

Steps toward completing an ECE apprenticeship in Missouri include completing 135 hours of childcare instruction training over 5 weeks. Training is provided by the LUME Institute, an institute for early child development research. After 135 hours of formal instruction, participants complete another 480 hours of on-the-job training. At the conclusion of this training, apprentices earn CDA credentials and can become assistant educators, who earn approximately \$10.50 per hour. If apprentices stay in the field for a continuous 1.5 years, they earn CDA certification and a wage increase to \$13 per hour.<sup>b</sup> Through the program, apprentices earn CDA credentials on the job that can be applied toward earning an associate's degree. Employees are also eligible to receive 9 hours of college credit at Missouri state universities for this training program and can apply the credits toward any future degree (LUME Institute, 2016).

Similar programs aimed at helping high schoolers attain a CDA credential upon graduation exist throughout the country, including in Utah, Florida, and Alabama. Between 2012 and 2017, roughly 1,500 high school students have earned their CDA credentials in these programs (Jacobson, 2017). As part of the high school-level career and technical education program in Washington, D.C., students are required to complete 120 hours of child development course work as well as 480 hours directly working with young children. As part of the program, students are paid to work in licensed ECE centers throughout the city as part of the District's Summer Youth Employment Program (Chandler, 2017).

<sup>a</sup>See <https://www.stlouis-mo.gov/government/departments/slate/news/early-childhood-education-apprenticeship.cfm> [January 2018].

<sup>b</sup>See <http://news.stlpublicradio.org/post/apprenticeship-pilot-program-train-child-care-workers-st-louis#stream/0> [January 2018].

**BOX 3-5**  
**Using the Workforce Development System  
 to Build ECE Workforce Credentials**

Workforce Innovation and Opportunity Act (WIOA) funding primarily consists of formula-based funding from the federal government to states, which distribute the funds to local areas and regions. State workforce boards, constituted to represent employers and core partners, with other board members selected by the governor, oversee the development of state plans detailing the focus and delivery of services. Local or regional boards develop plans for services aimed to meet the needs of local communities, including job seekers and employers. States and local areas are directed by the law to focus resources for training on programs that will yield industry-recognized credentials in high-demand/high-growth occupations and jobs that pay higher than average wages.

The WIOA system and multiple programs that are available to support the training and advancement of workers present many opportunities for furthering the goals laid out in the *Transforming* report. However, they also present challenges, given their broad mission, limited funding, and widely varying implementation in states and communities across the country.

The WIOA system is under-resourced; it lacks the “extra” resources that would be required to support a broad effort to educate, train, and improve the professional skills of the ECE workforce. Local entities must make difficult choices about where to focus scarce dollars, and decisions are driven by projected demand and the potential wages that job seekers can learn. Without a pipeline created to support advancement from low-paying jobs in the ECE sector, the WIOA system is unlikely to prioritize early care and education. Furthermore, WIOA aims to link workforce and economic development; because early care and education is not perceived as an engine of economic growth, it is unlikely to get high priority from local leaders.

At the same time, as efforts are made to create career pathways within the ECE sector, the WIOA system may come to consider the entry-level ECE work-

### *Workforce-Oriented Financing Mechanisms*

Although the committee recognizes that a number of financing mechanisms are available to the general public to pursue higher education—and thus a number of prospective or incumbent ECE professionals are likely to qualify for these mechanisms—the committee has focused on the current financing mechanisms specifically targeted to support the ECE workforce, and we discuss them first below. We then provide an overview of some of the general higher-education supports that may be available to an ECE professional and discuss the strengths and weaknesses of these nontargeted supports as they apply to prospective or current ECE professionals.



force as it has now come to view the direct-care workforce: as an opportunity to use limited training dollars to help disadvantaged populations access better paying jobs, while meeting the needs of employers. Those leading efforts to transform the ECE workforce can rely on the career pathway framework and sectoral strategies in developing a system of training and advancement for workers. Models and innovations exist—for example, from the direct-care workforce—that can be drawn upon in developing these strategies.

The infrastructure of the WIOA system can itself be a foundational building block for supporting the education and training of ECE workers. Through one-stop centers, individuals could receive information on services and assessment of needs to direct them to available training and supports. Although the WIOA system focuses primarily on unemployed workers, a portion of participants is employed. Resources for short-term training and the attainment of connected stackable credentials could be accessed through this workforce system.

The business community that actively participates in WIOA as a part of federal law may also be a source of support in efforts to improve the quality of the ECE workforce. Increasing public knowledge about the importance of early care and education and the impact it can have on the adult-life skills of the workforce, and ultimately on the bottom line of companies, could provide the impetus for pushing the public workforce system to make early care and education an increasing priority. For instance, implementers could identify select states or localities for implementing pilots that have expanded public prekindergarten.

Given the limited resources and broad charge of the WIOA system, additional resources would need to be brought to bear to make this workforce system the center of reform efforts. Efforts to create advancement opportunities and to educate business and community leaders about the importance of advancing the ECE workforce could bring greater alignment with the WIOA system, which offers an infrastructure for supporting the workforce needs of job seekers and employers in local communities.

*Higher-education support specifically targeting the ECE workforce.* Currently, funding to support higher education for the ECE workforce comes from a variety of sources, including federal, state, and institutional aid programs. Funds are distributed specifically to the ECE workforce through financing mechanisms such as student loans, grants and scholarships, and tax preferences. Provider-oriented mechanisms may also include funds to support staff members' pursuit of higher education, though these are rare in the current system. Part of Head Start's training and technical assistance set-aside funds, for example, have been used to provide resources to ECE educators to attend college. For many in the ECE workforce who do not have the resources to pay for higher education out of pocket, the availability of these financial resources is critical. At the same time, improving the



earnings and employment prospects of this group is necessary to justify the financial costs required to complete a degree. To date, however, increasing one's educational qualifications has not produced markedly higher compensation for ECE educators (see the discussion in the section above on "Improved Compensation").

Even so, many ECE educators who do attain additional credentials have taken on student-loan debt to do so. While the amount of debt varies tremendously by school and program of study chosen, U.S. Department of Education data on certain ECE-relevant bachelor's degree programs at for-profit colleges suggest that annual per-student debt payments fall between \$1,349 and \$2,813. This corresponds to between 6 percent and 9 percent of a student's total annual earnings, or anywhere from 25 percent to 32 percent of discretionary income. Although students at public higher-education institutions are likely to take on much smaller debt loads due to their lower tuition levels at these institutions than the for-profit colleges, increasing demand for bachelor's degrees among the ECE workforce could also trigger expanded enrollments at the for-profit institutions. This change could result in a net increase in the total debt load for ECE professionals, unless additional scholarships and other financial supports are made available.

Available ECE-workforce-oriented financing mechanisms are inadequate to systematically transform this workforce. While a number of programs support the educational attainment of the ECE workforce, they are limited in scale. For example, the T.E.A.C.H. scholarship program<sup>9</sup> provides financial assistance for current ECE educators and operates in 23 states and the District of Columbia with the support of a variety of partners (including United Way, foundations, and corporate sponsors) and both public and private funding sources (including CCDBG funds, Race to the Top Early Learning Challenge grants, and local and state general funds).<sup>10</sup> Although the structure of the program is generally similar across states, the amount of support given to the workforce and the total funding varies by state. For example, in Wisconsin T.E.A.C.H. provides 75 percent of the total cost of tuition and books, as well as reimbursement for 15

---

<sup>9</sup> These scholarships are another aspect of the T.E.A.C.H. program referenced in Box 3-3 above, which should not be confused with the federally provided TEACH grants discussed below as a general support for higher education.

<sup>10</sup> To be eligible for a T.E.A.C.H. scholarship, educators must currently hold a high school diploma or General Equivalency Diploma, work for a licensed ECE provider, earn below a set hourly wage threshold, and work a minimum number of hours per week. Providers agree to allow release time to educators for class attendance, reimbursable at an hourly rate by T.E.A.C.H. The T.E.A.C.H. program also pays for a percentage of the tuition not covered by outside aid at an approved college or university. Participating ECE professionals commit to remaining in their current center for a period of time following degree completion, while the provider for which they work commits to increase the professional's wages upon degree completion.

hours per semester at \$12.50 per hour. Participating ECE professionals are required to pay 10 percent of tuition and 25 percent of cost for books and to remain in the center for which they were working for a year following degree completion. The center for which they work is required to fund 10 percent of tuition, as well as a 2 percent pay raise upon the individual's completion of the degree program. Costs of scholarships for family-based ECE providers are shared at a 90 percent to 10 percent split. A noteworthy point is that Wisconsin operates a waitlist for this T.E.A.C.H. scholarship program, indicating that demand exceeds available funding. The proportion of the Wisconsin ECE workforce served by the program is small.

Targeted financing mechanisms to support professionals with culturally, linguistically, and professionally diverse backgrounds in their pursuit of higher education are important to reducing the racial and ethnic stratification present across job roles in the current ECE workforce. Existing research literature has documented that adult students who are also working full time and students who are the first generation of college entrants in their families may need additional supports to achieve their higher-education goals (see, e.g., Dennis, Phinney, and Chuateco, 2005; Flores, 2014; Perna, 2010; U.S. Department of Education, 2010; Whitebook et al., 2013). Programs with such features as financial aid, flexible class schedules, and paid release time to attend classes, among others, may be more likely to help reduce stratification of the ECE workforce by ensuring success for those ECE professionals who undertake improving their educational qualifications (see Box 3-6). The T.E.A.C.H. scholarship program has a number of these features, and participation in the program is diverse. In this way, T.E.A.C.H. scholarships may help to disrupt stratification of the ECE workforce by creating opportunities to access education and achieve educational goals, though as noted above, the program is limited in scale.

***General higher education supports available to the Early Care and Education workforce.*** Direct federal aid for higher education for students is almost entirely a voucher-based system, where money flows to students who are enrolled at their choice of school, field of study, and degree type. Financing is available to recent high school graduates, as well as to older students from all backgrounds, making it a good resource for aspiring ECE professionals, as well as the incumbent ECE educator hoping to advance her or his skills through higher education. The Federal Direct Loan program issued \$93 billion to students and their families in 2017, many of whom would be unlikely to attain financing in the private market (U.S. Department of Education, Federal Student Aid, 2017). Loans are made to undergraduate students, the parents of undergraduate students who are still financially dependent upon their parents, and graduate students. The amount a student can borrow, as well as the interest rates and fees charged, vary according to the loan type.

**BOX 3-6****Supporting the Educational Attainment of the ECE Workforce**

The Learning Together longitudinal study, conducted by the Center for the Study of Child Care Employment over a 5-year period beginning in 2007, examined the attempts of four California counties to increase opportunities for current ECE workers to obtain a 4-year degree. The majority of the participants in the study were first generation college students, from racial/ethnic minorities, primarily Latino, and nearly 50 percent spoke a language other than English at home. About 40 percent of all students in the study had been unsuccessful in their former pursuits of a bachelor's degree. The study examined "the student cohort model—in which small groups of ECE students with similar interests and characteristics pursued a bachelor's degree together and received targeted support services" (Whitebook et al., 2008, p. 5).

Graduates in the program identified the program's structural supports, such as financial aid and flexible class schedules, as important to their educational success. Graduates also reported that general education classes taken as part of the bachelor's-degree cohort had enhanced their educational experience and had a positive impact on their work with children and families (Sakai, Kipnis, and Whitebook, 2014).

Benefits continued post-graduation, with study participants supporting each other through cross-classroom observations among cohort members, collaborating to solve job-related problems, discussing applications of their recently acquired knowledge to current positions, and collectively staying abreast of new developments in the ECE field. Further, within 1–2 years after obtaining a bachelor's-level degree, almost one-quarter of graduates changed roles within the ECE field and three-fifths experienced higher incomes. The majority of these graduates cited earning a bachelor's degree as the impetus for these changes. Graduates found "this program helped them to become more effective educators of young children" (Kipnis et al., 2012, p. 33).

The cumulative findings of the Learning Together study demonstrate how investments in baccalaureate degree completion cohort programs that offer sufficient financial and academic supports can help working ECE practitioners access higher education and succeed in obtaining their degrees. These programs offer personal, professional, and educational benefits to the participants as well.

Student-loan debt has become controversial in recent years, as more students have taken on higher debt loads than has historically been true, leading many of these borrowers to struggle with loan repayment down the line (Miller, 2017). When considering student loan borrowing for all students, but in particular for those preparing for ECE career opportunities, it is important that student borrowing remains affordable relative to the student's expected future earnings.

Income-driven repayment plans, now widely available to all federal student loan holders, cap borrowers' monthly payments at a reasonable share of their income, with any outstanding balance forgiven after a specified number of years.<sup>11</sup> For students pursuing career opportunities in early care and education, the existence of income-driven repayment plans can make federal student loans more affordable. However, unless earnings for ECE professionals rise, relying on student loans to fund new credential requirements is risky because students' low earnings will make it difficult for them to pay off their loans in the future, creating costly burdens for taxpayers who will eventually cover a large share of the debt burden. Some community colleges have even expressed interest in limiting borrowing among students in particular degree fields, including early childhood education, because the anticipated postgraduation earnings are insufficient to enable these students to pay back student loans above some ceiling level (Barrett and Laitinen, 2017). If earnings rise to a level that justifies both the individual investment in higher education and the risks associated with borrowing for educational costs, relying on limited student debt to help finance the costs of education may become viable. In addition, for ECE professionals with Perkins loans, a portion of the loans may be forgiven for each year of teaching service, which includes many ECE positions. However, new Perkins loans are no longer authorized by Congress, so future students will not have this option.<sup>12</sup>

Many current ECE professionals may also be eligible for need-based grants and scholarships, including federal Pell grants and other state and institutional aid programs. The formula for distributing Pell grants is complex, but most families earning less than \$50,000 are eligible to receive some Pell money, while those earning less than \$20,000 are likely to receive the maximum grant amount. However, the amount of a Pell award may not cover the full costs of higher education; the maximum Pell award during the 2016–2017 school year was \$5,815. The total number of semesters a student can use a Pell grant is capped at 12. To participate, students must

<sup>11</sup> See <https://studentaid.ed.gov/sa/repay-loans/understand/plans/income-driven> [December 2017].

<sup>12</sup> See <https://studentaid.ed.gov/sa/repay-loans/forgiveness-cancellation/perkins> [December 2017].

take at least six credits per semester.<sup>13</sup> These eligibility requirements may place barriers to access on the ECE workforce, as current practitioners may be unable to take the requisite number of credits while continuing to work.

Federal Teacher Education Assistance for College and Higher Education (TEACH) grants also provide supplemental funding to students who are in an education program and who plan to teach in a high-needs field in low-income schools. ECE educators who work in public schools that receive Title I grants are eligible to participate in the TEACH grant program. For students who fail to meet specified post-education employment criteria, their grant awards convert to a loan, the amount of which includes all accumulated interest from the time that grant amounts were disbursed. Given the high rates of loan conversion on these grants (U.S. Government Accountability Office, 2015), it may not be an effective model for encouraging employment in high-needs education positions.

The federal tax code also supports higher-education students through a variety of tuition tax credits and deductions, tax advantaged Coverdell and 529 college savings accounts, and the student loan interest deduction. Many of these tax provisions have been criticized because they do not lessen costs at the time tuition bills are due and are primarily used by upper-income and middle-class families (Delisle and Dancy, 2015). Research has found that because low-income students often have their tuition expenses fully covered by grants, and tax credits cannot be claimed for living expenses while enrolled, the tuition tax benefits favor high-income students or those who attend schools with higher tuition rates, despite being partially refundable tax credits (Congressional Budget Office, 2016; Dynarski, 2004). Some states have also set up their own tax provisions similar to those at the federal level.

State governments also support higher education in one of two forms: general-purpose appropriations that go directly to public 4- and 2-year institutions in the state, and state grant and scholarship programs to students. State appropriations to public institutions are used to offset tuition payments, making public community and technical colleges and 4-year colleges a more affordable option for students hoping to advance their skills and knowledge in ECE fields. However, due to a combination of declining state appropriations and increased enrollment in recent years, per-student state funding has declined in almost every state since the 2008 recession. After adjusting for inflation, total funding is also below pre-recession levels, though total funding has increased in recent years (Mitchell, Leachman, and Masterson, 2017).

Additionally, most states operate scholarship programs. These programs vary enormously with respect to the size of the award given to

<sup>13</sup> See <https://www.scholarships.com/financial-aid/grants/federal-grants/> [December 2017].

students, whether they include grade point average or income eligibility cutoffs, and whether there are stipulations as to what schools or fields of study qualify. Because state grant programs contain many different requirements and often focus on providing scholarships to recent high school graduates, there are likely ways to restructure these programs to make them more widely available to ECE students. Some higher-education institutions also benefit from private contributions or endowment earnings, which can be used for a variety of purposes, including providing need- or merit-based scholarships to incoming or continuing students.

Further, with respect to paying for higher education, a lack of information about costs and financial aid often creates barriers to leveraging all the resources existing throughout the higher education system (Bennett, 2001). For example, the current federal aid application and disbursement cycles are incredibly complex, poorly timed, and difficult for prospective students to understand (Dynarski and Scott-Clayton, 2006; National Association of Student Financial Aid Administrators, 2013; Simons and Helhoski, 2016). An inaccurate understanding of financial aid could contribute to underconsumption of higher education, particularly among low-income families, as those families are most likely to cite cost or availability of financial aid as the most important factors in deciding whether to go to college (Fishman, 2015). Among the incumbent ECE workforce, this lack of awareness concerning the different financial supports available could lead both providers and staff to forego higher education opportunities due to misperceptions about the out-of-pocket costs, creating a barrier to leveraging existing resources to help support higher education among ECE professionals.

### System-Oriented Financing Mechanisms

While the current financing structure provides some support to the ECE workforce to address the front-end costs of higher education, the available provider-oriented and workforce-oriented financing mechanisms, as currently structured, have largely remained agnostic on questions about quality and value of the higher education students receive. In general, quality in higher education as a whole is highly variable for students, with minimal quality assurance standards in place and little transparency about student outcomes across fields of study (see e.g., Brown, Kurzweil, and Pritchett, 2017). These quality issues in conjunction with the market-based structure of higher education—wherein students select what to study and where to enroll—enable low-quality programs to continue to access federal and other public funding sources and require students to make complex decisions with little reliable information on quality.

Across the system, current investments in higher education are not providing students with consistent high-quality programs; in the ECE field,

schools are not necessarily providing the skills and expertise necessary for working with young children. Moreover, higher-education programs for early care and education lack resources for program and faculty development (Institute of Medicine and National Research Council, 2015). Since 2008, state funding for public 2- and 4-year colleges has declined by nearly \$9 billion (adjusting for inflation). According to Mitchell, Leachman, and Masterson (2017, p. 1), this overall decline in funding “has contributed to higher tuition and reduced quality on campuses, as higher education institutions have balanced budgets by reducing faculty, limiting course offerings, and in some cases closing campuses.” These cuts in funding to higher-education institutions make it difficult to build ECE-focused baccalaureate programs, to hire more faculty to meet student demand, and to keep tuition rates from increasing. The decline in funding for public higher education means that in addition to helping the current and future ECE workforce access funding to increase educational attainment, additional incentives may be necessary to ensure that these new degrees are of high enough quality to give the ECE workforce the skills and competencies necessary to do their work well.

ECE advocacy organizations such as the National Association for the Education of Young Children and the Division for Early Childhood evaluate quality in higher education programs of study for early childhood professionals.<sup>14</sup> While the existence of such organizations can serve as a helpful signal of quality in some cases, taking on program-level accreditation can be costly to institutions, due to both accreditation fees and the costs associated with raising quality standards to the level required for accreditation. Unlike school-wide accreditation, program-level accreditation is not required to receive access to federal financial aid, nor is it necessarily incentivized or required by all states. This means that while program-level accreditation serves as a valuable marker of rigor for students interested in honing their ECE craft in a high-quality program, it is not sufficient unless there is also a state commitment to link teacher certification to program accreditation, in order to deter low-quality programs from offering ECE degrees. Additional incentives at the state or federal level are necessary to encourage schools to seek out program-level accreditation and to enable students to pursue degrees with program-level accreditation. Such commitments and incentives could help leverage existing quality assurance mechanisms and prevent low-quality programs from exploiting the increase in demand for credentials in ECE fields that stems from the increased emphasis on professionalizing

---

<sup>14</sup> The evaluated programs may be located within education departments or outside of them as the National Association for the Education of Young Children recently began accrediting early childhood programs located outside education departments.



the ECE workforce. Box 3-7 describes recent efforts to address quality, not specific to ECE programs, in the higher-education field.

### Summary on Higher Education

Despite increased awareness of the need to improve the foundational knowledge and skills and competencies of the ECE workforce, financial supports for higher education are generally provided only on a limited basis and, like financing for improved compensation, typically are not integrated into the financing of direct service delivery. While there are a variety of resources for students or ECE practitioners seeking higher education, most of the current financing mechanisms do not meet the needs of all ECE practitioners and are insufficient to overcome the barriers—including affordability, access, and availability—that face ECE educators pursuing education and training (see, e.g., Glazer et al., 2017). Moreover, these mechanisms are generally not targeted to reducing racial and ethnic stratification across job roles, which persists throughout the ECE workforce.

The existing mechanisms do not mitigate concerns about whether investment in education is worthwhile, given the low wages in the field. Relying on student loans to fund higher education for the ECE workforce is problematic if low earnings, even after completing a course of study, will make it difficult to pay off loans. Grants and scholarships are useful tools but often do not cover the full cost of education. In addition, if the earnings of the ECE workforce rise, higher wages will make incumbent practitioners ineligible for some general need-based programs.

None of these financing mechanisms addresses the quality of the higher education. While limited supports are available for the incumbent and prospective workforce to pursue higher education, financing is largely absent for system-level improvements focused on ensuring that higher-education programs prepare students with the knowledge and competencies necessary to work with young children. Without proper investment to ensure quality in higher-education programs, financing tuition assistance and other supports may do little to improve the quality of professional practice (see Institute of Medicine and National Research Council, 2015; Whitebook and Austin, 2015).

Moreover, with the increasing costs of higher education, greater attention than ever is being paid to the labor market potential of different career pathways, making the earnings question of even greater importance for the ECE field. Because recent high school graduates can pick from a wide array of schools, degree programs, and career pathways, creating an appealing work environment—including wages and benefits, working conditions, and opportunities for advancement over time—in the ECE field is critical



### BOX 3-7

#### Approaches to Ensuring Quality in Higher Education

Questions of quality and rigor in higher education in general, and for the ECE education field in particular, have created questions as to whether students who receive degrees in the field are acquiring the necessary skills for working effectively with young children. In higher education generally, a number of approaches aimed at ensuring quality have recently focused on ensuring high-quality curriculum and instruction, as well as providing the necessary flexibility to help students with diverse needs navigate the higher-education system and complete their degrees. These approaches, described below, may provide useful models for ECE programs in higher education.

#### Providing Flexibility and Other Student Supports to Help Students Succeed

- *Competency-based education* allows students to move through material at their own pace, spending more time on challenging topics and moving more quickly through material with which they have more experience. A related strategy, *prior learning assessments*, allows students to receive credit if they demonstrate content knowledge acquired through other means. Both strategies can help improve flexibility for all students, but they are particularly important for adult learners with significant experience on the job. Ensuring these models are rigorous is a key challenge, which limits their availability today.
- *Improved articulation between programs and institutions* facilitates credential attainment and accelerates progress toward degrees. Recent efforts to align 2-year and 4-year programs across institutions have aimed to reduce the number of students who have to retake coursework completed in the course of their 2-year program when matriculating at a 4-year school. This is especially important for building career pathways.
- *Stackable credentials, modularized courses, and online/hybrid learning* are other strategies aimed at providing students with greater flexibility in terms of the timing of their education. *Stackable credentials* are sequenced credentials that have currency in the labor market and can be accumulated by students over time to advance their careers. *Modularized courses* break curricula into smaller, more intensive pieces to shorten the time it takes to complete coursework, while also minimizing the scheduling challenges that

can come with the traditional college schedule. *Online/hybrid learning* can make learning more accessible to students who have work or family commitments (U.S. Department of Education, 2015b). Each approach allows for career progression and acceleration, while accommodating work and family responsibilities.

- *Co-requisite remediation*, wherein students are able to receive remedial instruction alongside content that is relevant to their interests or a declared field of study, has been shown to increase engagement among students. Remedial coursework can be a barrier to students remaining in school and may create barriers for many incumbent professionals (Palmer, 2016).
- *Improving advising and information* for students could also help students navigate college more successfully and prevent students from discontinuing their pursuit of higher education.

#### Aligning Curriculum with Workforce Needs

- *Developing knowledge of industry needs.* Higher-education institutions may use labor market data to understand industry needs and identify what jobs are available now and will be in the future, as well as to engage local employers in order to align their curricula with ECE workforce needs. Educational institutions can also develop customized training programs for employers through WIOA or through direct contracting. Often, customized training programs are designed to help incumbent professionals improve their skills.
- *Engaging employers to offer on-the-job learning opportunities.* On-the-job training is an effective strategy for helping to ensure that program graduates are learning industry-relevant skills. In some sectors, this can involve internships or externships that are part of a specific program but not a requirement for licensure. For some occupations, like health care, on-the-job training is a requirement for licensure. Registered apprenticeships are another way to ensure that students are learning industry-relevant skills. They also have the benefit of enabling students to earn wages paid by the employer.
- *Linking funds to quality.* The Gainful Employment regulations promulgated by the U.S. Department of Education require employment-oriented training programs to meet certain thresholds in order to continue receiving federal aid. However, this regulation does not apply to many of the 4-year programs for educators, despite the career-oriented nature of those degrees. Higher-education institutions have until July 1, 2018, to comply with these regulations.

### **BOX 3-8**

#### **Leadership Preparation for ECE Providers**

Though leadership demands may vary across settings due to differences in funding and program auspices and size, both state qualification requirements and the dearth of subject matter focus in higher education institutions show that minimal attention has been given to management, organizational, and pedagogical leadership.

ECE providers are often trained in early childhood education, but operating an ECE business requires additional skills. Providers who operate small, independent, and home-based ECE businesses may need training in leadership, business, and financial practices in order to successfully navigate the administrative and financial responsibilities involved (Matthews et al., 2015). Online resources are available that are designed to help ECE providers with operational issues such as licensing, budgeting, taxes, setting and enforcing policies, writing contracts, and hiring and managing staff. These include resources from nongovernmental sources, such as the American Federation of State, County, and Municipal Employees, Child Care Aware, the McCormick Center for Early Childhood Leadership, and the Early Childhood Alliance, as well as governmental sources such as the Small Business Administration (American Federation of State, County, and Municipal Employees, 2017; Child Care Aware of America, n.d.; Early Childhood Alliance, 2015; U.S. Small Business Administration, n.d.).

In addition, ECE providers who have contracts with Head Start or through their state's CCAP have additional resources. As part of Head Start's Training and Technical Assistance system, the National Center on Program Management and Fiscal Operations provides support to ECE programs. This center supports providers by communicating best practices, providing training, supporting the development of regional specialists, and sustaining ongoing communication with local programs. The 2014 reauthorization of the CCDBG Act mandated that states develop and implement strategies for strengthening the business practices of ECE providers and required states to submit details about how they provide this

to attracting potential employees. Currently, the earnings prospects for ECE-focused baccalaureate and postbaccalaureate degrees are much lower than the prospects in all other fields, particularly for baccalaureate-degree candidates.

### **Ongoing Professional Learning**

One of the more important, yet least emphasized, components needed for a high-quality ECE system is ongoing professional learning, or professional development. Professional development for both educators and administrators during ongoing practice, as well as business training for

technical assistance to businesses.<sup>a</sup> There is no specific funding for this mandate, but this law authorizes the Secretary of the Department of Health and Human Services to provide technical assistance to the states<sup>b</sup> and to reserve up to 1 percent of total CCDBG funds to support technical assistance.<sup>c</sup>

Pedagogical leadership training is also important. According to the *Transforming* report, ECE leaders and administrators “need to understand developmental science and instructional practices for educators of young children, as well as the ability to use this knowledge to guide their decisions on hiring, supervision, and selection of tools for assessment of children and evaluation of teacher performance, and to inform their development of portfolios of professional learning supports for their settings” (Institute of Medicine and National Research Council, 2015, p. 347). Despite this need, Lieberman (2017) found that most states do not have policies in place to ensure that elementary principals have the skills and competencies necessary to be ECE leaders. Specifically examining preparation for elementary school leaders who oversee many of New Jersey’s state-funded prekindergarten programs, Sakai, Petig, and Austin (2017) found that preparation programs for principals in the state include limited content related to educating children ages 0 to 5 years, training and supporting ECE educators, and integrating and aligning curriculum for prekindergarten to grade 3 classrooms. Financing is needed to ensure that pedagogical training specific to early childhood is offered to ECE leaders and administrators.

Given the importance of management, organization, and pedagogical leadership training, the training and technical assistance funds described above, if used to support ongoing professional leadership development for the ECE workforce, have the potential to strengthen professional practice and subsequently improve outcomes for children. Additional focus is also needed to ensure these skills are included in higher-education curricula for ECE professionals.

<sup>a</sup>Child Care and Development Block Grant Act of 2014, Pub. L. No. 113-186, § (658E(c)(2)(V).

<sup>b</sup>Child Care and Development Block Grant Act of 2014, Pub. L. No. 113-186, § 658I(a)(3).

<sup>c</sup>Child Care and Development Block Grant Act of 2014, Pub. L. No. 113-186, § 658O(a)(4).

providers, is critical to building the ECE workforce and ensuring the sustainability and viability of providers (see Box 3-8).<sup>15</sup>

Professional development may be financed at the service delivery, the system level, or both and can take place onsite or offsite. It can be delivered in an array of formats, including informally to groups of participants through workshops or short-term trainings and on a one-on-one basis through onsite

<sup>15</sup> Professional development opportunities may also include training to “recognize when children need specialized support for their socioemotional development, to provide that support directly and through linkages to specialized services, and to connect to multigeneration intervention approaches that take into account the mental health and well-being of the adults in children’s lives instead of viewing children in isolation” (Institute of Medicine and National Research Council, 2015, p. 275).

mentoring or coaching, among other formats. While “one-off” training sessions for the ECE staff of a center have often been routine,<sup>16</sup> it is well established that these professional development offerings do not have an enduring impact on practice (Darling-Hammond, 1998; Yoon et al., 2007). Serial and sequential learning options and coursework from accredited institutions, on the other hand, have a higher likelihood of effectiveness for adult learning and practice. Consistently providing professional supports to staff and building professional capacity in a way that leads to better teaching will require significant increases in capacity (Kaplan and Mead, 2017).

Existing professional development supports for the ECE workforce reflect the under-resourced and piecemeal ECE system as a whole. Most states do not have a comprehensive system for professional development of the ECE workforce, and training requirements and access to professional development vary considerably by program and setting. Provider-oriented mechanisms such as Head Start and public prekindergarten typically have dedicated resources to support the professional development of their staffs, including paid release time and pedagogical leadership development.

About 2 percent of the overall Head Start budget is to be used “for the purposes of improving program quality.” At least 50 percent of all Training and Technical Assistance funding goes directly to local Head Start providers, who can use the money for “expanding staff qualifications; improving the skills educators need in order to promote language and emergent literacy skills...and other uses identified by and specific to each individual grantee” (Office of Head Start, 2016c). The other half of the Training and Technical Assistance funding goes toward the creation and management of national centers and regional specialists; these programs provide guidance, consistent information, and assistance to Head Start providers. The 2016 Head Start performance standards require Head Start programs to create systematic methods for workforce training and professional development, including coaching for educational staff. According to the requirements, at a minimum, these systems should assess strengths and needs for supports for educators and provide intensive coaching and research-based professional development (Administration for Children and Families, n.d.). In addition to these specific performance standards for professional development, numerous other Head Start provisions have implications for the types of skills and knowledge that Head Start educators need. For example, Head Start requires that programs use evidence-based teaching practices in order to support the growth of bilingualism and biliteracy.

Some state prekindergarten programs include supports for professional development built into the cost of service delivery, similar to supports

---

<sup>16</sup> According to the National Survey for Early Care and Education, 53 percent of center-based educators who reported participating in a professional development workshop reported that it was “one-shot” (National Survey of Early Care and Education Project Team, 2015a).

provided to educators in the public K–12 system. Georgia’s prekindergarten program pays for up to 1.5 hours per day and an additional 10 days a year to be used for staff development and training. The prekindergarten program for San Antonio, Texas, also provides robust supports for professional development as part of service delivery, including paid time for coaching and mentoring, 3 weeks of paid professional development prior to the school year, and weekly group learning sessions (McLean, Dichter, and Whitebook, 2017).

The family-oriented mechanism of CCDF also includes funds dedicated to “quality set-aside funding,” which supports professional development. The 2014 CCDF reauthorization requires states to spend a minimum on general quality activities, which increases from 4 percent of CCDF spending previously mandated to 9 percent by fiscal 2020. States must devote an additional 3 percent to quality activities for infants and toddlers (National Conference of State Legislators, 2016). Each fiscal year, the Administration for Children and Families reserves 0.25 percent of CCDF funds (mandatory, matching, and discretionary) for providing technical assistance to grantees. This funding is to be used for at least 1 of 10 approved quality activities, which includes “supporting the training and professional development of the child care workforce.” As of 2012, 55 states and territories offered some form of technical assistance to ECE providers (e.g., mentoring, coaching, and other types of nonfinancial support) through distributions from CCDF quality-directed funds (Administration for Children and Families, 2013a).<sup>17</sup>

While publicly funded programs have dedicated resources to support professional development, many private center- and home-based providers, if they are not accessing public funds, may have limited resources for professional development. As a result, these educators are more likely to participate in offsite training sessions and are less likely to have access to intensive, ongoing supports (Ullrich, Hamm, and Schochet, 2017).

### Summary: Ongoing Professional Learning

Existing professional development supports for the ECE workforce reflect the under-resourced and piecemeal ECE system as a whole. Most states do not have a comprehensive system for professional development for the ECE workforce, and training requirements and access to professional development vary considerably by program and setting. Generally, state prekindergarten programs, Head Start, and CCDF provide funds for professional development, and in this way these programs support the development of a highly qualified workforce. However, the funding set aside from CCDF is for a multitude of quality improvement projects; professional development has to compete for resources with other potential uses of the

<sup>17</sup> Based on data from 356,866 individual ECE employees from 35 states/territories (Administration for Children and Families, 2013a).

funding. Without a centralized, coordinated financing structure for professional development, professional development tends to occur as isolated, “one-shot” sessions. The foundational knowledge and the skills and competencies acquired through professional development in these formats may not necessarily translate into progress toward advanced degrees or other professional credentials, which can be costly and unproductive to the ECE workforce. Aligning professional development with training and technical assistance systems could foster continuous quality improvement.

## CONCLUSION

This section has considered whether current financing mechanisms facilitate the development and support of a highly qualified ECE workforce, whether they ensure the well-being and adequate compensation of that workforce, and whether they support the strengthening and development of that workforce, particularly promoting the maintenance or creation of a diverse workforce across job roles.

Adequate compensation of the ECE workforce is generally not accounted for in the cost of service delivery; instead, there are various programs and financing mechanisms to supplement ECE professionals’ wages. While these programs provide some financial relief to a small number of ECE professionals, the overall pay is still low, and the temporary nature of the supplements does not create the predictable and steady salaries necessary for recruiting and retaining a highly qualified workforce. More often than not, these poor wages are accompanied by limited benefits and workplace conditions that are not conducive to quality professional practice.

While financing to support ongoing professional learning—including higher education and professional development—is available for the incumbent ECE workforce, it is limited in scope and inadequate, given the needs of the current workforce. Financing higher education—despite specific qualification requirements in certain programs for educators—is almost entirely the responsibility of the entering or incumbent ECE educator, except to the extent that publicly funded institutional and student support is available. Federal loan and grant programs provide some assistance, but these mechanisms do not ensure the quality of the higher-education programs. In addition, financing is largely absent for system-level improvements to ensure that higher-education programs prepare students with the knowledge and competencies necessary to work with young children. Without proper investment to ensure quality in higher-education programs, financing tuition assistance and other supports may do little to improve quality in ECE professional practice. Financing for ongoing professional development also lacks coordination across programs, resulting in costs to the ECE professional who is unable to translate the skill and competencies acquired through professional development into credentials and advanced degrees.

## 4

## Current Financing for Early Care and Education: Affordability and Equitable Access (Principle 2)

This chapter reviews the current financing structure for early care and education against the committee's second principle: *high-quality early care and education requires that all children and families have equitable access to affordable services across all ethnic, racial, socioeconomic, and ability<sup>1</sup> statuses as well as across geographic regions*. First, it reviews current evidence on early care and education (ECE) usage and the affordability of early care and education for families. Next, the chapter discusses the adequacy of current financing to support access to high-quality early care and education and assesses whether the structure of provider-oriented and family-oriented financing mechanisms support equitable access to high-quality early care and education for all children from birth to kindergarten entry.

### CURRENT ECE USAGE AND AFFORDABILITY FOR FAMILIES

Families' current ECE usage patterns reflect the programs, costs, subsidies, and quality of currently available early care and education. Understanding current patterns of family use and expenditure helps to identify the gaps and problems in the current ECE financing structure. The changes envisioned in the *Transforming* report will undoubtedly lead to changes in the decisions families make with regard to using ECE services. As a result, the types of ECE providers chosen by families, the hours of care they use,

---

<sup>1</sup> Ability status refers to special needs, including physical, emotional, and linguistic.



and their ECE expenditures will likely adjust, though only limited research is available on which to base predictions about those adjustments. Given this dearth of research, this section reviews families' current use, which serves as a basis for predictions in Chapter 6 about changes in family use and expenditures in a transformed system.

Not all parents enroll their young children in nonparental care on a regular basis. The percentage of children with no ECE arrangements is highest for infants and declines as children approach kindergarten age. Nearly three-quarters of 4-year-olds have at least one regular ECE provider, compared to about half of 1-year-olds and 44 percent of infants under 12 months of age (Table 4-1). For some of these families, the decision not to rely on nonparental care is likely to be a choice based on preferences for parental care; other families feel they cannot afford nonparental care and that paying for such care would consume too much of their household budget. Still other families cannot find available nonparental care that meets their needs. For example, available and affordable ECE programs may only offer half-day programs that do not meet the needs of parents with full-time jobs, while some families live in areas that have a low supply of ECE programs or long waiting lists for the available programs. It is challenging to determine the extent to which preferences for parental care of infants versus the higher cost (and lower availability) of nonparental infant care options influence families' decisions not to use the latter. Although utilization is driven by both the supply and demand for early care and education, it is difficult to disentangle the role of each. Box 4-1 discusses recent research on ECE availability and supply.

ECE usage patterns differ for low-income families compared to those with higher incomes. Both the proportion using regular nonparental early care and education of any type and the proportion using center-based care

**TABLE 4-1** Weighted Percentage of Children with at Least One Regular ECE Provider, by Age

Age of Children	Weighted Percentage
Less than 12 months old	43.7
1 year old	51.5
2 years old	55.5
3 years old	60.8
4 years old	73.3
5 years old	83.4

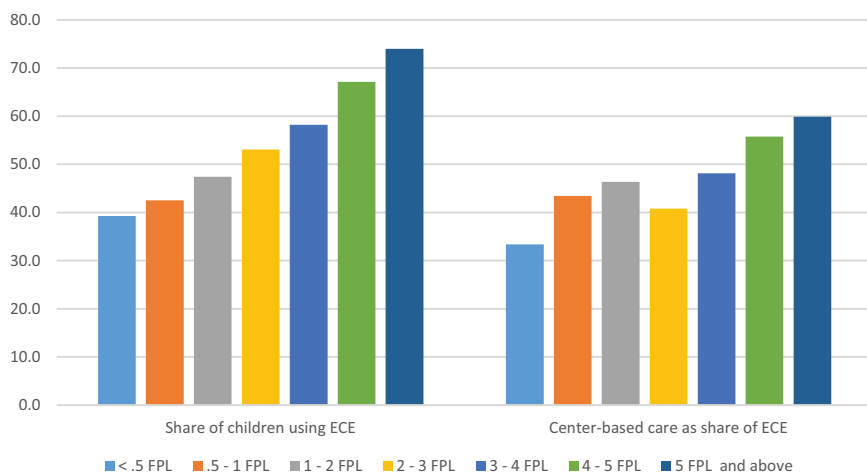
NOTES: See source for information on how the estimates were calculated, including weighting of percentages.

SOURCE: Based on Tables 1.00.1–1.05.1 in National Survey of Early Care and Education Project Team (2016a).

### **BOX 4-1** **ECE Availability and Supply**

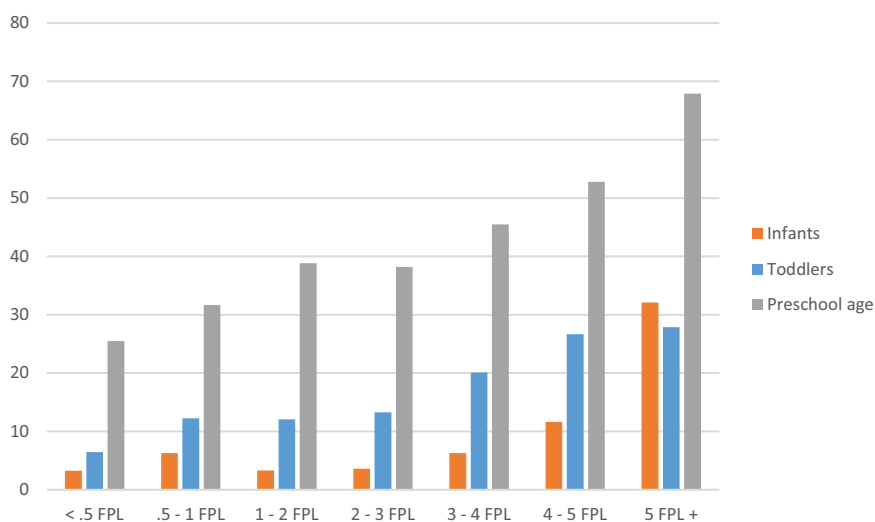
The lack of supply of ECE options in some communities has recently attracted renewed concern from parents and policy makers. A number of recent studies have identified areas with limited or no supply of early care and education within given geographical boundaries, calling these areas “childcare deserts” (see, e.g., Malik and Hamm, 2017). These studies typically measure whether there are ECE providers (or sufficient slots available at those providers) for the number of young children in a given area (defined by a census tract, ZIP code area, or county, for example). While there are communities that have limited ECE options for families, the focus on measures of availability in these studies suggests solutions related to supply rather than problems related to affordability. In some areas, limited ECE options may be driven by the small number of children in an area, which may not be enough to support multiple home-based providers or a private center-based provider. In other locations, the lack of ECE options may reflect a lack of demand because low- and middle-income families may not be able to afford high-quality ECE options. Past research has demonstrated strong associations between community characteristics (such as median income or rurality) and variation in ECE supply. Rural areas and those with lower average incomes tend to have fewer ECE providers (Cochi Ficano, 2006; Gordon and Chase-Lansdale, 2001; Hofferth and Wissoker, 1992). Recent studies have also found disparities in the availability and use of prekindergarten (Bassok and Galdo, 2016; U.S. Department of Education, 2015) and the uneven availability of high-quality early care and education across communities (Bassok, Fitzpatrick, and Loeb, 2011; Valentino, 2017).

increase with income. As shown in Figure 4-1, the share of children in early care and education increases steadily with family income. Approximately two in five children in families with incomes below the federal poverty level (FPL) are in regular ECE arrangements, compared to nearly three-quarters of those with incomes more than five times the FPL. Of those in early care and education, the share in center-based (rather than home-based) care also increases with family income. Notably, however, families with incomes of 200 percent to 300 percent of the FPL who use regular early care and education are somewhat less likely to use center-based care than are lower-income families who qualify for public subsidies; they are much less likely to use center-based care than higher-income families. This “dip” in utilization suggests that a larger share of the families in this income range are unable to afford center-based care. Families with incomes between 300 and 400 percent of the FPL are also less likely to use center-based care than would be expected from the overall income trend. As Figure 4-2 shows, the proportion of children using center-based care is lowest for infants and



**FIGURE 4-1** Patterns of ECE utilization by income category, all children ages 0–5 years (not in kindergarten).

SOURCE: Based on Latham (2017), using data from the 2012 National Survey of Early Care and Education Public Data Set.

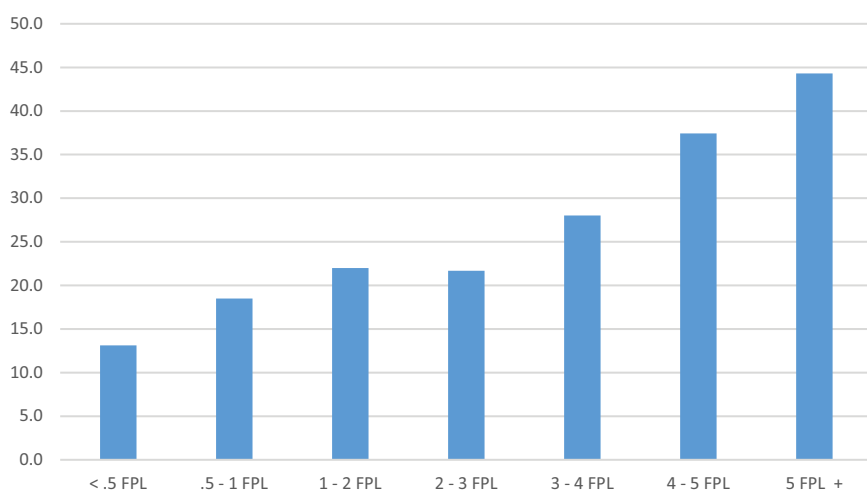


**FIGURE 4-2** Share of children in center-based early care and education, by age and income category.

SOURCE: Based on Latham (2017), using data from the 2012 National Survey of Early Care and Education Public Data Set.

increases with age across the income groups, but it is always higher for higher-income than for low-income families.

It is difficult to parse out the relative importance of budget constraints versus preferences in explaining these differences in ECE utilization patterns across income groups. Studies have found that low-income families use less center-based care than do high-income families and more often rely on relatives to provide care (Adams, Zaslow, and Tout, 2007; Burgess et al., 2014; Burstein and Layzer, 2007). Research has also found that low-income families often report reasons related to cost and convenience for selecting certain types of care, although some researchers argue that the type of care being used influences the reasons or preferences reported by parents (Chaudry, 2004; Chaudry et al., 2011; Henly and Lyons, 2000). The need for care during nonstandard working hours may also strongly influence the type of care used (Chaudry, Pedoza, and Sandstrom, 2012; Henly and Lambert, 2005). Overall, however, the rising utilization of center-based care with income shown in Figure 4-3, which on average is the most expensive type of early care and education (among those that charge parent fees) (National Survey of Early Care and Education Project Team, 2015d), supports the view that many low- and moderate-income families would use center-based care but currently cannot afford to do so. The jump in use of center-based care by families with incomes above 400 percent of the FPL



**FIGURE 4-3** Share of all children ages 0–5 years in center-based early care and education, by family income category (multiple of the FPL).

SOURCE: Based on Latham (2017), using data from the 2012 National Survey of Early Care and Education Public Data Set.

suggests that affordability is not just a problem for those with the lowest incomes (who may be eligible for free programs such as Head Start). Only about 20 percent of children in families with incomes up to 300 percent of the FPL are in center-based early care and education, compared to nearly 45 percent of those at 500 percent of the FPL.

While the focus of this discussion has been on the disparities in use of center-based care by income group, it is important to acknowledge that high- (and low-) quality care may be found in both center- and home-based settings (see e.g., Bassok et al., 2016).

The relationships between patterns of ECE use and family and child characteristics have been extensively studied and provide some insights into the factors influencing families' selection of ECE service option. The type of early care and education that parents use has been found to correlate with child age, mother's education, race and ethnicity, family income, and family structure (Chaudry et al., 2011; Forry et al., 2013). Patterns of ECE utilization also vary geographically across regions of the United States and in rural versus urban areas (Cochi Ficano, 2006; Gordon and Chase-Lansdale, 2001; Hofferth and Wissoker, 1992). These studies are unable to determine explicitly whether families choose to not use organized ECE options, or choose instead to use informal care, because of preferences, availability, or budget constraints. Nonetheless, comparing the utilization rates for paid care and center-based care across income levels provides information about the shortcomings of the current ECE financing system in the United States. The results suggest that families with lower incomes likely would increase their use of early care and education if it were more affordable.

Research has shown that increases in public funding for early care and education lead to increased use, particularly of formal or center-based care. For example, universal state-funded prekindergarten programs have been associated with increases in prekindergarten enrollment. Cascio and Schanzenback (2013) found that the state prekindergarten programs in Oklahoma and Georgia led to a large increase of about 20 percentage points in prekindergarten enrollment of children whose mothers had no more than a high school degree. Other studies have found that increases in state subsidy program and Head Start spending were associated with increases in use of nonparental care, especially formal care and center-based care (Greenberg, 2010; Magnuson, Meyers, and Waldfogel, 2007; Weber, Grobe, and Davis, 2014). Several studies have also demonstrated that families with access to subsidized ECE options use more center-based care, and higher quality care, than those without such subsidies (Berger and Black, 1992; Johnson, Ryan, and Brooks-Gunn, 2012; Krafft, Davis, and Tout, 2017; Marshall et al., 2013; Ryan et al., 2011).

Parents use ECE services to provide educational and social experiences for their children. In addition, many need care for their children while the

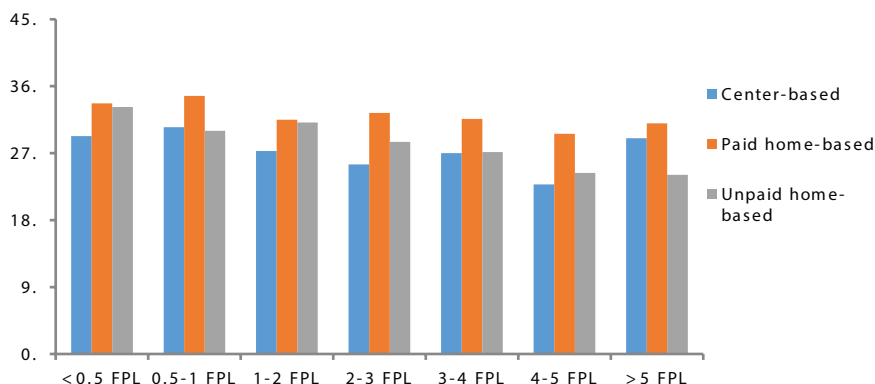
parents are working (or in educational or training programs). For working parents, the ECE hours used and the timing of those hours during the week depend at least in part on the parent(s)' work schedule. Hours used in center-based care are mostly during standard business hours (Monday through Friday, 8 a.m. to 6 p.m.), likely as a result of many centers not operating outside those hours. Only 8 percent of center-based programs offer early care and education on any evening or during weekend hours (National Survey of Early Care and Education Project Team, 2015b). If parents need care for young children in the evenings or weekends, they rely mostly on home-based care. At the same time, some education-focused ECE programs provide services only on a part-day or part-week basis, so they may be difficult for working parents to use. For instance, most prekindergarten programs are like K-12 education in not offering summer care, which is a major challenge for working parents.

For those who use early care and education of any kind, the typical patterns of hours of care vary across income levels and age groups. Based on an analysis of data from the National Survey on Early Care and Education (see Table 4-2), children are in early care and education an average of 34 hours per week between ages 1 and 5 (and excluding those in kindergarten). Average hours in paid home-based and center-based care decrease with the age of the child, reflecting the increasing use of part-time care for children as they age from 36 to 60 months (e.g., for children whose mothers do not work outside the home and send their children to prekindergarten). This increased use of part-time care for older children could be in part because some Head Start and public prekindergarten programs are only offered on a part-day basis, on a school-year basis, or both. The average number of hours used are similar in paid home-based settings and center-based settings, with somewhat shorter hours on average in unpaid home-based

**TABLE 4-2** Average Weekly Hours of Care per Child, by Age Group and Type of Early Care and Education

ECE Option	All Children	Age Less than 12 Months	Child Ages 12–36 Months	Child Ages 36–60 Months and Not in Kindergarten
All	33.9	34.2	35.1	32.9
Center-based	27.7	36.3	31.3	25.7
Paid home-based	31.9	34.5	34.0	28.2
Unpaid home-based	29.1	28.0	29.4	29.4

SOURCE: Data from Latham (2017, Table 1.1.0), using data from the 2012 National Survey of Early Care and Education Public Data Set.



**FIGURE 4-4** Average weekly hours of care per child, by ratio of household income to federal poverty level.

SOURCE: Data from Latham (2017, Table 1.1.1), using data from the 2012 National Survey of Early Care and Education Public Data Set.

settings. The average weekly hours of care are fairly consistent across income groups and types of care (see Figure 4-4).

The stark difference in ECE utilization pattern across income categories supports the hypothesis that the cost to families is an important determinant of children’s access to early care and education. The committee agreed that, given the importance of high-quality early care and education for child development, children’s access to high-quality ECE opportunities should not be constrained by their family’s income. Yet, determining what level of ECE expenditure is affordable to families is challenging for a number of reasons. There is no universally accepted definition of affordability for ECE services, nor is there agreement on how it should be measured. Definitions for affordability of housing, health care, and higher education face similar challenges (see, e.g., Harkness and Newman, 2005).<sup>2</sup> The committee reviewed four different approaches to determining a reasonable share for families to pay, or in other words, four ways of defining an affordability standard for families. These approaches include: (1) no-fee approaches, (2) share of income based on equitable cost burden, (3) share of income after protecting for necessities (also called a “basic-needs budget approach”), and (4) affordability as minimizing impact on utilization decisions (also called an “economic modeling approach”). The advantages and disadvantages of these approaches are discussed in Appendix C.

Many complexities arise in defining an affordable share for families to

<sup>2</sup> In presentations to the committee, representatives from the health care, housing, and higher education fields discussed definitions of affordability in their sectors.

pay, in terms of defining both family income and payments and in setting the threshold that defines affordability (e.g., should the threshold differ based on family needs or characteristics?). The share of income families spend on early care and education varies with their resources, needs, and preferences. The no-fee approach eliminates financial barriers to accessing certain ECE programs and ensures access to early care and education, regardless of family circumstances, but higher levels of public funding would be needed to support a system based on this approach (see the discussion in Chapter 6 on “Example Part II: Family Payments in a High-Quality ECE System”). While the committee does not propose using a particular definition of affordability, we agreed that the recommendations for financing and system changes discussed in this report must enable families at all income levels to access high-quality ECE services for their children at all ages from birth to 5 years old.

### FINANCING MECHANISMS’ SUPPORT OF EQUITABLE ACCESS

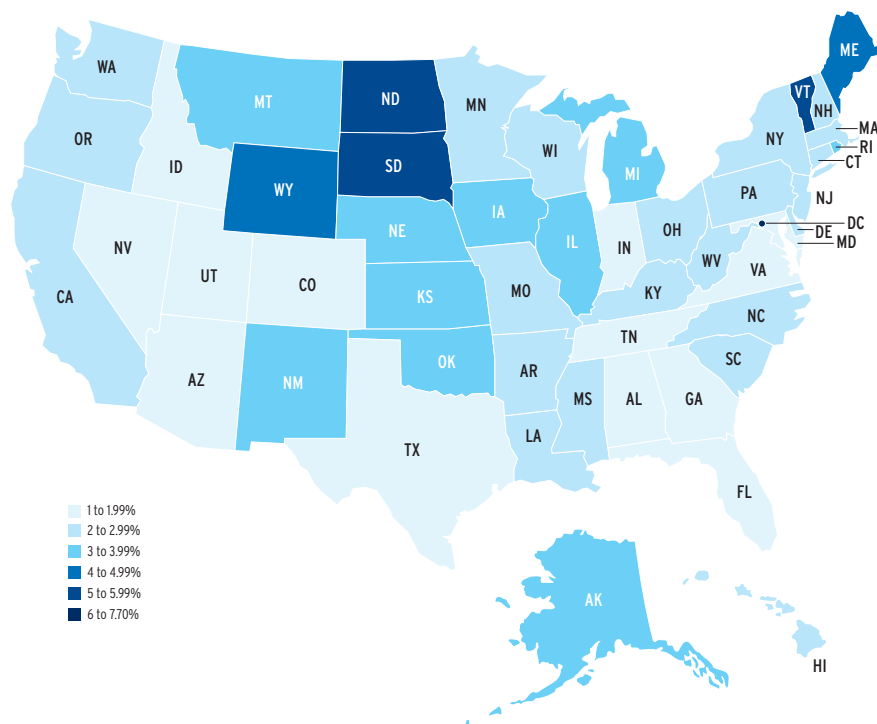
This section analyzes the adequacy of existing provider-oriented (Head Start and state-funded prekindergarten) and family-oriented (ECE assistance programs and tax preferences) financing mechanisms to support access to high-quality early care and education. It also assesses whether these financing mechanisms as currently structured support equitable access to high-quality early care and education for all children across all ethnic, racial, socioeconomic, and ability statuses as well as across geographic regions.

#### Provider-Oriented Financing Mechanisms

This section analyzes the two major programs that distribute funds through provider-oriented mechanisms: federal-funded Head Start programs and public prekindergarten programs that are funded primarily by states or local jurisdictions (see Chapter 2 for details on these programs). Head Start funding is designed to cover the entire cost of early care and education for participating children, and eligible families pay no share of the cost. Public prekindergarten programs vary by location; some require no payment by any parents with children in the program, others require some payment by some but not all parents, and still others require some payment by all parents.

Existing provider-oriented mechanisms generally are designed to promote access to early care and education for low-income children. Families are eligible to enroll their children in a Head Start program if their income is below a certain level (see Chapter 2); likewise, many—though not all—public prekindergarten programs are also targeted to low-income children. Though targeted to low-income families, many of these programs are underfunded and do not serve all children who are eligible to receive





**FIGURE 4-5** Percentage of low-income 3- and 4-year-olds served by Head Start.  
**SOURCE:** Barnett and Friedman-Krauss (2016, p. 11).

services. In fiscal 2016, only 31 percent of eligible children ages 3 to 5 years were served by Head Start (National Head Start Association, 2017), and participation varied greatly by state, as shown in Figure 4-5. Similar variation exists for state-funded prekindergarten programs. For example, three states (Florida, Oklahoma, and Vermont) and the District of Columbia cared for greater than 70 percent of their 4-year-olds in state-funded prekindergarten programs in 2012–2013, while 11 states served less than 10 percent of their 4-year-olds (U.S. Department of Education, 2015).<sup>3</sup> For low-income<sup>4</sup> children under 3 years old, less than 3 percent were served by Early Head Start in 2014–2015 (Barnett and Friedman-Krauss, 2016). According to Barnett and colleagues (2017, p. 8), “Across all public

<sup>3</sup> The 11 states are Alabama, Alaska, Arizona, Delaware, Minnesota, Missouri, Nevada, Ohio, Oregon, Rhode Island, and Washington.

<sup>4</sup> Barnett and Friedman-Krauss (2016, p. 12) defined low-income families as having household incomes between zero and 200 percent of the FPL.

programs—[prekindergarten] general and special education enrollment plus federally and state-funded Head Start—43 percent of 4-year-olds and 16 percent of 3-year-olds were served.”<sup>5</sup>

Moreover, according to Schmit and Walker (2016, p. 12), “only half of eligible Black preschoolers, 38 percent of eligible Hispanic/Latino children, and 36 percent of eligible Asian children were served through Head Start.” Early Head Start programs provided even less access to eligible children, with “6 percent of eligible Black infants and toddlers, 5 percent of eligible Hispanic/Latino infants and toddlers, and 4 percent of eligible Asian infants and toddlers being served.”<sup>6</sup> While targeting low-income children responds to one aspect of equity, current provider-oriented mechanisms are insufficient to support access for all low-income families and do not address the middle-income gap.

For eligibility, both Head Start and public prekindergarten focus on the developmental needs of children, rather than the employment status of their parents. Thus, children are eligible for service if they meet income and/or geographic requirements regardless of parental employment or participation in education or training.<sup>7</sup> However, because the main goal of these programs is to support child development and not specifically parental employment, many of these programs do not serve children on a full-day, full-year basis. The duration of service varies by type of setting (state-funded prekindergarten or Head Start) and across states. Therefore, many families rely on a combination of provider-oriented and family-oriented mechanisms to meet their ECE service needs while working. Head Start regulations also require programs to serve children who have special physical, emotional, or developmental needs (see Box 4-2 for a discussion of financing mechanisms available to support the provision of services for these children).

Because Head Start and public prekindergarten are provider-oriented, they can potentially target ECE opportunities and build supply in high-need

---

<sup>5</sup> Barnett and Friedman-Krauss (2016, p. 18) estimated that serving half of all low-income children in the United States in Head Start would cost \$20 billion, an increase of \$14.4 billion in federal investments.

<sup>6</sup> Schmit and Walker (2016) noted that Head Start administrative data report race and ethnicity separately, which prevents identification of White non-Hispanic/Latino children. As a result, Schmit and Walker (2016) did not provide an analysis of access for White children. Without an analysis of access for White children, it is difficult to determine whether the shares of children served specifically reflect underservice of non-White children or reflect the overall underfunding of the program.

<sup>7</sup> Basing eligibility on income without regard to parent employment has advantages for increasing access, but it is not something inherent in the choice between provider-oriented and family-oriented financing. Rather, the requirement of parental employment or education/training to receive certain types of assistance is an artifact of the financing being situated in the work-welfare policy sphere and the dual ECE objectives of fostering child development and adult employment (see Chapter 2).

### **BOX 4-2** **Financing to Support Children with Special Needs**

A significant component of high-quality early care and education is adequate staffing to meet the varied needs of children with special physical, emotional, or other developmental needs. Federal data indicate that in 2010 almost 1 in 10 children under age 6 had a special health care need, which is equivalent to about 2 million children (Forry et al., 2013). In 2014 more than 1 million children from birth–5 years received special education and related services (U.S. Department of Education, 2016). Thus, about 1 million children under age 6, or half of all children with special needs in this age range, are not currently receiving services.

In contrast with other prekindergarten educators, special education educators who work in early care and education typically hold a bachelor's-level degree. As a result, their pay tends to be higher. For example, the mean annual income for prekindergarten educators is \$33,300, while for prekindergarten special education educators it is \$56,990 (Bureau of Labor Statistics, 2016). Providing sufficient funding to ensure an adequate number of special education educators is critical to the financing of a high-quality ECE system.

While there is no conceptual reason that either the provider-oriented or family-oriented financing mechanism is better suited to meeting these special needs, there are certain advantages of each mechanism. For children who require special classes, it may be more effective to fund specific providers to operate appropriate facilities and specialized staffing. For children likely to benefit from inclusive or “mainstreamed” settings, offering higher levels of family assistance to enrich broader programs with additional appropriate professional development and consultation, family support, and reduced child-to-adult ratios may be most appropriate.

For programs funded or operated by public schools, special protections under federal law and state constitutions ensure services are provided for all children who have been identified as having special needs and require a higher level of resources per child. The Individuals with Disabilities Education Act allocates grants to states, via a funding formula, to provide early intervention services to children with disabilities from birth–2 years and to their families, including assisting in the families' cost of appropriate education for children 3–5 years (U.S. Department of Education, 2017). However, since it is often difficult to determine the physical and emotional needs of young children, many children with lower levels of special need may not be identified and covered by these programs.

Current federal regulations require that enrollment in Head Start programs include at least 10 percent of children with disabilities (Administration for Children and Families, 2009). Data from Head Start's Family and Child Experiences Survey show that by the end of their first year, 14 percent of Head Start attendees were classified as having special needs (Office of Planning, Research, and Evaluation, 2012). Although current federal law and regulations pertaining to the Child Care and Development Fund (CCDF) require that children with special needs be given preferential eligibility in CCDF-supported state prekindergarten programs, the definition of special needs and implementation are currently left to state discretion (Administration for Children and Families, 2016b).

communities, which can improve access for low-income children in those areas. Funds can be distributed contingent upon the location of the ECE program and can thus incentivize the creation and maintenance of programs in high-need areas. For example, approximately 50 percent of centers in moderate- and high-poverty areas participate in Head Start or public prekindergarten programs, whereas about one-third of centers in low-poverty areas have such programs. Similarly, about 50 percent of centers in rural areas take part in Head Start or public prekindergarten programs, whereas only 30 to 40 percent of centers in moderately or highly urban locations take part in those programs (National Survey of Early Care and Education Project Team, 2015c).

However, this uneven distribution of programs may disadvantage some low-income families who do not live in an area with Head Start or public prekindergarten programs, though this limitation is not inherent in the mechanism itself but is a result of current design. Moreover, the targeting of public funds to low-income families through provider-oriented mechanisms may promote racial and economic segregation, which may have negative effects on low-income children (see, e.g., in the K–12 context, Bifulco and Ladd, 2007; Ladd, Clotfelter, and Holbein, 2017; Saporito, 2003). For example, some Head Start providers serve only low-income children, creating a divide between these children and other children in their community who attend non-Head Start programs. Although other Head Start providers serve both Head Start-eligible and -ineligible children, the same economic segregation still often occurs within the center. Many providers establish separate classrooms for eligible and non-eligible children, largely due to the difficulty of applying different staffing and service standards associated with various program requirements, which furthers economic segregation and has implications for quality.

### Family-Oriented Mechanisms for Service Delivery

Family-oriented mechanisms may help address issues of equitable access to early care and education by providing assistance for low- and moderate-income families who would otherwise be unable to afford paid ECE services. However, how these mechanisms are structured is important for ensuring equitable access; if a mechanism is structured so that small increases in earnings produce a large drop in benefits, then this “cliff effect” creates a work disincentive and may limit access to early care and education for certain families.<sup>8</sup> For example, Child Care Assistance Programs (CCAP)

---

<sup>8</sup> A related concern is the presence of a “notch” in benefit schedules, where benefits do not increase or decrease smoothly as income increases, due to consideration of other family factors. This type of notch can produce inequities within families of similar socioeconomic status (sometimes called “horizontal inequities”), where families of similar circumstances are treated differently.

funds are structured to be issued on a sliding scale based on family size and income (e.g., subsidies to larger families with lower incomes are higher than subsidies to smaller families with higher incomes), which reduces the “cliff effect” and the likelihood that a low-income family will lose benefits if family income increases. Conversely, in a program like Head Start, in which early care and education is provided on a no-fee basis for families with incomes up to the FPL, if a family’s earnings increase slightly above the FPL, that family will no longer be eligible to participate in Head Start in the next school year. Even if families live in a state that offers CCDF assistance to families with income somewhat above the FPL, that assistance would be small in comparison to what they received from Head Start, potentially making ECE participation unaffordable for them.

State ECE assistance programs also require copayments, limiting the ability of those programs to support ECE participation for some families. In some states, copayment levels are so high that low-income families may be unable to afford early care and education, even with the subsidy. Moreover, although the federal government sets the maximum income level for assistance at 85 percent of the state median family income, most states have established even lower income-eligibility levels, preventing some low-income families from accessing the state ECE subsidy. For example, a family with an income greater than 200 percent of the FPL<sup>9</sup> would not be eligible for financial aid in 39 states (Schulman and Blank, 2016); that family would fall into the middle-income gap in use of center-based care, as discussed above. In fact, only 11 percent of children who are eligible for assistance receive it (U.S. Government Accountability Office, 2016).<sup>10</sup> To manage the difference between available funds and needs, 20 states instituted waiting lists or froze intake for eligible families in 2016 (Bipartisan Policy Center,

---

<sup>9</sup> In 2015, 200 percent of the FPL for a family of three (one child) would be an annual income of \$40,320.

<sup>10</sup> Moreover, an analysis of the cost implications of changes made in the 2014 reauthorization of the Child Care and Development Block Grant (CCDBG) Act suggests that in order to implement the changes required in the act, the annualized costs, averaged over a 10-year period, would total \$1.16 billion. The estimated increases in subsidies needed to meet all requirements for the currently served child population would amount to an additional \$7.4 billion over 10 years. However, this figure would not increase the number of children served. Therefore, the cost of financing these changes and helping all eligible children is likely much higher. (See: <https://www.gpo.gov/fdsys/pkg/FR-2016-09-30/pdf/2016-22986.pdf> [December 2017]). Similarly, the National Women’s Law Center notes, “For states to comply fully with the new requirements of the reauthorization while avoiding tradeoffs that harm children and families—and the child care providers who serve them—it will be essential for policymakers to appropriate significant new federal and state resources” (Matthews et al., 2015, p. 4). While CCDBG appropriations increased by roughly \$300 million in 2016, this amount is lower than the estimated cost of implementing the new standards. (See: [https://www.cbpp.org/sites/default/files/atoms/files/5-19-17bud\\_childcare.pdf](https://www.cbpp.org/sites/default/files/atoms/files/5-19-17bud_childcare.pdf) [December 2017]).

2017; Schulman and Blank, 2016). Figure 4-6 shows the percentage of children eligible for federal CCAP assistance who also qualify under state policies and receive assistance. Using state income eligibility criteria, Schmit and Walker (2016, pp. 12–13), estimated that “only 21 percent of Black children, 11 percent of Asian children, 8 percent of Hispanic/Latino children, and 6 percent of American Indian/Alaskan Native children” eligible for assistance were served through CCAP.<sup>11</sup> If federal eligibility criteria were used (85 percent of state median income), the data would show even lower rates of provided services to eligible children.

Further, CCAP assistance and federal tax preferences are restricted by federal law to families with parents who are employed or participating in education or training programs, further reducing access to financial support for some families. States vary in terms of requirements for hours of work and in their determinations of which activities parents can undertake while using CCDF funds for early care and education, particularly regarding what qualifies as education and training, or if self-employed, what work qualifies as an allowable activity. Moreover, children who are U.S. citizens in mixed status families (i.e., not all family members have lawful entry status) will be ineligible for CCDF funds because their undocumented parents cannot legally meet the work requirement (Adams and Matthews, 2013). Many other family circumstances besides employment can make participation in early care and education desirable for children (such as parental desire to enable their children to engage socially with other children, fostering school readiness through structured early learning, or supporting parents in poor health or parents who care for other family members). The employment requirement for family-oriented assistance unnecessarily restricts access to ECE financial support only to children whose parents meet certain eligibility requirements, including employment.

Furthermore, eligibility requirements that are tied to parental employment rather than children’s developmental needs may increase instability in ECE arrangements. If a parent loses his or her job, the children may be unable to participate in early care and education. The 2014 reauthorization of the CCDBG Act addressed this issue with new eligibility determination rules, which allow a 3-month window before a previously eligible family

---

<sup>11</sup> Like Head Start administrative data, CCDBG administrative data do not report race and ethnicity separately, which prevents differentiation of White non-Hispanic/Latino children from White Hispanic/Latino children. As noted above in footnote 6 to this chapter, this prevented Schmit and Walker (2016) from providing an analysis of access for White children. Again, without an analysis of access for White children, it is difficult to determine whether the shares of children served specifically reflect underservice of non-White children, or whether they reflect the overall underfunding of the program.

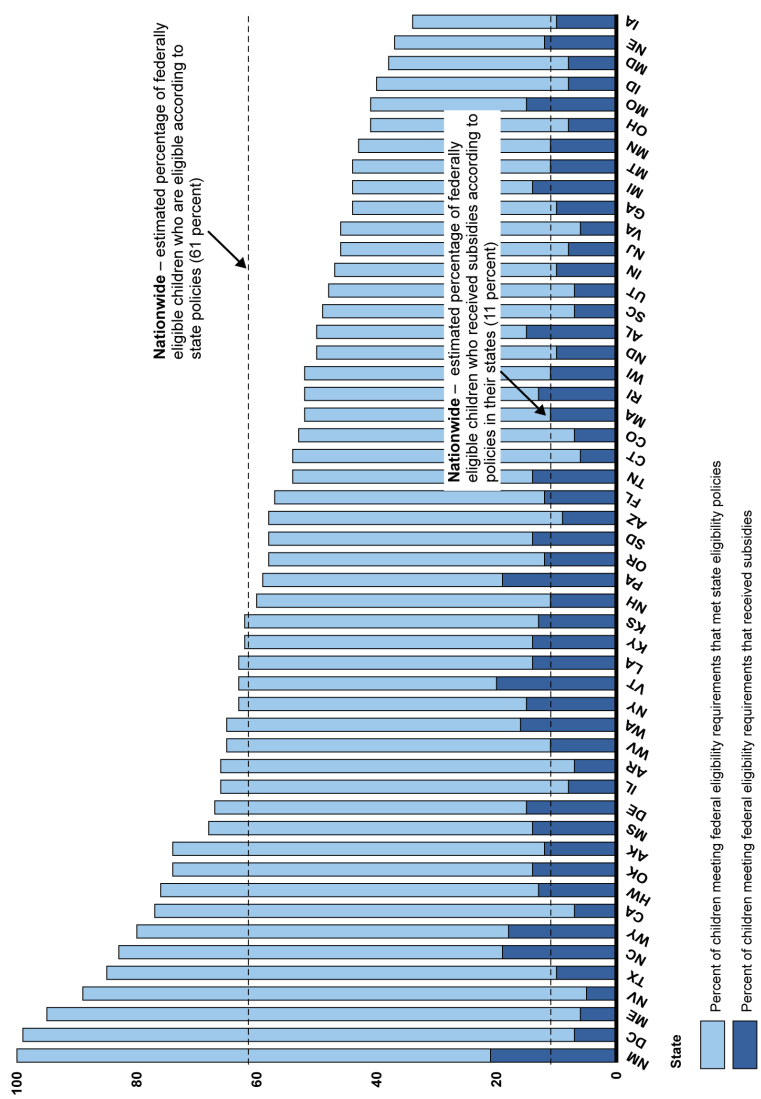


FIGURE 4-6 Percentage of children eligible for federal Child Care Assistance Programs who also qualify under state policies and receive assistance, 2012.  
SOURCE: U.S. Government Accountability Office (2016, p. 10).

becomes ineligible.<sup>12, 13</sup> Although these changes are beneficial to CCDF providers and families, other programs and tax preferences lack this stability.

Family-oriented financing mechanisms can also allow financial support to be tailored to a family's circumstances and thereby promote *target efficiency*. For example, an ECE program that provides subsidies on a sliding scale that decreases with greater income and increases with larger family size (though restricted to parents who are employed or in education or training programs) aims to limit assistance to the amount "needed" by a family, thereby targeting scarce public resources to those most in need. Although provider-oriented supports may also be tailored to family circumstances, they typically do so in a cruder way, such as imposing income eligibility restrictions or by using neighborhood characteristics as a criterion for locating publicly supported ECE facilities (Ladd, 2017).

As currently designed, tax preferences including the Child Care and Dependent Tax Credit (CDCTC), Dependent Care Assistance Program (DCAP), and state equivalents are more beneficial for middle- and upper-income families than for low-income families. The DCAP allows for a reduction in taxable income, rather than a reduction in tax payments, as would be the case for a tax credit. Moreover, the CDCTC is a nonrefundable tax credit, and because many low-income families have little or no federal tax liability they are unable to benefit from the credit (see Figure 4-7) (Brown and Medoff, 1989; Matos and Galinsky, 2012).<sup>14</sup>

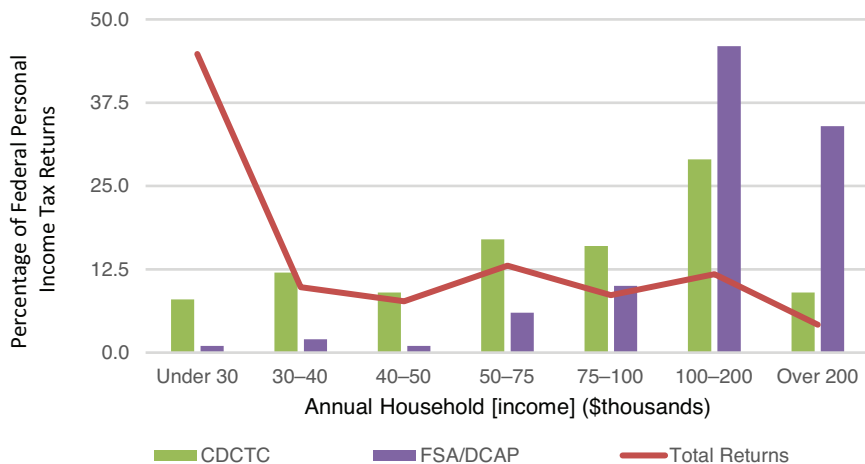
While DCAP's allow taxpayers to reduce the amount of their taxable gross income, they do little to benefit low-income families who already have zero income tax liability because of their low incomes. Similarly, since the CDCTC is not "refundable" (paying an amount in excess of tax liability), it has no value for low- or moderate-income families with no federal income tax liability (even though these families do pay a substantial share of their income in social insurance payroll taxes). Of course, redesigning the CDCTC to make it refundable would benefit low- and middle- income families and has been done in some states for that state's ECE-related tax

<sup>12</sup> S. 1086 *Child Care and Development Block Grant Act of 2014*, 113th Cong., 2nd Sess. Available: <https://www.acf.hhs.gov/sites/default/files/occ/ccdbgact.pdf> [September 2017].

<sup>13</sup> The language in the 2014 CCDBG Act reauthorization notes, "getting and keeping CCDF assistance is overly burdensome for parents, resulting in short durations of assistance and churning on and off CCDF as parents lose assistance and then later return. This instability disrupts parental employment and education, harms children, and runs counter to nearly all of CCDF's purposes."

<sup>14</sup> The large share of low-income tax filers receive hardly any ECE benefits partly because many of them have no income tax liability. Moderate-income families (\$30,000–50,000) receive a share of CDCTC benefits roughly proportional to their share of returns, but hardly any DCAP benefits. Both CDCTC and DCAP benefits are favorable to families making \$100,000–200,000 per year, and DCAPs are favorable to wealthy families making more than \$200,000 per year.





**FIGURE 4-7** Share of tax benefits versus share of returns, by income group, 2014.  
 NOTE: CDCTC = Child and Dependent Care Tax Credit, DCAP = Dependent Care Assistance Program, FSA = Federal Student Aid.  
 SOURCE: Data from Tax Policy Center (2016, 2017).

credit, as discussed in Chapter 2. Timing and administrative requirements also present major concerns for using tax preferences as a mechanism to support ECE access for low- or moderate-income households. More-affluent families with substantial discretionary income can afford to pay ECE expenses on a weekly or monthly basis (the most common ECE provider billing cycles) and recoup the tax preference as a reduction to their tax payment or increase in their refund with their annual tax filing. Low- and moderate-income families typically do not have the ability to pay costs as incurred and recoup the costs later.

## CONCLUSION

In their current form, both provider-oriented and family-oriented mechanisms can help improve ECE access. Head Start and some state prekindergarten programs improve access by targeting program location to high-need areas and to some low-income (high-need) families because they charge no fees to program-eligible families. In addition, because they usually deliver early care and education to families either on a no-fee basis or for a minimal copayment, they reduce or eliminate barriers to ECE use attributable to the family's inability to pay. While targeting these resources to low-income families has benefits and contributes to equity of access,

these programs often leave middle-income families without access to affordable high-quality early care and education, which may promote economic segregation. To the extent that prekindergarten programs are universally provided, meaning they are provided for free to all children in the target age range, they do not exacerbate inequality in access.<sup>15</sup>

As currently structured, the family-oriented mechanisms of tax preferences benefit middle- and upper-income families to a greater degree than low-income families, which typically have little or no income tax liability prior to applying a tax credit or reducing taxable income with pretax contributions. The exception to this generalization are the refundable ECE credits provided by several states. In contrast, CCAP are targeted only to low-income families. However, in states with very low income eligibility standards, many families may not be able to access the CCAP, even though they are unable to afford ECE without assistance.

In addition to the drawbacks specific to these mechanisms in their current form, there are disadvantages in the overarching situation that the existing ECE “system” is a hodgepodge of various programs with varying and conflicting eligibility criteria and reimbursement approaches. Because no system is well structured enough to address the ECE needs of all children, families may be caught between the criteria and limitations of the individual ECE options available to them. For example, a family that has an income above the FPL may not be eligible for Head Start, but that family’s taxable income may be too low to benefit from nonrefundable tax credits. Eligibility requirements also vary between programs and can result in instability in a child’s ECE participation when a family’s circumstances change. Moreover, current requirements conditioning CCAP assistance and federal tax preferences on parental employment (or participation in approved venues for training or education) limit the ability of some children to access early care and education.

The inadequacies of the current funding structure stem not necessarily from having multiple financing mechanisms but from relying on mechanisms that are not harmonized to avoid gaps in affordable access. These gaps are exacerbated by overall levels of funding that are insufficient to support either provision of high-quality early care and education or its affordability by families at all income levels (see Chapter 6) and by considerable variation in quality standards and funding across states and among provider entities (Bassok et al., 2016). Chapter 5 considers these questions of quality in greater detail.

---

<sup>15</sup> However, universal programs, depending upon duration offered, may improve access to high-quality early care and education for only a limited number of hours per day, in which case families needing additional hours of care may need assistance to access additional or alternative ECE services.



## 5

## Current Financing for Early Care and Education: Ensuring High Quality Across Settings

**T**his chapter examines the committee's third, fourth, fifth, and sixth principles, which focus on ensuring high-quality early care and education across settings (see Box 3-2 in Chapter 3). It begins by examining how current provider-oriented and family-oriented financing mechanisms incentivize quality and the extent to which they create or ease the administrative burden on providers. Second, the chapter assesses how well those financing mechanisms support a variety of service delivery options, taking into account the various times during which early care and education is needed by families and the needs and constraints of different types of early care and education (ECE) providers, such as center-based or home-based providers. Next, the chapter discusses the committee's fifth principle and examines the current financing mechanisms available to support the building and maintenance of quality ECE facilities, which are important for ensuring delivery of high-quality early care and education. Finally, the chapter concludes by examining the current financing mechanisms that support ongoing accountability, evaluation, and continuous improvement in early care and education, the committee's sixth principle.

### PRINCIPLE 3: EASY-TO-ADMINISTER FINANCING WITH INCENTIVES FOR QUALITY

This section reviews the financing mechanisms for direct service delivery, describing the provider-oriented and family-oriented mechanisms by which funds are distributed to support the delivery or purchase of ECE services and analyzing them against the committee's third principle:

*High-quality early care and education requires financing that is adequate, equitable, and sustainable, with incentives for quality. Moreover, it requires financing that is efficient, easy to navigate, easy to administer, and transparent.*

### Provider-Oriented Mechanisms

Provider-oriented mechanisms can provide incentives to improve ECE quality. Because provider-oriented mechanisms distribute funds to an entire program, the distributing entity can establish and enforce standards of quality through direct budget control or by contractual agreement.<sup>1</sup> For example, Head Start promotes quality through requirements that staff meet certain qualifications and competencies standards. (However, Head Start does not provide commensurate compensation for staff that meet these standards; see section in Chapter 3 titled “Increasing Base Pay.”) Head Start regulations also link the receipt of Head Start funding to a center’s quality rating, thereby making quality a consideration in new or ongoing funding decisions (see discussion on financing quality improvement in the “Accountability and Improvement Systems” section below) (Administration for Children and Families, n.d.; Barnett and Friedman-Krauss, 2016). In some states, funding for state-sponsored prekindergarten programs is also linked to a provider’s quality rating under the state’s quality rating and improvement system (QRIS) (Barnett et al., 2017).

In some situations, provider-oriented mechanisms can ease navigation of ECE service options for families. For example, Head Start–eligible families have clear choices about the programs from which they can choose and need not worry about arranging payments. In addition, if providers receive funding directly, they do not need to collect and process payments from families and they can rely on steady funding throughout the year. However, providers that accept children who are eligible for different types of funding (e.g., some receive Head Start funding and others receive funding through ECE assistance programs) currently face the challenge of managing sources that have different program standards and family eligibility requirements (see further discussion below, under “Licensing, Monitoring, and Regulation”).

Provider-oriented mechanisms can also provide sustainable funding for providers, as contracts typically allow for a certain drop in enrollment or attendance, which enables providers to plan and manage their resources more effectively and to ensure ongoing and adequate compensation for their workforce (see discussion on compensation for the workforce in Chapter 3 titled “Improved Compensation”).

---

<sup>1</sup> However, some scholars argue that such standards and control may lead to unnecessary uniformity of learning approaches (Fuller, 2007).

### Family-Oriented Financing Mechanisms

As discussed in Chapter 2, states are responsible for setting policies on quality requirements for access to ECE assistance programs. The 2014 reauthorization of the Child Care and Development Block Grant (CCDBG) Act sets a minimum on the portion of Child Care and Development Fund (CCDF) funds that must be set aside for activities that improve the quality of ECE programs, and states have a great deal of flexibility within the requirements for spending those funds. States are required, however, to submit ECE program plans to the federal government to address system-level issues, including quality assurance.

States also set reimbursement rates for ECE assistance programs, and these rates vary greatly by state. Only one state sets its reimbursement rate at the 75th percentile of current market value (the level recommended by the federal government), while 32 states have reimbursement rates at least 20 percent below the 75th percentile of market prices (Schulman and Blank, 2016). Low reimbursement rates limit the level of quality care a provider can offer to families. At the same time, many states link payments directly to quality. As of 2016, 38 states had implemented tiered reimbursement, meaning that higher reimbursement rates for Child Care Assistance Programs (CCAP) are offered to providers as programs achieve higher quality-rating scores on that state's quality assessment system. However, in three-fourths of these states the higher reimbursement rates for high-quality care were still lower than the 75th percentile of market rates (Schulman and Blank, 2016, p. 3). Additional challenges limit the effectiveness of this approach for achieving quality (see discussion below, in section on "Financing Quality Assurance and Improvement").

A tiered reimbursement strategy by itself rarely generates enough revenue to significantly raise the quality of most programs. Because the cost of maintaining quality in a program is spread across all classrooms and all children, adequate funding is needed for every child, not just those receiving a subsidy. Few programs serve only subsidized children, and nonsubsidized families are frequently not able to pay the full cost of a high-quality program. Since revenue from a public ECE subsidy is only received for a small proportion of children, tiered reimbursement increases in the subsidy payments produce only a modest amount of revenue for most programs (BUILD Initiative, 2017). Moreover, levels for tiered reimbursement rates are commonly set without a determination that the higher rates are sufficient to meet the costs to providers of attaining higher quality-standards.

Federal tax preferences do not have any direct linkage to quality standards, but a small number of states have linked their tax credits to quality standards. For example, Arkansas, Louisiana, and Vermont reward families for choosing quality programs as rated by the state's quality assessment

system (BUILD Initiative, 2017).<sup>2</sup> In Maine, families that purchase services from an ECE provider with a quality certificate are eligible for double the standard state ECE tax credit (Maine Child Care and Family Services, 2017). Linking the larger federal tax credit, the Child and Dependent Care Tax Credit, to a quality rating is conceptually possible but would require an expanded administrative apparatus for that credit.

### **Summary: Principle 3—Easy-to-Administer Financing with Incentives for Quality**

Provider-oriented mechanisms can provide sustainable funding for providers, which allows providers to effectively plan and manage their resources. In turn, this allows them to offer ongoing salaries at particular levels without concern that funding will be withdrawn if children leave (see discussion in Chapter 3 on “Improved Compensation”). However, such financial stability is currently only available to a small share of providers; the higher-education system provides an example of how provider-oriented financing could be extended to all providers, easing navigation for families and the administrative burden on providers.

Provider-oriented mechanisms also support and incentivize improvements in quality through grant or contract requirements or by making funding contingent on meeting specific quality benchmarks. Existing provider-oriented mechanisms vary in terms of linking funding to and providing incentives for quality, but in theory these mechanisms could allow the funder to establish and enforce standards of quality through contractual relationships.

The current requirements for use of CCAP subsidies and tax credits do little to give providers an incentive to improve quality, though family-oriented mechanisms have the potential to support high-quality ECE options. Recent efforts by certain states to implement tiered reimbursement are an example of incentivizing quality by providing higher rates of payment for ECE service delivery that meets higher standards. Though these efforts are useful for improving quality, they are often insufficient, since it is difficult for a provider to meet higher standards if tiered funding increases in payments only apply to some of the children enrolled in the provider’s program or if the tiered funding increase is itself insufficient to cover the cost of offering high-quality services.

In summary, existing quality standards and the effectiveness of their implementation vary across financing mechanisms and programs. Typically,

---

<sup>2</sup> Louisiana also provides refundable tax credits that are linked to quality for businesses that pay expenses to ECE facilities with a Quality Start rating of at least two stars and for ECE providers whose facilities are rated two stars or higher (ChangeLab Solutions, 2016).

receipt of funding is not directly linked to the cost of attaining or maintaining quality standards and does not offer incentives for attaining high-quality early care and education. Levels of support to providers and to families often are not based upon the costs of offering high-quality early care and education and are thus insufficient to drive quality improvements. Many providers lack secure funding that would allow them to maintain stable operations and invest in quality improvements.

#### PRINCIPLE 4: VARIETY OF HIGH-QUALITY SERVICE OPTIONS

This section analyzes provider-oriented and family-oriented mechanisms against the committee's fourth principle: *High-quality early care and education requires a variety of high-quality service delivery options that are financially sustainable.*

##### Provider-Oriented Mechanisms

Most provider-oriented financing is currently directed to center-based providers, and offering care during nonstandard hours is generally cost-inefficient for most centers. Only about 8 percent of centers offer any nonstandard hours of ECE services, and only 2-3 percent are open evenings or weekends (National Survey of Early Care and Education Project Team, 2015b). Therefore, families who need care during these hours may find it difficult to secure affordable, quality care that meets their needs. However, provider-oriented financing could, in the future, incentivize providers to offer services during nonstandard hours. For example, a network of high-quality home-based care could receive provider-oriented financing to offer care during nonstandard business hours.

Moreover, as currently directed, provider-oriented financing varies in the duration of services supported. For example, for the 2015–2016 school year, 44 percent of children in Head Start settings and 42 percent of children in Early Head Start settings received services for an entire school day (more than 6 hours per day), 5 days a week. Of the 59 state-funded prekindergarten programs serving children during the 2015–2016 school year, the majority (37) were offered on a part-day basis (less than 4 hours per day) with only 16 offering services on a school-day basis (at least 4 hours but less than 6.5 hours per day) or an extended-day basis (more than 6.5 hours per day) (Barnett et al., 2017). This is largely a function of the amount of funding dedicated to these provider-oriented financing mechanisms and the specific requirements of each mechanism's contract provisions. The mechanism itself does not inherently support provision of full-day over part-day services or vice versa. However, as exemplified by recently released Head



Start standards requiring that all children enrolled in Head Start receive 1,020 hours of services per year (roughly 4 hours per day) by the year 2020 (Barnett and Friedman-Krauss, 2016), provider-oriented mechanisms, when coupled with commensurate funding, can be used to require providers to offer services for longer durations. This may especially ease the burden on parents working full-time standard business hours, who rely on ECE settings to care for their children while they are working.

### **Family-Oriented Financing Mechanisms**

Because families may use the provided assistance to purchase ECE services from the provider of their choice, family-oriented financing mechanisms give families options regarding program location, hours of operation, and approaches to child development. However, this choice may be subject to restrictions set by the program. For example, families may be required to use CCAP vouchers at licensed ECE centers (see, e.g., Louisiana Department of Education, 2017a; Maryland Family Network, 2017). Despite the potential for such restrictions, family-oriented mechanisms provide families with greater discretion for deciding which programs to use than if they were restricted to a Head Start or public-school prekindergarten program, where funds are distributed directly to a limited set of providers. However, mechanisms that support family choice among options can also be problematic. A large literature in the elementary and secondary education field demonstrates that families may use “choice” to select programs that are segregated by race or income or that are discriminatory by religion or other characteristics (Bifulco and Ladd, 2007; Booker, Zimmer, and Buddin, 2005; Cohen-Zada and Sander, 2008). Moreover, families may choose to purchase care that maximizes convenience of location and flexibility of hours for the parents, which though important to meeting family needs, may come at the expense of choosing quality programs for child well-being and development.

### **Summary: Principle 4—Variety of High-Quality Service Delivery Options**

In summary, family-oriented financing mechanisms as currently used give families more discretion for deciding which type of ECE service option to use. However, there are a number of challenges related to such discretion, including the potential for parents to prioritize program attributes other than high quality. While provider-oriented financing mechanisms tend to support the provision of early care and education that is offered during standard business hours, provider-oriented support could be structured to incentivize offering services that extend beyond standard hours or on a full-day basis.

## PRINCIPLE 5: HIGH-QUALITY FACILITIES

This section analyzes provider-oriented and family-oriented mechanisms with respect to the committee's fifth principle: *High-quality early care and education requires adequate financing for high-quality facilities.* As discussed in Chapter 1, quality facilities contribute to high-quality ECE services in that well-designed environments can promote learning, exploration, and physical activity. However, building or renting facilities and upgrading them when needed are often-overlooked elements of a quality infrastructure for early care and education. While service delivery funding covers ongoing facility rent, maintenance, and insurance costs, in situations requiring increases in capacity or improvements in the quality of facilities, upfront costs are difficult to cover through funding for services. While the most basic function of ECE facilities is to ensure that children stay safe and clean, high-quality facilities can also offer young children opportunities for cognitive, emotional, and physical development that go beyond basic expectations of physical protection. See Box 5-1 for a discussion of the contributions that facilities can make to recruiting and retaining a highly qualified workforce.

Some ECE providers may need funds for acquiring new facilities and maintaining, expanding, and improving existing facilities. In contrast to the K–12 system, there is no dedicated financing mechanism for ECE facilities. Despite the importance of facilities in ensuring quality early care and education, most financing mechanisms that support service delivery—such as Head Start or CCDF—do not include allowances for facilities acquisition, expansion, or improvements (Gillman, Raynor, and Young, 2011). Because of this financing gap, providers have been forced to pursue a hodgepodge of approaches including loans, grants, tax credits, and intermediary services from community development financial institutions (CDFIs); many of these options are only available to center-based providers. The committee reviews these mechanisms below against its criteria for high-quality early care and education, asking whether current financing is available and adequate to sustain quality facilities for both center-based and home-based providers and whether current mechanisms are easy for providers to navigate and administer (see fourth criterion under Principle 3).

### Loans

Loans are a common way to pay for acquiring or improving buildings; for example, individuals can use mortgages and home equity loans to acquire or improve a residence. However, ECE providers may have difficulty accessing or managing loans due to several factors: (1) Centers may have low value and minimal business assets to use for collateral. (2) Providers

**BOX 5-1**  
**Contributions of Facilities to Recruitment and Retention of a Highly Qualified Workforce**

As with other professional sectors, maintaining high-quality facilities is critical to attracting and retaining a highly qualified ECE workforce. Better-quality facilities can create physically and psychologically comfortable workplaces and facilitate professionally rewarding interactions with young children, parents, and colleagues (Sussman and Gillman, 2007). Moreover, the quality of an ECE facility may indirectly contribute to educators' decisions to remain with a program. For example, Buckley, Schneider, and Shang (2004) surveyed educators in kindergarten through grade 12 (K–12) schools in Washington, D.C. and found that the rating educators assigned to the facilities in their school was correlated with their decision to continue working at the school. Respondents in similar surveys also reported that poor indoor air quality, thermal comfort, and lighting led to job dissatisfaction, and the physical conditions of the schools correlated with educator morale and effectiveness, which are factors that predict workforce retention (Buckley, Schneider, and Shang, 2004; Shell, 2015).

Unsuitable or unappealing facilities may also deter parents from enrolling children in ECE programs. Decreased enrollment could lead to declines in revenue that inhibit a center's ability to recruit and properly compensate highly qualified educators. Higher turnover requires more time and resources to be devoted to training new employees, which could impair a center's ability to dedicate resources to making infrastructure improvements in the future (Gillman, Raynor, and Young, 2011; Whitebook, Phillips, and Howes, 2014).

may have razor-thin monthly cash flow margins and thus find it challenging to make payments. (3) Taking on a loan means that debt repayment costs become a competing expense in the provider's budget, requiring resources that could be allocated to other quality improvements.

Some states have developed innovative strategies to help businesses access and manage loans, including loan guarantees, direct loans, debt service support, and performance-based loan forgiveness. Some of these programs are specific to ECE providers, whereas others are geared toward helping small, nonprofit, or otherwise needy businesses in general.

Loan guarantees can help marginally creditworthy businesses access conventional commercial loans by reducing repayment risk in order to induce a lender to make an otherwise marginal loan. North Carolina's Self-Help, Inc. is an example of one such loan guarantee program (see Box 5-2).

Though loan guarantees can help providers access funding for facilities, only providers that have the financial ability to take on the debt are helped by these programs. Because most major facilities investments require deeper subsidies than loan guarantees offer, many ECE providers are unable to

**BOX 5-2**  
**North Carolina's Self Help, Inc.**

North Carolina's Self Help, Inc. partnered with the state to guarantee loans to ECE providers using federal block grants from CCDF. Self Help, Inc.'s lending aimed to help home-based ECE providers and small ECE centers access capital to make improvements (Sussman and Gillman, 2007). The loan guarantee was available to providers that served children whose ECE services were subsidized by the state. This model of underwriting loans with guaranteed federal money allowed Self Help, Inc. to assume more risk and therefore award more loans than a traditional bank. Since 1994, Self-Help, Inc. has granted 214 loans to small and private ECE programs totaling more than \$10 million in liquid assets (Sussman and Gillman, 2007).

Similarly, through the Connecticut Health and Educational Facilities Authority, Connecticut partially guarantees private-sector loans to ECE providers. This program combines an interest rate subsidy with its loan guarantee to increase the feasibility of borrowing for ECE programs (Zeidman and Scherer, 2009).

qualify for a large enough loan to undertake a major physical infrastructure initiative (Sussman and Gillman, 2007).

States may also provide access to debt by offering direct loans. Typically, a state economic development agency serves as the lender, which absorbs the repayment risk, while the entity receiving the loan is responsible for the full capital costs through loan payments. While states offer small-business loans for which for-profit ECE programs may apply, only a small number of states offer direct loans specifically to ECE programs. One exception is Maryland; since 1988, the state through its Department of Commerce has granted ECE facility loans and loan guarantees to nonprofit and for-profit center-based programs. If the ECE provider can support the debt, the state subordinates the loan to a private lender at market or slightly below-market rates (Sussman and Gillman, 2007).

Debt-services support is another mechanism by which states have supported facilities projects. Using this mechanism, states pay an annual debt service cost rather than the total cost of the facilities project upfront. In this way, states subsidize nonprofit ECE programs by paying a proportion of the facility debt until the loan is repaid. For example, Illinois and Connecticut have used this financing mechanism with tax-exempt bond debt to create low interest rates and longer loan terms, enabling ECE providers to support a share of the bond debt. In Illinois, the capital subsidy covered 100 percent of project costs; in Connecticut about 70 percent of costs were covered (Pardee, 2011; Sussman and Gillman, 2007).

Performance-based loan forgiveness is a financing mechanism that can also be used to incentivize quality. For example, Self-Help (distinct from Self Help, Inc., which is discussed in Box 5-2) administers the North Carolina Department of Health and Human Service's Child Care Revolving Loan Fund.<sup>3</sup> This program ties loan forgiveness to quality improvement standards. Providers who maintain or increase the quality of their program, as measured by the state's quality rating system, qualify for partial loan forgiveness amounting to between 30 and 50 percent of their loan principal after 4 years. Conversely, should program quality decline, the provider is required to pay the full cost of improvements. This financing mechanism incentivizes programs to adopt high-quality practices; however, it only benefits providers who are able to qualify for loans in the first place and may leave out equally deserving quality providers who do not qualify (Sussman and Gillman, 2007).

In addition to these state programs, there are some federal loan options targeted to community facilities projects, including Head Start Centers, through the U.S. Department of Agriculture's Rural Development Community Facilities Program, and the Small Business Administration (U.S. Department of Agriculture, 2017; U.S. Small Business Administration, 2017).

### Grants

Grants are another way that ECE providers can finance facilities. Grants may be provided by state, local, or federal governments or by philanthropic foundations, corporations, or other businesses. Federal grants for ECE facilities include the following opportunities:

- The Administration for Children and Families, in the U.S. Department of Health and Human Services, makes facilities grants available to Head Start grantees.
- The U.S. Department of Housing and Urban Development provides Community Development Block Grants to support a range of community revitalization projects, including Head Start and ECE centers.
- The U.S. Department of Agriculture, through its Rural Development Community Facilities Program, offers small grants for ECE facilities projects in communities with fewer than 20,000 people (U.S. Department of Agriculture, 2017).

---

<sup>3</sup> See description of Self-Help at [http://www.sbtcd.org/pdf/cap\\_opps\\_chap7.pdf](http://www.sbtcd.org/pdf/cap_opps_chap7.pdf), p. 80 [November 2017].

There are also grants available from the U.S. Department of the Treasury, U.S. Small Business Administration, U.S. Department of Health and Human Services, and U.S. Department of Housing and Urban Development for ECE programs that are housed within a multiservice agency that is engaged in implementing economic development programs in the community, such as affordable housing development, microbusiness finance, and job creation (National Center on Program Management and Fiscal Operations, n.d.; U.S. Small Business Administration, 2017). In addition, prekindergarten programs that are part of a local school district may be able to benefit from dedicated grant programs for public school facilities. ECE programs housed in public schools may also access secured local funding for the cost of operating facilities. For instance, Montgomery County, Maryland, as part of its strategic plan for early care and education in the county, has designated early care and education as a priority for use of available public facilities and inclusion in new public construction programs. Given the high rents in this county, ECE providers struggle to offer affordable quality early care and education; the county hopes that addressing ECE facilities in this way will alleviate the cost burden on families (Montgomery County Department of Health and Human Services, 2017).

Private funding—from philanthropic foundations or corporations and other businesses—is another source of grants that may be used for facilities projects. Some private funders may make grants for ECE facilities projects as a way to support their local communities, businesses, and families. Employers that sponsor onsite early care and education may be able to minimize or share costs for facility-related expenses, given that employers have a vested interest in providing and maintaining attractive facilities as an employee benefit.

### Tax Credits

A few available tax credits can be used to support an ECE facilities project. The federal New Markets Tax Credit, for example, was implemented by Congress in 2000 to promote economic development and create jobs in low-income communities. These tax credits provide an incentive for banks, businesses, or individuals to invest in intermediaries that invest in projects in targeted economically distressed areas. Head Start grantees and Educare schools have successfully used this mechanism, and other ECE providers may qualify for the credit. However, the program is not specifically targeted to ECE businesses and a variety of businesses are eligible for the credit.<sup>4</sup>

---

<sup>4</sup> In 2003, the Buffett Early Childhood Fund and the Ounce of Prevention Fund partnered to expand Educare, a network of ECE schools across the country. (See <http://www.educareschools.org> [June 2018]).

### Community Development Financial Institutions

CDFIs are financial institutions that provide credit and other financial services to populations that are traditionally underserved. CDFIs may be used to support facilities projects for ECE programs through loans, particularly for home-based providers. Loans obtained from a CDFI often are accompanied by a requirement that the program receiving money participate in some form of technical assistance training related to the loan. For example, IFF, a regional community development lender, offers loans and training and technical assistance for community facility developments including Head Start facilities in five Midwestern states. The Fund for Quality, a partnership between the Reinvestment Fund and Public Health Management Corporation, provides business planning support and facilities-related financing to high-quality ECE providers (Public Health Management Corporation, 2017).<sup>5</sup> While these entities provide needed assistance to providers, they currently reach only a small fraction of ECE businesses.

### Summary: Principle 5—Financing for High-Quality Facilities

This section considered whether current financing is available and adequate to sustain quality facilities and whether current mechanisms are easy for providers to navigate and administer. While financing may be available for ongoing facilities costs as part of the cost of service delivery for some providers, in situations where support for building and improving ECE facilities is required, no systemwide approach for addressing facilities exists. Without a consistent and effective financing system for physical infrastructure improvements, providers are forced to pursue piecemeal financing approaches, which are often insufficient to meet the need. Though loans, grants, and other financing mechanisms can help ECE providers access funds for acquisition, expansion, or improvement of facilities, existing programs using these mechanisms are limited in scope and the funding that is available is often insufficient to meet the need and often directed exclusively to a certain type of provider (e.g., center-based). For jurisdictions incorporating home-based providers into their state prekindergarten programs (or other jurisdiction-wide services), strategies for financing improvements to these homes to meet health, safety, and quality standards will be increasingly important. Moreover, many of these financing approaches require interfacing with other systems that do not have early care and education as a primary responsibility or interest and that may be difficult for ECE providers to navigate.

While ECE providers in some regions of the country are estimated to need major improvements or entirely new facilities (see Chapter 6), the

---

<sup>5</sup> See <http://www.fundforquality.org/> [June 2018].



committee is not aware of any national-level survey of ECE facilities. A facilities needs assessment with a study of real estate markets should be completed to determine the financing needed to support high-quality ECE facilities (see the section in Chapter 7 titled “Assessing Quality During the Transition”).

## PRINCIPLE 6: QUALITY ASSURANCE AND IMPROVEMENT

The committee’s sixth and final principle is that *high-quality early care and education requires systems for ongoing accountability, including learning from feedback, evaluation, and continuous improvement*. A robust system of supports is essential to improving coordination and efficiency and ensuring quality in the delivery of ECE services for children from birth to age 5. The key components of quality assurance and improvement system supports are data and information management, monitoring and regulation, and quality assurance and accountability. Improving the quality of early care and education requires multiple systems to be established, financed, and coordinated with one another. Quality improvement requires data collection and management systems so that policy makers can understand the current landscape and track changes over time. In addition to data collection, quality improvement requires systems for monitoring ECE programs to ensure that they are meeting the requirements of state licensing boards and the requirements of funding entities; for evaluating educator competencies, compensation levels, and progress in building a more skilled and less stratified workforce; and for assessing child outcomes to ensure quality. Finally, quality assurance and accountability systems can help support and incentivize shifts toward higher-quality early care and education. This section analyzes the financing mechanisms currently available to support quality assurance and improvement systems. It examines whether sustainable funds are available for planning and designing accountability systems and for monitoring and evaluations systems that promote system-wide quality improvements and whether financing is available to support accountability at the educator, program, and system levels.

### Data Collection and Management Systems

Improving ECE quality at the system level requires a clear understanding of the current landscape and the ability to accurately track changes over time. For instance, to what extent is the ECE workforce becoming more professionalized over time? Are qualified ECE professionals being retained over time? Are ECE programs providing high-quality learning environments for children? Are the existing slots sufficient to meet the ECE needs of young children in a community? Have changes in the system resulted



in better outcomes for children? Answering these questions is essential to ensuring timely, data-driven decisions about how to allocate resources and for tracking the return on public investments. However, answering even fairly simple, descriptive questions about the ECE landscape is often impossible, due to the lack of data collection and management systems that comprehensively track information about program enrollment, program quality, or the ECE workforce. Systems that allow linkages across all three of these critical components are uncommon. Furthermore, few systems link with data on child outcomes over time in a way that would allow long-term program evaluation.

Though all states do collect *some* information about either children, programs, or the workforce, linkages across these three categories are limited. Even within each category, the data are often limited to a relatively small subsection of the population (e.g., to a sector or only those individuals or programs that opt in to participating in data collection). A 2013 analysis conducted by the Early Childhood Data Collaborative provided a snapshot of state-level ECE data and found extensive limitations in nearly every state's data system (Early Childhood Data Collaborative, 2014). For instance, only one state had a coordinated data system that merged data from all types of publicly funded ECE programs and also linked that data to K–12 data. State-funded prekindergarten programs were more likely to be included in the state systems than were subsidized ECE or Head Start programs. These linked data systems provide a foundation, but their limitations severely curtail the utility of current data collection efforts as a tool for quality improvement efforts.

Data collection is also supported at the federal level, but many of the existing data sources about the ECE landscape provide only a snapshot for a single time and are based on nationally representative samples that do not allow for differentiation by states, whose policies and economic conditions vary. For example, the Birth Cohort of the Early Childhood Longitudinal Study, which is sponsored by the National Center for Education Statistics, was designed to provide policy makers with rich information about children's early years. It included detailed surveys of parents, ECE educators, and program directors. However, the survey was fielded only once and thus did not allow for tracking changes in ECE quality over time.

Another limitation of some existing data sources is that they only focus on a single sector within the fragmented ECE landscape. For example, the Program Information Reports from the Office of Head Start provide detailed annual data about the Head Start workforce and about the services provided by Head Start and Early Head Start grantees. These reports are useful as a monitoring tool and source of information about this particular sector. Also, the National Center for Early Development & Learning Multi-State Study of Pre-Kindergarten & State of State-Wide Early Education

Programs focuses specifically on state prekindergarten programs. The federally funded Head Start Family and Child Experiences Survey focuses specifically on Head Start. Each of these data efforts has been enormously informative, but the lack of comparable information across sectors is a major limitation in trying to understand the full ECE landscape. Moreover, relatively more attention has been given to collecting data regarding services for prekindergarten-age children (3–5 years) than to infants and toddlers.

Data about the ECE workforce are inadequate due to limited coverage of all types of early care and education and to the ways that ECE professionals are defined and classified. At the federal level, while the National Survey of Early Care and Education covered multiple types of early care and educating—conducting interviews with more than 8,000 center directors, as well as thousands of center-based educators and home-based providers—the study was conducted only once.

States also collect some information about the ECE workforce, often through workforce registries or salary surveys, but 14 states have neither a registry nor a workforce study (Early Learning Challenge Technical Assistance, 2015; Whitebook, McLean, and Austin, 2016). State registries differ substantially from state to state, but they typically collect information about individual practitioners, their demographic characteristics, educational history, certification, employment, and professional development. However, because participation in most states is voluntary, registry data are often too limited in their coverage of the workforce to meaningfully inform efforts to improve quality. Registry data restricted to a subpopulation often do not have compensation information (not required) and are not routinely updated.

In addition to state registries, data about the ECE workforce are sometimes collected through a state's QRIS or through its licensing and compliance systems. At the federal level, the Bureau of Labor Statistics and the National Survey of Early Care and Education report data on the number and salaries of ECE professionals (Bureau of Labor Statistics, 2016; National Survey of Early Care and Education Project Team, 2013). The lack of linkages, as well as the lack of alignment in how ECE professionals are classified, across these various data collection efforts directed at the ECE workforce poses a problem in terms of capacity for accessing evidence to inform improvement strategies.

### *Financing Data Systems*

A series of short-term federal initiatives, including State Longitudinal Data Systems Grants, Preschool Expansion Grants, the Improving Head Start for School Readiness Act, Race to the Top Early Learning Challenge (RTT-ELC), and the Higher Education Opportunity Act, have either

explicitly made resources available to support the development of comprehensive ECE data systems or provided explicit guidelines on this topic to states to improve their data coordination capacity. For example, the RTT-ELC grants, which competitively allocated federal resources to support system building, had an optional priority category for “building or enhancing an early learning data system” (U.S. Department of Education, n.d.). Most states that ultimately received RTT-ELC funding addressed this priority area and used resources to lay the groundwork for a sustainable comprehensive data system, which requires buy-in from state leaders across agencies, a system for shared governance and data sharing, and efforts to align data across multiple existing data collections (Early Learning Challenge Technical Assistance, 2015). Though these initiatives helped states improve their data collection efforts, they were limited by the fact that they were one-time, short-term grants and were awarded to a limited number of states. Similar state systems tend to be funded either through short-term grants or through federal quality improvement funds with state matches, rather than through dedicated financing mechanisms for data collection.

### *Summary*

The financing for data collection systems tends to be through short-term or one-time funding initiatives, contributing to the dearth of data collection systems able to answer the most basic questions about early care and education and to track improvement and changes over time. Particularly lacking are systems that track multiple factors and are coordinated with one another. The absence of data reinforces the status quo and obscures whether investments are achieving intended results.

### **Licensing, Monitoring, and Regulation**

Most ECE providers are licensed (or registered or certified) by the states in which they operate (or they are declared exempt from licensing). This licensing may be accompanied by requirements about facilities, staffing, practices and policies, and monitoring. Under the CCDBG Act, states must verify that they have licensing requirements for providers and distinguish which types of providers are subject to licensing requirements or are exempt from such obligations.<sup>6</sup>

States require many home-based providers and most full-day center-based providers serving children from birth to age 5 to be licensed by the

---

<sup>6</sup> Because many providers receive funding from a variety of sources, though a provider may be required to be licensed under the CCDBG Act, the same provider may not be required to be licensed to receive funding from other revenue streams, and vice versa.

state's ECE licensing agency, but there is wide variation in requirements across states. Some states require home-based ECE providers to be licensed if they serve one or more unrelated children, while other states allow home-based ECE providers to care for five or more children without a license. Some states require small home-based care providers, who would otherwise be exempt from licensing, to be licensed if they serve children who receive a CCDF subsidy (National Center on Early Childhood Quality Assurance, 2015).

Beyond licensing requirements, ECE providers receiving federal and state funding often are required to comply with regulatory or grant-related requirements. Because of the inadequacy of each funding source to support the full cost of an ECE program, ECE providers often receive funding from multiple sources, requiring them to blend, braid, stack, and leverage multiple sources of revenue. In fact, 75 percent of providers report receiving and using multiple revenue streams to cover the cost of delivering services, which means that these ECE providers are regulated and monitored by multiple agencies or authorities, each of which carries its own purpose, regulatory rules, reporting requirements, and monitoring system (Maxwell et al., 2016). Further complicating monitoring functions are the differing levels of authority and operation, with some (e.g., Head Start) emanating from the federal level while others (e.g., CCDF-related licensing systems) are mandated by federal authorities but authorized and operated by states. Some programs (e.g., state-funded prekindergarten) are administered and regulated at the state level, which translates into state-by-state differences in monitoring practices and processes.

Most monitoring systems use a variety of tools and methods, and they vary in frequency or sequencing of monitoring processes, components or features emphasized for compliance and inspection, and ultimate impact or consequence from monitoring findings. Typically, these monitoring systems are focused on compliance, rather than continuous quality improvement.

### *Financing Licensing, Monitoring, and Regulation*

Monitoring is generally not financed at the system level but rather is embedded in requirements in each of the multitude of funding streams distributed to providers for service delivery. These varying funding streams contribute to variation, and in some cases contradiction, in requirements across programs. As a result, providers may have to perform repetitive data entry efforts just to produce similar information inputs across multiple sets of standards, and they may endure duplications in their workload to engage in the monitoring visits required by each funding stream. These inefficiencies occur not only at the provider level but also at the state and local level. For example, the CCDBG Act requires states to inspect all providers receiving CCDF funds, but some states may also monitor

providers participating in state-funded prekindergarten programs. Providers that receive both CCDF and prekindergarten program funds may face dual monitoring and dual inspection visits because different state agencies may be tasked with monitoring the different funding streams. Moreover, if the requirements across these funding streams are inconsistent, additional inefficiencies will result.

A lack of incentives or resources for coordinated monitoring systems may also contribute to the current focus on compliance rather than on continuous quality improvement. Incentives and resources to share data across systems are necessary to inform technical assistance needs and identify issues that require system-level interventions.

### *Summary: Licensing, Monitoring, and Regulation*

The complexity and cost of compliance obligations to multiple funders is burdensome for providers, as they currently must meet the demands of many masters to cobble together enough revenue to support the costs of even the most basic services. In addition, because each financing mechanism has its own set of regulatory standards or monitoring requirements, monitoring is not coordinated, resulting in inefficiencies at both the provider and state levels. This lack of coordination also contributes to the focus on compliance as opposed to quality improvement because the necessary resources and incentives for sharing data across systems are limited.

### **Accountability and Improvement Systems**

Accountability and improvement systems go beyond data collection and management to provide supports and incentives for improvement; they are seen as a way to induce higher levels of efficiency and quality. In general, these systems promote improved integration and efficiencies; advance methods of ensuring and incentivizing quality and accountability in programmatic practice, policy, and budget strategies; foster public-private partnerships and investment; promote equity and systemic financing; and emphasize or recognize the impact and implications of a feedback loop of practice, policy, and data/research.

Given the documented lack of high-quality early care and education available and deficiencies (limitations) of the established monitoring and regulatory systems to support process quality, states have begun developing and employing QRISs (Lieberman, 2014; Workman and Ullrich, 2017). The QRIS model is an accountability and improvement system, which first emerged in the late 1990s but has recently been bolstered through funding from RTT-ELC. There are now 40 state-level QRISs nationwide, up from only 10 a decade ago. Though referred to by different names across states,

state-level QRIS generally support the following components (each carrying relative costs): management and administration of the overall QRIS; process for assessing ECE programs against state-identified sets of standards; management and monitoring of incentives; communication, outreach, and constituent engagement; and evaluation and continuous improvement of the QRIS. The logic model for QRIS suggests that in order for this accountability tool to foster real improvement in the quality of ECE services: (1) the ratings on which the system depends must accurately capture aspects of quality that are important for children's development; (2) the incentives embedded in the system must be meaningful, ideally covering the true cost of quality improvements; (3) the supports for improvement must be well aligned with the measures of quality included in the system; (4) the quality information must be made readily available to parents; and (5) parents must be able to afford access to highly rated providers.

Over the nearly 20 years since inception of the QRIS model, states have made improvements to the efficiency of their systems. However, the proportion of programs in states participating in a QRIS and the financial incentives available to providers to meet higher quality standards are limited. Moreover, many QRISs remain limited in their focus on the workforce, particularly regarding building and rewarding workforce supports that are necessary to develop a highly qualified workforce (Center for the Study of Child Care Employment, 2016). Due to constraints in financing, from the perspectives of both parents and the system, the full benefit and impact of the QRIS strategy have not yet been realized.

### *Financing Accountability and Improvement Systems*

Typically, states use a combination of federal CCDF funds and state matching funds to support the state's accountability and improvement system. The states usually focus these funds on private licensed home-based or center-based programs (though they may also include Head Start and state prekindergarten programs). Funds for evaluation and research related to using a QRIS have also been distributed from one-time programs such as RTT-ELC.

Some argue that QRISs are expensive and that limited funds may be better used within ECE programs.<sup>7</sup> The QRIS model has been validated by studies performed by states that received funding from RTT-ELC grants, which required states to research the relationship between rating levels and program quality and between rating levels and improved outcomes for children. Taken as a whole, these studies show a positive relationship in some

<sup>7</sup> See, e.g., <https://www.washingtonpolicy.org/publications/detail/qr-is-rating-systems-do-not-improve-learning-or-social-development-of-children> [January 2018].

but not all QRIS implementations between rating levels and program quality and more limited association between rating levels and child outcomes (see Karoly, 2014; Tout et al., 2017).

*Summary: Accountability and Improvement Systems*

QRISs have spread as a pivotal system-reform strategy for early care and education and serve to promote a consistent framework of quality that focuses on children's experiences in the classroom across settings and program standards. They also empower parents to make informed choices about the quality of ECE programs from which to choose. Still, there are disadvantages to the system as well, including inconsistency between states, the costs to providers and states, and a lack of attention to ECE workforce conditions and well-being. Although QRISs are still early in their development, additional strategies for financing and improving the quality of QRISs themselves are needed in their next phase of development, to build upon their potential to improve the quality of ECE services for children. QRISs can only be effective if they are tied to a financing structure that enables providers to meet high quality-standards, especially for a well-qualified and adequately supported and rewarded workforce, and that enables parents to afford highly rated early care and education. In addition to strengthening QRISs already in existence, additional alternative approaches to accountability and improvement systems could be explored.

*Summary: Principle 6—Systems for Accountability, Quality Assurance, and Improvement*

In this section, the committee analyzes current financing mechanisms available to support quality assurance and improvement systems, determining whether sustainable funds are available and adequate for planning and designing accountability systems and for monitoring and evaluation systems that promote systemwide quality improvements. While improving the quality of early care and education is the focus of many states, funding entities, and educators, doing so requires a robust and coordinated system of data collection and management, monitoring, and assurance and improvement systems. Currently, financing support for this type of systemwide quality improvement is limited and often not sustained. Moreover, either resources for quality improvements within existing funding streams are not specifically earmarked for quality improvement of these systems or they are not earmarked at high enough rates to effectively incentivize and promote quality in the systems. QRISs are widely used, but the systems vary greatly between states, and financing for these systems is unstable and not sufficient.



## CONCLUSION ON CURRENT FINANCING FOR EARLY CARE AND EDUCATION

This section summarizes the committee's evaluations of the current ECE financing structure with respect to supporting a highly qualified workforce (Chapter 3), affordability and equitable access to ECE services for all families (Chapter 4), and ensuring high quality across ECE settings. We discussed how provider-oriented, family-oriented, workforce-oriented, and systems-oriented financing mechanisms support early care and education—from direct service delivery and facilities to the ECE workforce and quality assurance. These mechanisms through which early care and education is financed have implications for achieving quality and how quality can be incentivized through financing. However, the current financing structure is inadequate to recruit and retain a highly qualified workforce and ensure all children have access to affordable, high-quality early care and education.

Currently, ECE financing treats each part of early care and education—service delivery, system-level workforce development supports, facilities, and system-level quality assurance and improvement—as separate areas rather than components of an integrated system. Moreover, while a highly qualified workforce, quality facilities, and high-quality quality assurance and improvement systems are necessary and interrelated components of high-quality early care and education, they are rarely financed in an adequate, fully coordinated, efficient, and systemic fashion. Rather, funding for service delivery comes through various funding sources and mechanisms, whereas these other system components are often financed with short-term mechanisms that are separate from those that fund service delivery. The result is approaches to quality that lack the consistency or scope to effect systemwide improvements.

The inadequacies of the current financing structure stem not necessarily from having multiple financing mechanisms but from these mechanisms neither being harmonized in ways that avoid gaps in access nor structured to improve ECE service quality. These flaws are exacerbated by overall levels of funding that are not sufficient to support either provision of high-quality early care and education or its affordability by families at all income levels (see Chapter 6).





## 6

## Estimating the Cost of High-Quality Early Care and Education

Estimating the cost of providing high-quality early care and education is a critical first step in developing a financing system designed to ensure access to high-quality early care and education for all children. The total resources that need to be invested to achieve a high quality, highly accessible early care and education (ECE) system include the costs to providers of delivering quality early care and education as well as the costs of system-level supports. The total resources minus any family contributions (in the form of out-of-pocket payments) yields the amount that public and/or private groups will have to provide to fully fund access to high-quality early care and education for all children.

This chapter first describes the elements that contribute to the cost of providing high-quality early care and education with a highly qualified workforce, as outlined in the *Transforming* report (Institute of Medicine and National Research Council, 2015). The second section of the chapter presents the committee's illustrative estimate of the total cost of providing high-quality early care and education for all children from birth to kindergarten entry, based on a hypothetical set of policy specifications and assumptions. The third section describes one way to structure family contributions to ECE costs to be progressive across income groups, such that access to quality ECE options is not limited by families' income levels. Based on the committee's estimate of the cost of a high-quality system, the chapter concludes with an illustrative calculation of the share of funding that would need to be supported by public or private sources—that is, the total cost of a high-quality and accessible ECE system minus the aggregate family contribution to the cost—and places these costs in context.

## COST ELEMENTS OF HIGH-QUALITY EARLY CARE AND EDUCATION

Consistent with the *Transforming* report, the committee identified the following quality-related cost elements of providing high-quality early care and education with a highly qualified workforce.<sup>1</sup> The first cost element comprises onsite costs, which include the costs of maintaining appropriate staffing levels and structures; compensating a high-quality staff; providing onsite staff supports and professional development; and nonpersonnel items such as curriculum, facilities, and equipment. Second are system-level costs in two categories. One consists of workforce development supports, including offsite training, ongoing professional learning, and higher education. The second category of system-level costs includes those related to quality assurance and improvement, such as monitoring and regulation, quality and systems improvement and accountability, data systems, and licensing and accreditation.<sup>2</sup>

### Onsite Costs

Onsite costs are determined by staff qualifications and compensation; staffing levels and structures; staff supports; operating hours and days; and nonpersonnel costs such as curricular materials, facilities, and equipment.

---

<sup>1</sup> It is difficult to pinpoint the drivers of costs for home-based ECE settings, since providers are working out of their homes, often with assistance from family members, and balancing an array of activities across a typical day or week. What they charge families is a combination of their own financial needs, the families' ability to pay, the prices of alternatives such as center-based ECE, and costs related to their specific location. These cost differences result in different market dynamics and highly variable costs of delivering high-quality services in home-based settings; in addition, the data needed to estimate these costs are limited.

<sup>2</sup> In Chapter 3, we discussed the financing mechanisms that support direct service delivery as separate from mechanisms for compensation to attract and retain a highly qualified workforce, professional development and higher education, facilities, and quality assurance and improvement. In the current system, payment for direct service delivery covers basic, day-to-day care, with routinely inadequate compensation for ECE professionals and little or no money to support professional development, facilities, and quality assurance and improvement. Because of the siloed nature of current ECE financing, that chapter examined the financing mechanisms for each component of ECE separately. In this chapter, which explores the true cost of a comprehensive, harmonized, and high-quality ECE system, the committee looks at the costs in three categories: costs that are incurred on site (including facilities, compensation, staffing, and professional support), costs that are incurred at the system level to support the workforce (ongoing learning, workforce development, and higher education), and quality assurance and improvement costs (e.g., licensing, data and accountability systems). The committee emphasizes that all of these costs should be financed together, with a harmonized system of financing mechanisms as described in Chapter 7, but for ease of reading, the committee discusses the onsite costs, offsite workforce supports, and system-level quality assessment and improvement costs in separate sections of this chapter.

*Staffing Levels and Structures*

Like staff qualifications and compensation, staffing levels and structures greatly affect site-level costs and are important elements of providing high-quality early care and education.<sup>3</sup> ECE staffing levels and structures differ from those typically found in kindergarten to grade 12 (K–12) classrooms. Whereas a K–12 educator typically works alone (although some educators of younger children have the assistance of an aide or paraprofessional), teaching in early care and education is a collective effort, which requires more than one educator–staff member in most situations because of the needs of very young children. At least two or more ECE staff (educators or assistants) are generally required to be in the classroom at all times to meet required child-to-staff ratios, which are lower for early care and education than for elementary schools (Whitebook, 2014). The need for more educators in the classroom to meet these lower ratios increases the total cost of providing services. However, classrooms typically are staffed by a lead educator with assistants who have lower qualifications, which reduces the cost per child.

Current state licensing standards and recommendations from the National Association for the Education of Young Children (NAEYC) suggest the staffing levels to apply when estimating the costs of a highly qualified and well-compensated ECE workforce. The requirements for child-to-staff ratio vary by age of children and by state. Table 6-1 shows the range of child-to-staff ratios required under state licensing regulations; Table 6-2 shows the range of child-to-staff ratios and group size requirements recommended by the NAEYC as “best practices.” Some European countries use higher child-to-staff ratios (see, e.g., Kagan et al., 2002); however, comparability to the United States is unclear, especially given more extensive training for entry-level educators in Europe and the higher percentage of children living in poverty and dealing with chronic stress in this country.

---

<sup>3</sup> Research highlighted by the American Academy of Pediatrics, the American Public Health Association, and the National Resource Center for Health and Safety in Child Care and Early Education (2011) in their national health and safety performance standards guidelines has found that children benefit from being placed in groups with lower child-to-staff ratios. According to studies by Alkon and colleagues (2008), Benjamin and colleagues (2007), and Dellert and colleagues (2006), lower child-to-staff ratios result in more sensitive and appropriate care and children in these groups score higher on developmental assessments, particularly vocabulary, than children in groups with higher child-to-staff ratios. Group size is also important because small group sizes and low child-to-staff ratios allow for continuing adult support and guidance while encouraging children to undertake independent, self-initiated play and other activities (Gupta et al., 2005). In addition, children’s physical safety and sanitation routines require a staff presence that is not fragmented by excessive demands. Staff stress levels are also affected by child-to-staff ratios. Caring for too many young children, in particular, increases the possibility of stress to the educator, and may result in the educator showing diminished executive function (Isbell et al., 2013; Whitebook and Sakai, 2004).

**TABLE 6-1** Range of Child-to-Staff Ratio Requirements for ECE Centers (2011)

Age of Children	Lowest Required Ratio	Number of States	Highest Required Ratio	Number of States	Most Common Ratio	Number of States
Infants						
6 weeks	3:1	3	6:1	4	4:1	33
9 months	3:1	3	6:1	5	4:1	32
Toddlers						
18 months	3:1	1	9:1	3	6:1	14
27 months	4:1	4	12:1	2	8:1	10
Prekindergarten						
3 years	7:1	2	15:1	4	10:1	23
4 years	8:1	1	20:1	2	10:1	17
School-age						
5 years	9:1	1	25:1	2	15:1	14
10 years	10:1	1	26:1	1	15:1	16

SOURCE: Administration for Children and Families (2013b, p. 9).

The implication of these requirements is that costs will be higher to provide high-quality early care and education for younger children, as two staff members are required to care for eight toddlers, whereas only one staff member is needed for eight 4-year-olds.

### Staff Qualifications and Compensation

Because early care and education is a labor-intensive industry, staff qualifications and compensation, as well as staffing levels and structure (discussed below), largely drive the cost of service. As described in previous chapters, the vast majority of ECE professionals receive low wages with low benefits, which affects their status and well-being and in turn may impede their ability to deliver quality care and instruction to children.<sup>4</sup> This situation reflects insufficient levels of resources invested in early care and education and the absence of adequate educational and competency requirements, as well as historical perceptions about the workforce. Significantly higher levels of compensation will be required to recruit and retain a well-qualified workforce of lead educators and assistants, directors,

<sup>4</sup> It is difficult to determine compensation for home-based providers because most home-based providers are not paid a salary and even as the owners of businesses, it can be difficult for them to adequately compensate themselves. According to Ullrich, Hamm, and Schochet (2017, p. 14), “[A]ddressing compensation for the home-based workforce is complex. As small-business owners, family child care providers have some agency around the number of children they care for and the number of hours they work, which affects their revenue.”

TABLE 6-2 NAEYC Recommended Child-to-Staff Ratios Within Group Size

Age Category	Age Range <sup>a</sup>	Group Size <sup>b</sup>										
		6	8	10	12	14	16	18	20	22	24	30
Infant	Birth–15 months	3:1 4:1										
Toddler/Two	12–28 months	3:1 4:1 4:1 <sup>c</sup> 4:1										
	21–36 months	4:1 5:1 6:1										
Prekindergarten	30–48 months (2½–4 years)	6:1 7:1 8:1 9:1										
	48–60 months (4–5 years)	8:1 9:1 10:1										
	60 months (5 years)–kindergarten enrollment	8:1 9:1 10:1										
Kindergarten	Enrolled in any public or private kindergarten	10:1 11:1 12:1										

<sup>a</sup>These age ranges overlap on purpose. If a group includes children whose ages range beyond the overlapping portion of two age categories, then the group is a mixed-age group. For mixed-age groups, universal criteria and criteria relevant to the age categories for that group apply.

<sup>b</sup>Group sizes are stated as ceilings, regardless of number of staff.

<sup>c</sup>Group size of 10 is permissible for this age range, but an additional adult is required to stay within the best practice ratio.

SOURCE: National Association for the Education of Young Children (2017, p. 102). Used with permission. Copyright © 2017 NAEYC®.

learning specialists, and consultants and to support the existing ECE workforce in obtaining the necessary credentials to provide high-quality instruction and care to meet the needs of all children.<sup>5</sup> Therefore, the costs of a high-quality system will be much higher than current costs.

While it is clear that current compensation is too low, it is less clear how high compensation needs to be to attract and retain a highly qualified workforce. A labor market approach to compensation indicates that it is most cost-effective for local employers to offer the level of compensation necessary to recruit and retain staff with requisite skills and qualifications for different positions in their local labor market, while taking account of individual differences. The available literature provides two potential perspectives for estimating the necessary levels of compensation: one that identifies comparable occupations and one that considers how a range of attributes are related to compensation.

The first perspective identifies the qualifications and competencies necessary for the selected occupation and the range of compensation required to hire individuals with those qualifications and competencies, as demonstrated by market levels. Using this perspective, one of the important areas of debate that is essential for determining appropriate compensation is determining which sectors of the labor market should serve as relevant bases of comparison for early care and education.

Drawing on the *Transforming* report, which asserts that teaching children younger than age 5 is as complex as teaching children of ages 5 to 8 and that ECE educators need an equivalent level of preparation, support, and reward as educators of older children, some scholars propose that compensation levels for ECE educators should be on par with that of kindergarten-to-3rd grade (K–3) educators and should be applied to ECE educators, regardless of the ages of children or the type of setting in which they work (see, e.g., Whitebook and McLean, 2017b).<sup>6</sup> Thus, they call for

---

<sup>5</sup> The *Transforming* report envisions achieving a well-qualified workforce through strengthening foundational knowledge, with demonstrated competencies for all ECE professionals working with children, as well as implementing phased, multiyear pathways to transition to a minimum bachelor's degree requirement for lead educators. According to the *Transforming* report, these requirements for higher levels of education, foundational knowledge, and competencies must be linked with fair compensation to recognize the professionalization of the workforce and to ensure workforce recruitment and retention. Without linking qualification requirements to compensation, more-highly-qualified educators will seek higher-paying jobs in other settings or with older children, making recruitment and retention of highly qualified professionals for younger children difficult (Institute of Medicine and National Research Council, 2015).

<sup>6</sup> Compensation parity for ECE educators (lead and assistants) with public K–3 educators is defined by Whitebook and McLean (2017b, p. 3) as “parity for salary and benefits for equivalent levels of education and experience, adjusted to reflect differences in hours of work in private settings, and including payment for non-child contact hours (such as paid time for planning).”

compensation parity with K–3 educators among educators in public prekindergarten, Head Start, and other center-based ECE settings.<sup>7</sup>

In a review of compensation parity policies in state-funded prekindergarten, Barnett and Kasmin (2017) found that currently, six state-funded prekindergarten programs have implemented K–3 compensation parity across all three components of compensation—salary, benefits, and payment for professional responsibilities—for lead educators and assistant educators.<sup>8</sup> Six additional programs have extended compensation parity to lead educators alone.<sup>9</sup> While states are making progress toward salary parity with K–3 educators for prekindergarten educators, less progress has been made in terms of benefits parity; moreover, for many of these state-funded programs, some components of compensation parity are extended only to educators in public settings, leaving out educators in state-funded center-based settings.<sup>10</sup>

Barnett and Kasmin (2017) found no evidence that the higher earnings associated with parity for prekindergarten educators came at the expense of access to services for prekindergarten-aged children, as the share of 4-year-olds enrolled in states with salary parity policies is statistically similar to states without a parity policy. The study also found that states with parity policies met, on average, one additional quality benchmark of the National Institute for Early Education Research, suggesting higher levels of support for quality in these states, compared to those without parity policies.<sup>11</sup>

There are a number of challenges to achieving parity with K–3 educators, including the differences (sometimes actual and sometimes perceived) between the compulsory public K–12 system and market-based early care and education. Particular forces drive K–12 educator compensation—including state constitutional mandates, a high level of unionization, and

---

<sup>7</sup> Whitebook and McLean (2017b) noted that it is important to ensure that pay is adequate for K–3 educators as well, since parity should not be achieved via low pay for educators at any level.

<sup>8</sup> The six programs are New Jersey (former Abbott, Early Launch to Learning Initiative, Early Childhood Program Aid), New Mexico PreK, North Carolina Pre-Kindergarten Program, and Tennessee Voluntary Pre-K (Barnett and Kasmin, 2017).

<sup>9</sup> The six programs that extend compensation parity only to lead educators in public prekindergarten are Iowa Statewide Voluntary Preschool Program, Kentucky Preschool Program, Maryland Prekindergarten Program, the Missouri Preschool Program, the Nevada State Prekindergarten Program, and the Oklahoma Early Childhood Four-Year-Old Program (Barnett and Kasmin, 2017).

<sup>10</sup> See Chapter 3 for a discussion of the ways in which states and cities are approaching implementation of policies that set compensation for prekindergarten educators on a par with K–3 educators.

<sup>11</sup> Barnett and Kasmin (2017, p. 9) noted that the number of benchmarks is “a (very) rough indicator of state policy emphasis on program quality.” It is not a measure of program quality per se.



protected funding sources dedicated to public education—that do not exist in the ECE sector, except for the small share of programs that are school-sponsored and pay higher salaries. However, a new financing structure for early care and education that included funding sources dedicated to it may mitigate these challenges.

Other scholars suggest that there may be an additional range of occupations with relevant educational requirements, skills and competencies, and motivations that could be used as the benchmark for ECE compensation parity. For example, if child and family social workers or nurses are required to have a baccalaureate-level education and the skills and competencies needed to interact with and provide direct care to children and families on an ongoing basis, then the compensation they command is evidence that individuals with those qualifications and competencies can be hired for that compensation (Brandon et al., 2004b).<sup>12</sup> Similarly, the pay schedule for ECE professionals in the military system is benchmarked not to other educators but to the federal pay scale, ensuring parity with other similarly qualified professionals in the military (see Box 2-1 in Chapter 2 for a discussion of the Department of Defense’s ECE system).

Another method for linking compensation to qualifications and characteristics of the workforce is to consider how a range of attributes (gender, age, geographic region, etc.) are related to compensation across the entire United States (see, e.g., Stanley and Jarrell, 1998). Analyses of the multiple factors affecting earnings have produced a consistent set of characteristics, of which educational attainment is the largest but not the only determinant of wages. Factors such as gender, age, experience, race, marital status, region of the country, and urban and rural status also affect compensation (Stanley and Jarrell, 1998). Brandon, Stutman, and Maroto (2010) used this approach to estimate the differential wage level of ECE professionals attributable to their occupation and found that women working in ECE occupations averaged 31 percent lower wages than other women when education, age, experience, location, and other variables predicting wages were held constant. If ECE compensation is currently low because of a disproportionate share of female and non-White staff in the occupation—characteristics that may reflect discrimination rather than competence—then cost estimates for adequate compensation, using this method, would need to be adjusted from current levels to levels that reflect a gender and racial composition similar to other occupations.

The literature also makes clear that effective leadership is also important to promote high-quality ECE practice (Institute of Medicine and National Research Council, 2015), and any cost estimate of high-quality ECE

---

<sup>12</sup> The committee did not determine which occupations would be an appropriate benchmark for this approach.

will also need to account for adequate compensation for ECE professionals in leadership positions, including directors, program leaders, and coaches/mentors. In addition, across the entire ECE system, a number of specialist staff (reading and language specialists and special education consultants) are required for substantial minorities of children with special physical, emotional, and developmental needs, and the number of specialists required to meet the needs of children in a particular program will affect costs (see Box 6-1 on the costs of serving children with special needs).

### *Onsite Professional Responsibilities and Learning*

As described in the *Transforming* report, consistent supports for professional responsibilities and professional learning during ongoing practice—such as paid planning and assessment time, paid time for conferencing and communicating with families, paid time for professional sharing and reflection and for coaching and mentoring, and paid time for attending onsite professional development activities—are critical for supporting the ECE workforce and delivering high-quality early care and education to children. ECE educators may also need training to support specific populations of children in their classrooms (see, for example, Box 6-2 on the costs of implementing dual language learning practices in early education).

#### **BOX 6-1**

#### **The Costs of Serving Children with Special Needs in Early Care and Education: Ohio Example**

There are several challenges to estimating the cost of providing access to high-quality early care and education for the share of young children with special needs. First, there are not agreed-upon standards for each of the wide range of needs in the population. Second, there are no data on the share of children who should be served as part of regular ECE settings, as opposed to those requiring special classes or facilities. A substantial share is served in home-based settings, where supports rather than special staffing would contribute to costs.

Despite these limitations, an estimate of the cost of serving special needs children was developed by the University of Washington's Human Services Policy Center in consultation with the Ohio Department of Education (Brandon et al., 2004a). Brandon and colleagues (2004a) found that the incremental cost per child with special needs was about 10 percent greater than the overall cost of high-quality early care and education. Since about 10 percent of children have special needs, this translated to about a 1 percent increase in the total cost of providing access to high-quality early care and education in Ohio (Brandon et al., 2004a). For a broader discussion of financing to support children with special needs, see Box 4-2.

### BOX 6-2

#### The Costs of Implementing Dual Language Learning Practices in Early Education

According to a recent report of the National Academies of Sciences, Engineering, and Medicine, *Promoting the Educational Success of Children and Youth Learning English: Promising Futures*, biliteracy and bilingualism are advantageous to the cognitive, social, and emotional development of dual language learners (DLLs). Studies on the economics of early education reveal that investments in education during early childhood can enhance overall well-being and academic outcomes for DLLs who speak Spanish (National Academies of Sciences, Engineering, and Medicine, 2017). An analysis of the effects of Oklahoma's universal prekindergarten program on Hispanic children revealed that it could improve their academic outcomes, including prereading, prewriting, and premath skills (Gormley, 2008). Poor academic outcomes result in significant costs to DLLs, their families, and society as a whole. Inadequate education of DLLs may cost the nation in terms of not developing biliterate, productive members of the workforce. The National Academies report concluded that while not all early childhood DLL educators currently speak languages other than English, they can learn methods to introduce English during the infant, toddler, and prekindergarten years, while still encouraging maintenance of the home language (National Academies of Sciences, Engineering, and Medicine, 2017). The report recommended that all educators of DLLs be required to be "prepared through credentialing and licensing as well as pre- and in-service training to work effectively with DLLs" (National Academies of Sciences, Engineering, and Medicine, 2017, p. 476).

The Head Start Program Performance Standards offer an example consistent with the NASEM recommendations. These Head Start standards require that programs apply evidence-based teaching practices to support the growth of bilin-

The cost of providing these staff supports will vary depending on how much time is allotted for each activity and whether additional staff will need to be hired to provide the supports. For professional development and professional responsibilities, the frequency, duration, and approach will affect the cost. Though the available literature is mixed regarding the effectiveness of particular coaching and mentoring approaches, a review of coaching and mentoring initiatives in ECE programs found that coaching visits most commonly happen on a weekly or biweekly schedule and the majority of initiatives involving coaching last for about 1 year (Isner et al., 2011).

For onsite professional development activities, educator in-service requirements vary by state and by program within states. In public K-12, most states support induction and have ongoing professional development requirements for educators, whereas many ECE settings do not have continuing education requirements for educators (Whitebook, 2014). The professional development benchmark in the National Institute for Early Education

gualism and biliteracy. According to the standards, when staff have competency in the home language, the development of that language should be reinforced in infants and toddlers. At the prekindergarten level, teaching practices should continue to encourage that progress, while promoting the acquisition of English. However, even if the educator does not speak the home language of all the children in the program, research-based strategies, such as providing linguistically suitable materials, should be included to maintain the growth of the home language. Programs must also try to find volunteers who speak the home language and who could be trained to assist in the classroom (Office of Head Start, 2016b). These performance standards also affirm that curricula should follow the *Head Start Early Learning Outcomes Framework: Ages Birth to Five*. This framework states that purposeful planning at the program and classroom level is required to make certain that DLLs can improve in the skills, behaviors, and knowledge described in the framework while also encouraging English acquisition (Office of Head Start, 2015a).

The costs of providing, and training educators to provide early education services consistent with the recommendations of the NASEM report and the Head Start standards are not well documented. In a review of the literature on the cost of providing adequate education to DLLs from kindergarten through grade 12, only 4 out of the 70 studies reviewed specifically addressed the cost of educating DLLs (Jimenez-Castellanos and Topper, 2012). Very little research has been done on costs specifically for educating DLLs in early education. While educators of most DLLs in Early Head Start and Head Start centers possess an associate's or bachelor's degree, assessing the required amount of funding to provide adequate education and compensation for educators is difficult (National Academies of Sciences, Engineering, and Medicine, 2017). As of 2015, only 10 state prekindergarten programs provided additional resources for DLLs (Barnett et al., 2017).

Research's State of Preschool Yearbook for 2017 suggests that lead and assistant ECE educators should receive at least 15 hours of in-service professional development each year. In addition, lead and assistant educators should have individualized professional development plans and receive ongoing coaching or embedded classroom support (Barnett et al., 2017).

For educator planning time, examples from Head Start, international sources, and the U.S. Department of Defense's ECE program are informative. The U.S. Department of Defense recommends that its educators in the Sure Start prekindergarten program receive 45 minutes of planning time without students each day (U.S. Department of Defense, 2009, p. 15). K–12 educators in a majority of districts are given 45 minutes of planning time per day within their contract hours, although the time varies greatly by site. For example, elementary school educators were found to have anywhere from 12 to 80 minutes of planning time per day, while planning time for secondary school educators ranged from 30 to 96 minutes per day (National Council on

Teacher Quality, 2012). In addition, paid time for additional professional responsibilities conducted without children present will need to be built into the workday and accounted for in any cost estimate, including paid time for assessment, professional sharing and reflection, and engagement with families.

The cost of providing these staff supports will vary, but they need to be embedded in the costs at the site level in order to support continuous quality improvement.

### *Operating Hours and Days*

The cost of early care and education will vary depending on the number of hours per week that ECE services are offered and when those services are offered, as well as the length of the yearly period during which services are provided. Early care and education is typically provided for more hours in a day than K–12 education, and any estimate of the cost of providing high-quality early care and education needs to account for these differences. Of course, the duration of service offered will vary by the program type. For example, Head Start programs consider themselves to be full-day and full-year, based on operating no fewer than 230 days a year and no less than 6 hours a day, though not all operate on this schedule. Conversely, 37 of the 59 state-funded prekindergarten programs currently operate on only a part-day (fewer than 4 hours) basis (Barnett et al., 2017, p. 11). Listed home-based providers operate a median of 54 hours per week, and paid, unlisted home-based providers operate a median of 40 hours per week (National Survey of Early Care and Education Project Team, 2016b).

The length of the year that ECE services are offered will also affect costs, and cost estimates may need to be adjusted based upon utilization trends. For example, in the current ECE system, utilization tends to dip in summer months. Should such a drop-off persist in a high-quality system, cost estimates need to account for the reduction in required staffing during the summer.<sup>13</sup> However, estimating the amount of the drop-off across types of early care and education is difficult, and few studies focus on the summer months and related changes in care arrangements. While there is some evidence that the use of formal care arrangements declines in the summer, the size of that decline varies by type of care and age of child. According to a 2009 survey of Minnesota households (including children with both employed and unemployed mothers), for children from birth to age 2, there was a reduction in the percentage of children using licensed family childcare providers during the summer months, yet an increase for those using center-based care. For

---

<sup>13</sup> The Bureau of Labor Statistics reports that employment for ECE practitioners (not including prekindergarten educators, some of whom work in programs that are offered on a full calendar year basis) drops by about 5 percent to 7 percent in the summer months (Barnett et al., 2017; Bureau of Labor Statistics, 2017).

children ages 3 to 5 years, percentage use of center-based care over the summer months decreased dramatically from 76 percent during the school year to 39 percent over the summer months (Chase and Valorose, 2010).

In addition, the 2005–2006 Survey of Income and Program Participation (covering only children with employed mothers) found that while there was a drop in the percentage of children with any regular ECE arrangement in the summer (from 55–37%), the percentage in “organized care facilities” such as ECE centers was nearly constant, at about 24 percent (Laughlin, 2010). Whether similar utilization patterns, with a summer-time decline in use of certain types of care for some ages, will persist in a high-quality, affordable ECE system is unknown but will have implications for the cost of a high-quality system.

### *Facilities*

Facilities are an often overlooked but important element of onsite costs, since a high-quality ECE facility offers young children opportunities for cognitive, emotional, and physical development that go beyond basic expectations of physical protection. A small body of research has examined the costs of ECE facilities and found that two types of capital costs contribute to facilities costs: immediate costs for modernizing or building facilities (or transition costs) and long-term costs (occupancy costs) for maintenance or rental costs of the space. Transition costs include expenditures associated with purchasing, improving, or building a physical asset such as buying land, construction of the building, and purchasing equipment, as well as services and fees such as professional services for project planning and oversight (e.g., architects, engineers, and lawyers), taxes, and insurance premiums. Long-term costs, or occupancy costs, of a newly renovated space should also be considered. These expenses may vary depending on the building’s size and energy-efficiency, among other factors (National Center on Program Management and Fiscal Operations, n.d.).

Ongoing occupancy costs for facilities should be included in onsite cost estimates. However, transition costs for building or renovating facilities costs, potentially a major cost driver, are generally not accounted for in the costs of delivering ECE services. No comprehensive national or multistate data on the percentage of centers and homes that need improvements or new facilities are available. Moreover, no data are available on how many new ECE facilities would need to be built if improved financing increased access to and utilization of early care and education. However, some regional and program-specific assessments are informative. According to data on Head Start facilities from fiscal 2015, more than one-half of the centers monitored were reported to have been built before 1990, with more than one-third built before 1970. The average age of Head Start facilities was

40 years (Office of Head Start, 2015b). On the state level, a recent survey revealed that while the majority of ECE facilities in Massachusetts met regulatory standards, most fell below accessibility, professional, and best practice standards (Pardee, 2011).

Given the current state of ECE facilities, estimated transition costs (in this case, the amount of money required to modernize the facilities) are high. The costs to make necessary infrastructure repairs to the 7,857 Head Start centers in the United States are estimated at approximately \$3.84 billion, or \$488,703 per center (\$252.94 per square foot) (Office of Head Start, 2015b).<sup>14</sup> Though the Head Start estimate assumes a minimum of 35 square feet of usable classroom space per child, in accordance with Head Start Program Performance Standards and NAEYC accreditation guidelines, this number may be low because multiple sources highlight the need for reception areas, staff lounges, and adequate storage space as critical components to maintaining high-quality ECE facilities (Child Care Inc., 2007; Mead, 2016; Singh and Bluestein, 2016).

Similarly high costs have been projected at the state level. The Children's Investment Fund commissioned the Facilities Inventory in Massachusetts to review both ECE and out-of-school-time facilities. The Facilities Inventory sampled licensed nonprofit centers that served children whose families receive tuition subsidies or grants. According to this research, the average cost per site to meet accessibility standards amounted to \$68,000, costs to meet regulatory standards equaled \$18,000, costs to meet professional standards equaled \$90,000, and costs to meet best-practice standards equaled \$154,000.<sup>15</sup>

<sup>14</sup> This is an estimate of the average cost to rebuild, renovate, or repair Head Start centers. The Office of Head Start estimated that it would cost \$252.94 per square foot to rebuild a Head Start center. This estimate is based on RSMeans data, which are used for construction budgeting and estimating new building and renovation projects. Using RSMeans data gave an estimated cost of \$194.57 per square foot as a U.S. national average cost to build a new facility. This estimate is based on a building model that assumes basic components and uses union labor for a 10,000 square foot day care center as the standard. Office of Head Start added 30 percent to the \$194.57 cost per square foot to include added costs for paying Davis Bacon Act Wages, the cost of special requirements for compliance with program performance standards, and an adjustment for the high cost of construction in remote areas (Office of Head Start, 2015b, pp. 16–17).

<sup>15</sup> Meeting accessibility standards, for example, might include installation of elevators or chair lifts or construction of accessible bathrooms. Examples of meeting regulatory standards include the cost at some centers to repair exterior walls, roof, or flooring or to install appropriate outdoor play equipment over an approved resilient safety surface. Commonly needed modifications to meet professional standards include upgrading heating, ventilation, and cooling systems; installation of classroom sinks; creating suitably equipped professional work spaces for educators and administrators; and improvements to outdoor play space. To meet best-practice standards, many centers would need to construct children's bathrooms adjacent to classrooms; create direct exits to outdoor play space from every classroom; or make modifications to improve acoustics, ventilation, and thermal comfort (Pardee, 2011).



Facilities costs are an important consideration when estimating the cost of onsite services. However, limited data are available to inform national estimates of the cost of ECE facilities. To produce a national estimate of costs for ECE facilities, data are needed that (1) can be used to estimate the number of ECE centers receiving free or reduced-price space and the percentage of centers and homes requiring facilities improvements, and (2) differentiate between tight commercial real estate markets (where affordable rental space may not be available) and other markets. Data are also needed to estimate the number of new facilities required for a high-quality system serving all areas of the nation.

### Workforce Development Costs (system level)

As noted in Chapter 3, various funding streams and mechanisms currently exist to support the professional development of the ECE workforce outside the opportunities available through the specific centers or home-based programs where ECE professionals are employed. Early childhood-specific programs such as Teacher Education and Compensation Helps (T.E.A.C.H.)<sup>16</sup> provide financial support for members of the ECE workforce to pursue higher education degrees, covering the cost for tuition and fees. Wage supplementation programs, including those that provide scholarships and other tuition offsets for higher education, are in place in some communities to provide additional compensation to members of the ECE workforce who pursue higher education, achieve a particular degree, or meet a retention milestone. In the current system, such costs are recognized as part of the system-level costs beyond those associated with direct service provision. However, many of these costs are necessary because the current system does not provide compensation commensurate with the educational attainment or other professional credentials of an ECE professional, for all of the reasons discussed in the *Transforming* report. By comparison, such system-level mechanisms may not be required in a system that includes the costs of appropriate compensation and professional development supports for the ECE workforce as part of the cost of providing ECE services—that is, where the ECE system reimburses these workforce costs as part of direct service provision. However, the transition phase during which the skills, competencies, and education of the current workforce are transformed to the levels required for the envisioned, highly qualified ECE workforce would entail nonrecurring system-level costs. Additional ongoing supports to ensure diversity across professional roles would also add to system-level costs.

<sup>16</sup> The T.E.A.C.H. program is described in Chapter 3. See Box 3-3 and the discussion of the T.E.A.C.H. scholarship program in the section on “Ongoing Professional Learning and Higher Education.”



Cost components of system-level workforce development supports that may remain in a transformed ECE system include information systems, curriculum development, system evaluation, career counseling, leadership development, textbooks and scholarships for educators' continuing professional development, and support for home-based ECE provider networks, among others. The Professional Development System Cost Analysis Tool may be particularly useful for estimating these costs (see Appendix B).

### **Quality Assurance and Improvement Costs (system level)**

A robust system of quality assurance and improvement supports is also essential to improve coordination and efficiency and to ensure quality in the delivery of ECE services. Key components of quality assurance and improvement systems that affect system cost include monitoring and regulation systems, quality improvement and accountability systems, and data and information management systems. Each of these component systems carries a cost and is a factor in the quality of the ECE system.

#### *Monitoring and Regulation Systems*

There is great variation in the use of tools and methods for monitoring and regulation, frequency or sequencing of monitoring processes, components or features emphasized for compliance and inspection, and the ultimate consequences from monitoring findings. Meeting each set of regulatory standards and monitoring requirements can carry costs. For example, state ECE program licensing systems entail the costs of defining the minimum standards required for an ECE program, establishing the provider types that must be licensed, and verifying and enforcing the licensing requirements. Program-specific regulations are often associated with a particular funding stream such as Head Start or state prekindergarten programs. Costs are then associated with defining the program standards, monitoring funded providers to ensure that they achieve the program's requirements, and verifying whether providers that have failed to meet the program's standards do subsequently come into compliance. Important drivers of costs in such monitoring and regulation systems, in addition to the number of providers to be monitored, are the frequency and intensity of the monitoring process.

#### *Quality Improvement and Accountability Systems*

Quality improvement and accountability systems can likewise take multiple forms, each with associated system-level costs. Costs for a quality

rating and improvement system (QRIS)<sup>17</sup> typically include the costs of the quality rating process and the quality improvements supports provided to participating ECE providers. In this section, we review the costs of the rating process, as the costs of quality improvement supports were included in the above discussions of the onsite costs for professional responsibilities and learning and workforce development costs.

The quality rating process encompasses assessment and rating of ECE providers; management and administration of the QRIS; evaluation and continuous improvement of the QRIS; and communication, outreach, and constituent engagement. The costs of assessing and rating providers will depend upon the frequency of rating and re-rating, the number and content of standards and criteria that are reviewed for a rating decision, the number and complexity of onsite assessments, the approach to inter-rater reliability requirements, and the extent of use of automated systems in the assessment and rating process (BUILD Initiative, 2017, p. 3). The tools used in each state's QRIS vary and can impact system cost. Some focus on structural aspects of quality such as child-to-staff ratios, which are relatively easy to measure and not costly to collect. However, many state QRISs use onsite observational tools such as the revised Early Childhood Environment Rating Scale or the Classroom Assessment Scoring System to assess process quality. Getting the most reliable measures of provider-level quality requires observing multiple classrooms, potentially multiple times—a process that can be time consuming and costly.

### *Data and Information Management Systems*

Each of the component systems for quality assurance and improvement relies on data and information management systems—for example, to track program licensing or quality monitoring. Data systems also support the administration of public funding for early care and education, such as verifying provider eligibility, tracking provider participation in programs, capturing participant outcomes, and collecting data on the ECE workforce. Such data systems may be more or less efficient in supporting these objectives, depending upon how well integrated they are. Data system costs include not only the direct cost of operation but also the indirect costs of the time it takes ECE providers and their staff to provide information to populate the data systems. Furthermore, the application of the data to improve instructional methods will entail a cost of staff time.

---

<sup>17</sup> The QRIS model is discussed in Chapter 5.

### EXAMPLE PART I: ILLUSTRATION OF A TOTAL COST ESTIMATE

Drawing from the above literature on the costs of various elements of a high-quality ECE system, this section presents the committee's illustrative example of estimating the total systemwide cost<sup>18</sup> of providing access to high-quality early care and education for all children from birth to kindergarten entry, based on the policy specifications and assumptions described in detail in Appendix A. The total cost includes estimates of onsite costs and system-level costs; the latter include the costs of offsite training and professional development as well as quality assurance and improvement costs. The sections following this illustrative estimate of the total cost use this figure for total cost to illustrate one way to structure family contributions to the cost of high-quality early care and education and to estimate the share of funding that would need to come from public or private sources, based upon the family contribution.

The committee's estimates for this illustration represent an up-to-date national calculation tied directly to the major recommendations of the *Transforming* report, particularly the recommendation that all lead educators have at least a bachelor's degree and receive considerable day-to-day as well as ongoing professional support. In addition, while most previous analyses simply compare the current situation to a desirable future situation, an essential feature of the committee's approach is to determine the costs of transitioning to high-quality early care and education over a four-phase process. Further, the committee's dynamic estimate takes account of the likely response to higher quality and improved affordability produced by implementation of our recommendations (see Chapter 7). The committee recognizes that transforming the qualifications for a sizable portion of the ECE workforce of more than 2 million paid professionals to meet the requirements of their post-transformation jobs will not be accomplished immediately. Thus, our cost estimate example includes estimated costs for each of four stages of improvement.

We note at the outset that there are many uncertainties inherent in projecting the national, aggregate costs of implementing an ECE system that is markedly different from what exists currently. In reality, a combination of public and private entities, operating within a partially regulated marketplace and subject to regional, state, and local variation in labor market conditions and to national economic trends, will interpret and implement the major policy parameters that affect costs. The resulting costs may therefore be significantly different from the committee's projections in this example.

How families will respond to a different set of conditions regarding the quality and payment structure of different types of early care and education is also uncertain: How much will overall participation in nonparental early care

<sup>18</sup> The estimate of the total systemwide cost includes onsite costs, system-level workforce development costs, and system-level quality assurance and improvement costs.

and education greatly increase? How substantial a shift from home-based to center-based ECE services will occur for each age and family income group? To what degree will improved ECE access lead to major increases in family employment, resulting in higher incomes, which would somewhat offset increased public costs for the new ECE system? The answers to these questions all have implications for the cost of providing high-quality early care and education to all children, compounding the uncertainty in any estimate based on one set of assumptions. The available economic and evaluative research literature provides a relatively clear sense of the direction of such changes in utilization, but the specific quantities of change are uncertain.

Despite these limitations, the committee's example is important for decision makers working to implement the recommendations of the *Transforming* report. The example includes estimates for onsite costs, the costs of system-level workforce supports, and the costs of quality assessment and improvement systems. It thus provides a national-level perspective on the cost of implementing, over four phases, a high-quality ECE system with a highly qualified workforce. For decision makers at the state and local level, other costing tools and models may also be useful; we review some of these in Appendix B.

### Estimates of Onsite Costs

Using adapted elements of cost calculators developed by Brandon (2011) and Elicker, Brandon, and MacDermid (2016), the committee estimated the average costs per child-hour of center-based early care and education for infants (less than 1 year), toddlers (1–3 years), and prekindergartners (3–5 years), given specified policies (e.g., the mix of staff with particular qualifications, appropriate compensation, the components of ongoing professional support, and child-to-staff ratios) over four phases of transformation.

Appendix A describes in detail the methodology used for the cost calculations as well as the various policy choices and assumptions, guided by the recommendations of the *Transforming* report, that underlie the committee's cost estimate. Key among these are (1) lead educators with a bachelor's degree, (2) resources committed to coaching and mentoring, (3) paid release time for professional development, (4) specialists available to support children with special needs, and (5) paid nonchild-contact time.<sup>19</sup>

---

<sup>19</sup> In phase 4 of the cost estimate, the salaries for lead educators do not represent full parity with K–3 educators. The cost estimate in phase 4 sets lead educators' salaries to the level of a kindergarten educator's annual salary payment for a 9-month contract. If, instead, lead educators' salaries in phase 4 were pegged to an annualized equivalent of the normal 9-month kindergarten educator salary, and if all other leadership and instructional salaries were adjusted in a similar fashion, achieving full parity would add about 11 percent to onsite costs and about 10 percent to total system costs (see Appendix A).

Over the four phases of improvement, these specifications are gradually scaled up to achieve high quality. For example, the resources devoted to coaching and mentoring increase across the phases.

Since the purpose of the illustrative cost estimate is to consider the potential costs of making high-quality early care and education available to all children in the United States, the policy choices and relevant current data refer to overall national averages. Because there are currently about 130,000 center-based providers and roughly 1 million paid home-based providers, with great variation in funding and sponsorship, organization structure, and size, the committee expects considerable variation in the actual costs incurred by individual providers. We also expect variation in costs to reflect providing services to different groups of children. For example, the number of specialist staff to serve children with special physical, emotional, or linguistic needs is included in the overall staffing pattern, at ratios reflecting the shares of children with these needs in the overall population, as detailed in Appendix A. Similarly, the estimate assumes that the enhanced professional development resources and reduced child-to-adult ratios used in the illustrative cost estimate will facilitate the delivery of appropriate services to these children with special needs who are in mainstream settings. However, the partial costs of such staffing and supports are not shown separately.

Because about half the paid ECE workforce consists of home-based providers, the committee also included a projected cost<sup>20</sup> of providing high-quality home-based early care and education.<sup>21</sup> In addition to the large size

<sup>20</sup> There is an accepted methodology for estimating costs of center-based early care and education, since data are available on the major ingredients, especially salaries. However, since most home-based providers are not paid a salary, and it is difficult to partition the costs of their home between their own use and ECE service, it is not currently possible to reliably estimate costs for home-based care. Therefore, prices are used as a rough proxy for costs in the estimation algorithm. The committee's estimates reflect an assumption that home-based payments will continue at their current ratio to center-based prices (roughly 50% for infants, about 63% for toddlers, and about 76% for prekindergartners), yielding higher home-based payments as center-based care costs increase. That is, as center costs increase to support high quality-standards, the committee assumes home-based prices would increase commensurately.

<sup>21</sup> The committee does not differentiate between home-based services that are regulated through licensing or registration and other home-based services. Under standard federal terminology, anyone who is paid for a certain type of work, such as early care and education, is a member of the workforce in that area of work. Using this standard definition, the National Survey of Early Care and Education (NSECE) provided the first nationally representative sampling and count of the entire home-based ECE workforce. Only about 10 percent of those paid ECE practitioners were covered by any administrative list, such as licensing or registration records, or were known to a resource and referral agency. The requirements for which home-based providers must be licensed or registered vary greatly across states, and there is inconsistent enforcement of such requirements. For these reasons, the committee chose not to differentiate, for this national estimate, between licensed/registered ECE practitioners and other ECE practitioners.

of the home-based sector, there is substantial evidence that families select between using center-based or home-based early care and education based upon price, program attributes, hours of operation, location, and other factors (see e.g., Blau, 2000; Blau and Hagy, 1998; see also the discussion of utilization in the Chapter 4 section titled “Current ECE Usage and Affordability for Families”). It is therefore necessary to estimate the costs of each of these sectors to obtain a realistic estimate of the total cost of providing access to high-quality early care and education. The committee’s estimate of aggregate costs distinguishes the center-based cost component, which reflects a well-established methodology, from the more uncertain home-based component.

The committee produced both a static estimate and a dynamic cost estimate (see Appendix A for a detailed methodology). For its static estimate, the committee applied the estimated costs per child-hour of high-quality early care and education to current ECE utilization data (number of families and average hours of ECE service used across types of early care and education) garnered from the National Survey of Early Care and Education (NSECE)<sup>22</sup> to generate gross onsite costs by child age and ECE type. For this static estimate, the committee adjusted utilization downward 5 percent to reflect reduced ECE utilization in summer months (see discussion above). Figure 6-1 shows a simplified flowchart of the committee’s methodology for estimating the static and dynamic costs. The static estimate is important because it illustrates the incremental costs of phasing up quality standards and compensation levels.

However, to understand the likely costs of improved quality and accessibility, it is necessary to take account of the likely family responses to these changes, as reflected in the economics literature cited above. The committee therefore developed an illustrative scenario of changes in ECE utilization patterns over the four phases and calculated a dynamic estimate of costs that would be expected to result from higher quality and increased affordability to families, given the policy choices in this scenario. Since the literature on ECE utilization indicates that child age and family income are major predictors of the type and amount of early care and education used, the estimates applied were varied by age of child and family income group.

The literature suggests three likely changes: overall increase in utilization (percentage of children participating in early care and education), an accelerated shift from home-based to center-based early care and education, and an increase in average weekly hours of ECE services used per child (see e.g., Blau, 2001; Blau and Hagy 1998). The increased share for center-based early care and education is based on the committee’s expectation that as

<sup>22</sup> See Chapter 2; data are from Latham (2017) and the National Survey of Early Care and Education Project Team (2016a, 2016b).

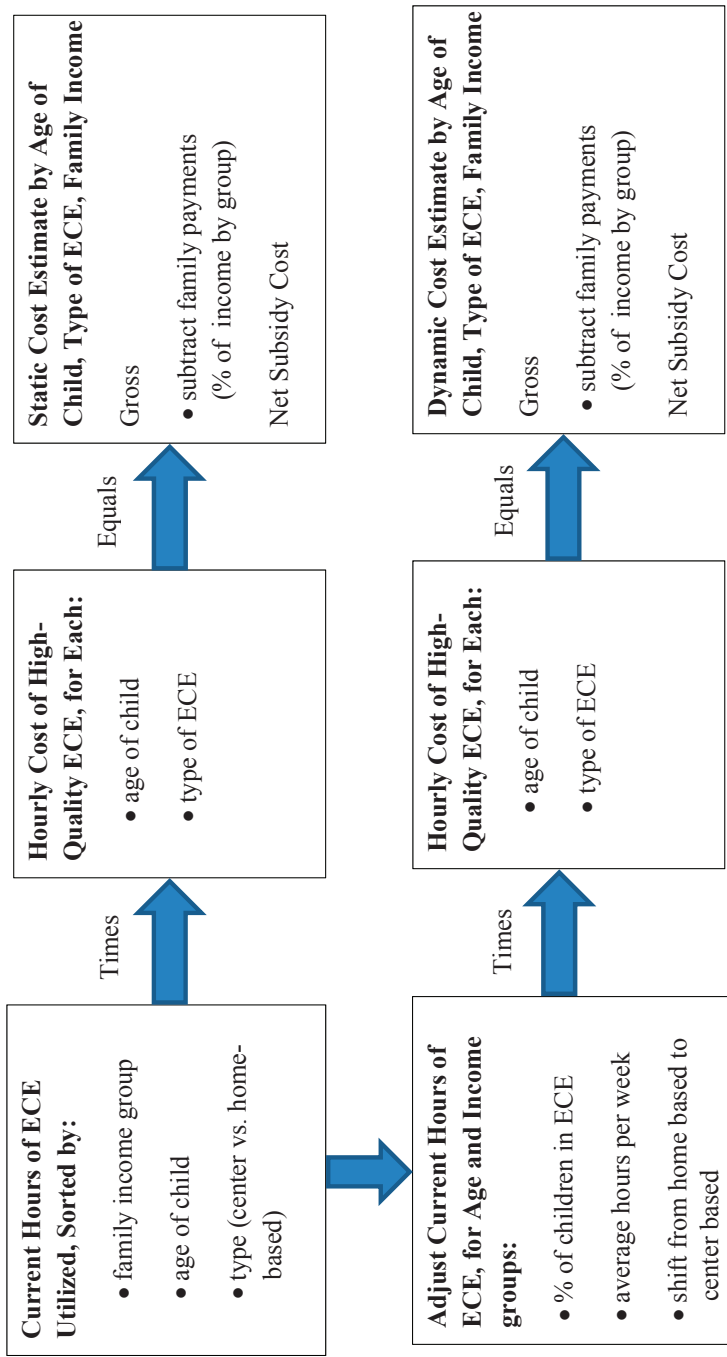


FIGURE 6-1 Simplified calculation flowchart of the committee’s static and dynamic aggregate cost estimates.

the prices of center-based care charged to moderate- and middle-income<sup>23</sup> families decrease, families in these income ranges will gradually shift to using less home-based and more center-based ECE services (see, e.g., Blau, 2001; Cascio, 2015).<sup>24</sup> We expect this shift to be greater for infants and toddlers than for prekindergartners, three-fourths of whom are already in center-based ECE settings. Table 6-3 summarizes the projected increase in utilization of center-based early care and education by child age group.

Based on past econometric estimates, the committee also estimated that the average weekly hours of early care and education used by enrolled children would increase by 8 percent for all age and income groups. Thus, the committee assumes that more families will use early care and education, more will use center-based ECE options, and they will use more ECE hours per child, on average. Overall, the combined adjustments for these higher rates of center enrollment and additional weekly hours per enrolled child increased total hours of ECE utilization by 20 percent to 25 percent of total ECE hours for low-income families, 15 percent for middle-income families, and 10 percent for affluent families. This pattern reflects financing policies that offset the greater price sensitivity and current limitations on access faced by low- and middle-income families.

**TABLE 6-3** Projected Increased Use of Center-Based Early Care and Education, by Child Age Group

	Percentage of Families Using Center-Based ECE	
	Current (2012)	By Phase 4
Infants (<12 mos.)	5	20
Toddlers (1–3 years)	21	50
Prekindergartners (3–5 years)	75	90

SOURCE: Current usage data are from Latham (2017), using data from the 2012 National Survey of Early Care and Education Public Data Set. Phase 4 projections were generated by the committee.

<sup>23</sup> For this discussion, “low-income” refers to families with household incomes that are from zero to 2 times the federal poverty level (FPL); “moderate-income” and “middle-income” refer to families with household incomes that are 2 to 3 times the FPL; and “affluent” refers to families with household incomes greater than 4 times the FPL.

<sup>24</sup> The adjustments were informed by published literature on the response of utilization to changes in prices charged families (“elasticities”) (Blau, 2001), but they also reflect the committee’s informed judgement because the elasticities reported by Blau were based on the ECE system of 25 years ago and were not specific to different age and income groups. In general, the committee judged that lower-income families would be more responsive to changes in affordability and that the shift toward center-based early care and education would be greater for younger children, since their current utilization is lower and price is a greater barrier. However, many families may continue to prefer home-based care due to the need for evening and weekend hours, lower child-to-adult ratios, and trust of known individuals.



### Estimated System-Level Costs: Workforce Development Supports and Quality Assurance and Improvement

Given that the approaches to system-level workforce development and quality assurance and improvement are varied, the committee follows prior practice in assuming that these costs can reasonably be represented in our cost estimate by fixed percentages of the direct cost of ECE service provision. For example, Brandon and colleagues (2004b) and Karoly and colleagues (2016) both developed estimates of these system-level costs as a percentage of the direct onsite cost of early care and education.

The committee applied an increment of 8 percent a year to service delivery costs to estimate the system-level costs of workforce development supports and quality assurance and improvement systems in order to determine an illustrative estimate of the total cost of high-quality early care and education. The 8 percent was derived from adjusting cost estimates developed by Brandon and colleagues for the Financing Universal Access to ECE project, which developed a detailed cost estimate for a set of infrastructure and system support elements similar to those envisaged by the *Transforming* report (Brandon et al., 2004b; see also Institute of Medicine and National Research Council, 2015, Chapter 9 and Chapter 10). The specifications were developed by several different teams of state ECE leaders and stakeholders, informed by a group of experts convened by the Financing Universal Access to ECE project (Kagan et al., 2002). For this discussion, we have omitted the elements that were included in the onsite cost estimates, such as coaching/mentoring and release time for professional development and professional responsibilities. The major elements suggested by convened experts and state teams, for which ingredient costs were specified, include the following:

- *Professional support for educators, home-based providers, program leaders, and trainers:* provider and staff registry, an information system, curriculum development, system evaluation, career counseling, leadership development, staff stipends for early care and education of staff members' children, textbooks and scholarships for educators taking courses, and support for home-based provider networks.
- *Support for families:* resource and referral networks, consumer information about quality and financial assistance.
- *Regulation of centers and homes operating at least 8 hours per week, 4 weeks per year:* twice-annual visits for monitoring and support by regulators with advanced credentials and compensation exceeding that of educators, inspectors for regulatory entities assigned caseloads of about 60 centers or 80 homes.

- *Governance and administration at state and local levels:* accreditation facilitation systems, policy/legal and support staff, and management information systems.

The cost of these elements was consistently about 6 percent of the total costs of a higher-quality ECE system (Brandon et al., 2004b). However, those estimates did not include observational monitoring of program quality and professional practice or evaluations and cross-state studies of the impact of reforms to the ECE system and the workforce itself, as anticipated by the committee. The committee, using our informed judgment, thus estimates that these components would raise the total system and infrastructure costs to about 8 percent of the total costs. While some of the support costs, such as transitioning to a more qualified workforce, would likely decline in the later phases of the ECE system transformation, others such as assessment and analysis of impacts would increase, so the same 8 percent increment to direct service costs was applied at each phase.

## Results

The cost of high-quality early care and education is presented first in terms of the estimated unit costs to providers offering high-quality ECE services on a per-child basis (on both an hourly and an annualized [full-time, full-year] basis)<sup>25</sup> and second, in terms of the aggregate national costs, accounting for present and projected patterns of utilization of center-based and home-based early care and education for the entire U.S. population. All cost estimates are presented in constant 2016 dollars to illustrate the impact of the assumed policies without adding in the potential costs of inflation.

### *Unit Costs per Child*

Table 6-4 reports estimates of onsite center-based ECE costs on both a per-child-hour basis and an annual basis for full-time, full-year early care and education, all in 2016 dollars. These numbers show the magnitude of differences among the costs at different phases, which reflect different policy specifications. The annualized onsite costs of center-based care per child generally decrease as the child's age increases. In phase 4 the decrease is from \$35,354 per year for infants to \$13,655 per year for 3-to-5 year olds. Comparatively, the onsite costs of home-based care per child in phase 4

<sup>25</sup> Because current average utilization is less than full time, the annualized figures are illustrative of what full-time, full-year costs would be if incurred. The committee notes that the "annualized figures" only apply to per-child costs, not the aggregate cost estimate, which applies actual hours per week utilized.

**TABLE 6-4** Estimated Onsite Costs for High-Quality Early Care and Education, Center-Based and Home-Based, Unit Costs per Child, Compared to Current Prices

	NSECE Estimates, Adjusted to 2016		Estimated Cost per Child, Illustrative Scenario			
	Median Price	Mean Price	Phase 1	Phase 2	Phase 3	Phase 4
<b>Center-Based ECE</b>						
Prekindergartners, ages 3–5 years						
Annualized, FT/FY	\$8,278	\$14,040	\$9,416	\$10,538	\$12,271	\$13,655
Per child-hour	\$3.98	\$6.75	\$4.53	\$5.07	\$5.90	\$6.57
Toddlers, ages 12–36 months						
Annualized, FT/FY	\$8,944	\$15,080	\$16,382	\$18,806	\$24,715	\$28,203
Per child-hour	\$4.30	\$7.25	\$7.88	\$9.04	\$11.88	\$13.56
Infants, age <12 months						
Annualized, FT/FY	\$10,130	\$17,950	\$16,045	\$21,389	\$23,654	\$35,354
Per child-hour	\$4.87	\$8.63	\$7.71	\$10.28	\$11.37	\$17.00
<b>Home-Based ECE<sup>a</sup></b>						
Prekindergartners, ages 3–5 years						
0.76 Ratio, homes/centers						
Annualized, FT/FY	\$8,112	\$10,712	\$7,156	\$8,009	\$9,326	\$10,378
Per child-hour	\$3.90	\$5.15	\$3.44	\$3.85	\$4.48	\$4.99
Toddlers, ages 12–36 months						
0.63 Ratio, homes/centers						
Annualized, FT/FY	\$7,696	\$10,192	\$10,321	\$11,848	\$15,570	\$17,768
Per child-hour	\$3.70	\$4.90	\$4.96	\$5.70	\$7.48	\$8.54

TABLE 6-4 Continued

	NSECE Estimates, Adjusted to 2016		Estimated Cost per Child, Illustrative Scenario			
	Median Price	Mean Price	Phase 1	Phase 2	Phase 3	Phase 4
Infants, age <12 months						
0.50 Ratio, homes/centers Annualized, FT/FY	\$7,696	\$8,944	\$8,023	\$10,695	\$11,827	\$17,677
Per child-hour	\$3.70	\$4.30	\$3.86	\$5.14	\$5.69	\$8.50

NOTES: Annual FT/FY = full-time, full-year annual costs. The cost estimate defines key salary levels as paying ECE educators with a bachelor's degree wages equivalent to child-family social workers with a bachelor's degree by phase 2 and equivalent to kindergarten educators by phase 4, though not annualized for a full year (12 months) of ECE service. In the phase 4 specifications, lead educators' salaries are equivalent to a kindergarten educators' salaries for a 9-month contract. If phase 4 bachelor's degree-level salaries were set equivalent to 12 months at the monthly rate of the contract amount for kindergarten educators' salaries, they would be about \$74,000 rather than \$55,460 (see Appendix A for an explanation of key salary levels across phases).

<sup>a</sup>The ratios shown for home-based care are the ratios of the NSECE mean price of home-based care to the NSECE mean price of center-based care (second data column). For the scenario estimates (last four columns), these ratios of mean prices were used to derive the estimated home-based care cost from the committee's projection of center-based care cost.

SOURCE: NSECE data from National Survey of Early Care and Education Project Team (2016a), adjusted to 2016 dollars. Estimated costs for the phases in the illustrative scenario were generated by the committee.

increase slightly from infant care (\$17,677) to toddler care (\$17,768) before decreasing for 3- to 5-year-olds (\$10,378). This pattern results from the interaction of two factors. The NAEYC recommendations are for similar child-to-staff ratios for infants and toddlers but substantially higher ratios for prekindergartners. However, the mix of staff educational qualifications and attendant salaries is richer for toddlers than infants. Therefore, though toddlers and infants have similar child-to-staff ratios, the policy specifications for educators working with toddlers require stronger qualifications and higher compensation and the unit cost for toddlers slightly exceeds that of infants in phase 1. In phase 4, as the staff qualifications for infants are increased, and child-to-staff ratios decrease, the costs for infants become much greater than for other age groups. (These specifications are shown in detail in Appendix A, specifically Table A-2.)

Table 6-4 also presents estimated onsite home-based ECE costs, which were derived using the committee's assumption that home-based payments will continue at their current ratio to center-based ECE prices, yielding higher home-based payments as center costs increase (see discussion above). These home-based to center-based ratios for infants, toddlers, and prekindergartners are, respectively, 50, 63, and 76 percent.

### **Aggregate National Costs for High-Quality Early Care and Education**

For this illustrative scenario, the committee also projected total aggregate national costs (including onsite costs and system-level costs), showing both a static estimate and a dynamic estimate.<sup>26</sup> These values are based on applying the estimated costs per child-hour to the current and projected utilization patterns by age of child and family income group, as reported in the NSECE (as opposed to the illustrative full-time, full-year annualized costs in Table 6-4). Table 6-5 shows a comparison of the static and dynamic estimate of the total direct service cost of high-quality early care and education. For the static estimate, the committee estimates costs will increase from about \$66 billion in phase 1 to \$110 billion in phase 4 as quality standards are increased in each phase. The share for center-based care remains at about two-thirds in all phases, given the committee's

---

<sup>26</sup> The aggregate cost estimates apply the estimated hourly costs per child for high-quality early care and education to the average weekly hours of center-based and home-based ECE services actually used by children of different age and income groups as described in Chapter 4. These are converted to annual costs by multiplying by 52 weeks and then adjusting downward by 5 percent to reflect the pattern of summer decreases in ECE employment (see discussion above).

**TABLE 6-5** Static and Dynamic Estimates of Total Cost and Share of Total Cost by ECE Provider Type and by Scenario Phase (billions of 2016 dollars)

	Phase 1	Phase 2	Phase 3	Phase 4
<b>Total, Static Estimate</b>	\$65.7	\$76.1	\$93.2	\$109.5
Center based	\$42.8	\$49.3	\$59.9	\$70.0
Home based	\$22.9	\$26.8	\$33.2	\$39.6
Share of Total Cost by Provider Type				
Center based	65%	65%	64%	64%
Home based	35%	35%	36%	36%
<b>Total, Dynamic Estimate</b>	\$74.5	\$89.0	\$114.3	\$139.9
Center based	\$49.8	\$62.5	\$82.9	\$105.2
Home based	\$24.8	\$26.4	\$31.4	\$34.7
Share of Total Cost by Provider Type				
Center based	67%	70%	73%	75%
Home based	33%	30%	27%	25%

assumption that home-based costs will shift in constant proportion to center-based costs.

In the dynamic estimate, the committee assumes a steady increase in overall utilization of early care and education, with a shift toward more use of center-based ECE options over the four phases. This approach produces an overall increase in the share of children and families using ECE services by about 6 percent for upper-middle income families to 15 to 20 percent for low-to-middle-income families that are currently more constrained by price. The total costs of providing high-quality early care and education in this dynamic estimate increase over the static projections by 13 percent in phase 1 and by up to 27 percent by phase 4. The dollar amount attributable to increased utilization ranges from about \$3.8 billion in phase 1 to \$27 billion in phase 4. The total costs (onsite plus system-level costs) of high-quality early care and education would increase from about \$75 billion in phase 1 to \$140 billion in phase 4, using the dynamic utilization assumptions in this scenario. The share of utilization for center-based care would increase from two-thirds in phase 1 to three-fourths in phase 4. In the dynamic estimate, onsite costs for center-based and home-based care by child age group increase most for younger children, as they are expected to have the greatest increase in utilization, combined with an accelerated shift from home-based to center-based care. The cost estimates also reflect the scenario's result that the increase in staff compensation combines with lower child-to-staff ratios to make the cost per child much higher for the younger age groups, especially toddlers.

## EXAMPLE PART II: FAMILY PAYMENTS IN A HIGH-QUALITY EARLY CARE AND EDUCATION SYSTEM

For the purposes of illustrating and estimating the public (and private nonfamily) expenditures needed to support high-quality early care and education, this section illustrates one way of designing a fair system of family contributions. Chapter 7 and Appendix C discuss alternative ways to determine a reasonable share for families to pay, including no-fee approaches. The illustration assumes that the current federal and state family contribution guidelines, which vary across states and across different programs, are harmonized to a consistent, progressive schedule to eliminate current gaps in affordability, informed by data on what families of different incomes currently pay for children of different ages (see Chapter 2).

If fees are charged, Table 6-6 provides one example of such an alternative family payment schedule and illustrates a system of family payments that eliminates the current middle-income gap in affordability and utilization of center-based care. This family payment schedule is an example an equitable, progressive pattern that decreases payment shares for low-to-moderate-income families and increases payment shares for more-affluent families, compared to the current payment structure. Figure 6-2 shows a comparison of current payment rates as a share of family income to the illustrative family payment schedule. Note that the income groups are defined by multiples of the federal poverty level (FPL), which takes family size into account, so the greater needs of families with more children are built into the schedule. The illustrative family payment levels were based on the following factors:

- The current 10 percent median share of income in family payments derived from NSECE data, shown in Chapter 2, was set as the level for the 2–3 FPL group.<sup>27,28</sup>
- Families in deep poverty (<0.5 FPL) were assigned no payments; families above that level but below 2 FPL were assigned modest payments, increasing from 4 to 7 percent of income. These steady increases avoid the work disincentives from a “cliff” effect.
- Upper-income families currently pay about 12 percent of income for early care and education. However, this share of income is

<sup>27</sup> The current mean family payment of 18 percent of income for the 2–3 FPL group reflects a small proportion of families in this income group that pay very large shares of income for ECE services. Because the committee judged the mean payment to not be generally affordable (see Chapter 2), the median share is used.

<sup>28</sup> This factor uses the “revealed preferences” methodology for determining a reasonable share for families to pay, as discussed in Appendix C. The methodology assumes that average income families are currently paying what they are willing and able to pay for early care and education.

TABLE 6-6 Illustration of a Progressive, Affordable Family Payment Schedule

Percentage of Family Income Paid for ECE Services	Pay Smaller Share of Income than Current Median					Pay Greater Share of Income than Current Median		
	All Households	<0.5 FPL	0.5–1 FPL	1–2 FPL	2–3 FPL	3–4 FPL	4–5 FPL	5 FPL– top-out <sup>a</sup>
Current Median	10%	21%	19%	14%	11%	10%	9%	12%
Current Mean	17%	35%	34%	21%	18%	12%	11%	13%
New Share of Income		0%	4%	7%	10%	12%	13%	14%
Annual Maximum Payment Amount		\$0	\$699	\$2,379	\$5,804	\$9,423	\$13,196	\$16,576
								\$21,869 <sup>b</sup>

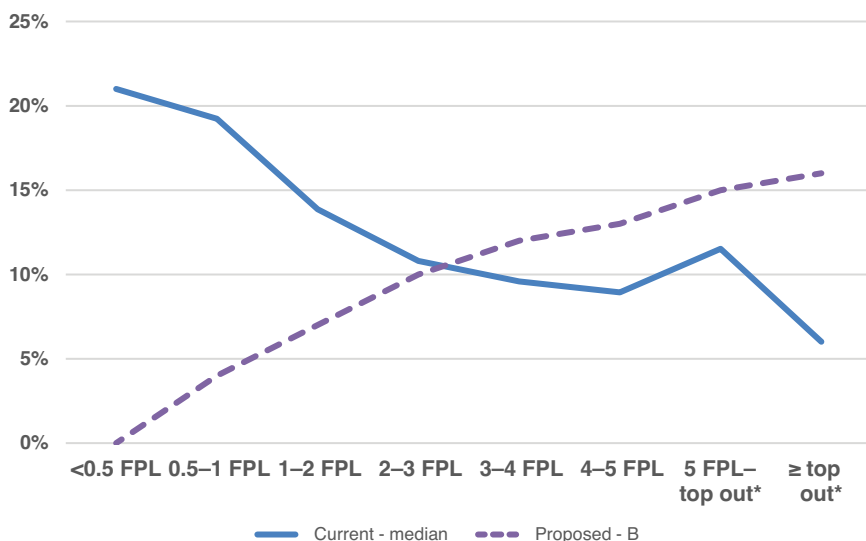
NOTES: FPL = federal poverty level.

<sup>a</sup> For the purposes of assigning families to income groups and computing average income per group, a maximum income eligibility level, the level above which families would receive no assistance, was estimated. This is referred to as the “top-out income level.”

<sup>b</sup> Maximum payment is limited to maximum cost, which equals about 12 percent of mean income for the highest income group

SOURCE: Current median and mean data from Latham (2017), using data from the 2012 National Survey of Early Care and Education Public Data Set. Share of income and annual maximum payment amount illustrations were generated by the committee.





**FIGURE 6-2** Comparison of current payment rates as a share of family income to the illustrative family payment schedule.

NOTE: Current shares reflect only those families who make out-of-pocket payments; many low-income families currently use ECE services but make zero payments. For the purposes of assigning families to income groups and computing average income per group, a maximum income eligibility level—above which families would receive no assistance—was estimated. This level is referred to as “top-out income level.”

SOURCE: Current payment rate data are from Latham (2017), using data from the 2012 National Survey of Early Care and Education Public Data Set.

constrained by the market forces that limit the prices charged for ECE services. For the illustration, the highest-income families were assigned a contribution in the range of 12–15 percent of income.<sup>29</sup>

We note that for cost-estimation purposes, these same percentages of income were applied across all four phases of ECE system transformation. However, as the estimated costs of service increase, the aggregate total of payments would increase because higher-income families pay all or most of the higher costs.

Whereas Figure 6-2 shows family payments as a share of income, another approach to determining a reasonable share for families to pay focuses on the total amount of payments to be contributed by families in each income group. This approach allows for consideration of the many

<sup>29</sup> The higher ECE costs projected by the committee generally do not exceed 12 percent of household income, except for those families with large numbers of young children.

low-income families that make zero out-of-pocket payments for early care and education and reflects variation in the number of families in each income group. Figure 6-3 illustrates the progressivity of this family payment schedule example by comparing the share of households in each income group to the share of total ECE payments that would be made by that group. For the lowest three income groups, the share of payments is substantially less than the share of households. For the moderate-income group (2–3 FPL), the shares of households and payments are approximately equal. The top three income groups in the example (3–4 FPL, 4–5 FPL, and top-out<sup>30</sup> groups) would pay a substantially greater share of total payments than their share of total households, contributing 64 percent of all family payments while constituting just 34 percent of households.

### EXAMPLE PART III: SHARING THE COST, FILLING THE GAP

The committee's estimate of the total cost of a high-quality ECE system, based on specific, hypothetical assumptions and quality-related policy choices over four phases of implementation, was reported above in "Example Part I: Illustration of a Total Cost Estimate." In the Example Part II section, the committee offered an example of an affordable and progressive pattern of family shares. This section illustrates the share of funding that would be required from public or private (nonfamily) sources in such a model by subtracting the illustrative estimate of family contribution from the illustrative estimate of the total cost of the ECE system. If the new system included no fees for families, as is the case for public K–12 schooling, the family contribution would be zero and funding from public or private sources would be required to cover the total cost of the system.

While specific estimates of the amount of public assistance needed may vary, depending upon the assigned family payment schedule, the overall picture has consistent themes: current funding levels are well below what would be necessary to support delivery of high-quality service (see Table 6-7).

Table 6-8 summarizes the committee's illustrative projections—estimated total cost, estimated family contribution, and estimated gap in funding—across the four phases. In the static analysis, the projected annual cost would increase across the phases from about \$66 billion to \$110 billion, an increase of about 67 percent, as quality standards are increased through

<sup>30</sup> For the purposes of assigning families to income groups and computing average income per group, a maximum income eligibility level—above which families would receive no assistance—was estimated. This level is referred to as "top-out income level."

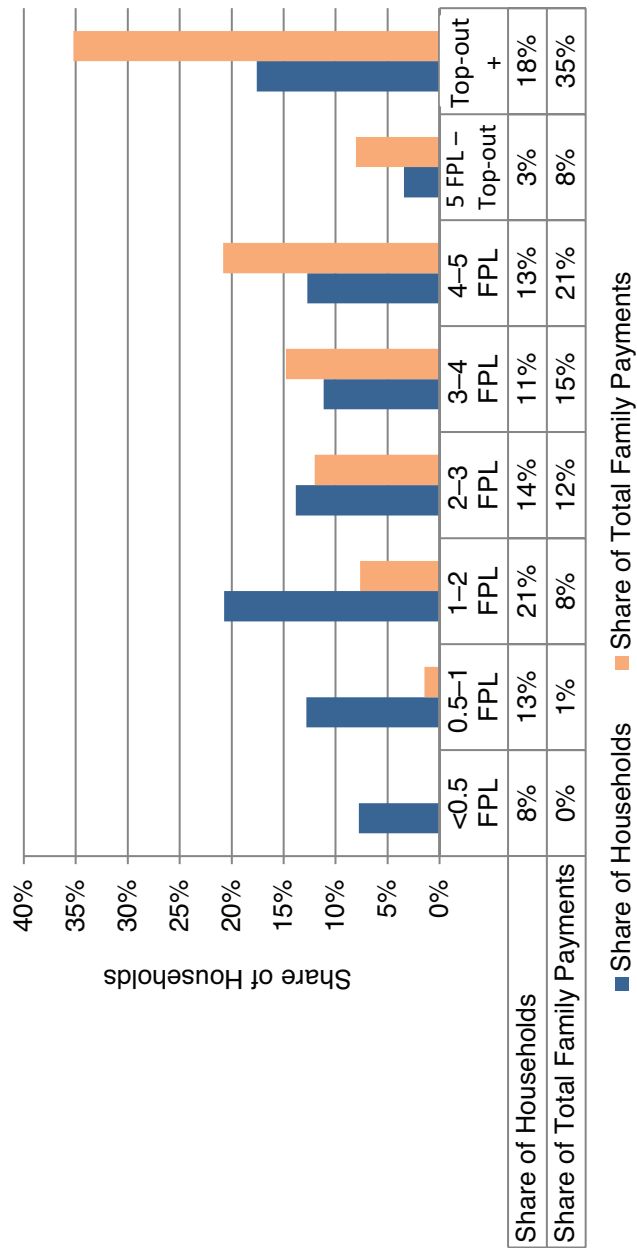


FIGURE 6-3 Illustration of a family payment schedule by income group (phase 4, dynamic estimate).  
SOURCE: Share of household data from Latham (2017), using data from the 2012 National Survey of Early Care and Education Public Data Set. Share of total family payments for illustrative scenario were generated by the committee.

**TABLE 6-7** Current Funding Levels Compared to Costs of High-Quality Center-Based Early Care and Education (ECE), Cost Per Child, Annualized

	Per Child: 2-year-olds	Per Child: 4-year-olds
<b>Current Funding Levels</b>		
Head Start/Early Head Start funding per child	\$12,612	\$8,038
Public prekindergarten funding per child	NA	\$4,976
CCDF reimbursement rate (average state)	\$9,295 [for 1-year-old]	\$7,170
Federal income tax credits: allowable annual expenses		
CDCTC (per child) <sup>a</sup>	\$3,000	\$3,000
DCAP (per household)		
Married couples	\$5,000	\$5,000
Single parents	\$2,500	\$2,500
<b>Cost of High-Quality ECE</b>		
Committee scenario, phase 4	\$28,203	\$13,655

NOTES: CCDF = Child Care and Development Fund; CDCTC = Child and Dependent Care Tax Credit; DCAP = Dependent Care Assistance Program.

<sup>a</sup> Twenty to 35 percent of the first \$3,000 spent on early care and education is allowed by the CDCTC, determined on a sliding scale based on family income (credit decreases with increasing income). The average credit amount is \$553 (Internal Revenue Service, 2016b).

SOURCES: Current funding level data are from Barnett and Friedman-Krauss (2016, pp. 16–17); Barnett et al. (2017); Internal Revenue Service (2016); Schulman and Blank (2016, p. 40); Smith (2017). Estimates for cost of high-quality ECE are committee-generated.

**TABLE 6-8** Static Estimate, Total Cost (onsite and system level) by Transformation Phase: Family and Public Contributions, Billions of Dollars, Constant 2016 Dollars

	Phase 1	Phase 2	Phase 3	Phase 4
<b>Total</b>	\$65.7	\$76.1	\$93.2	\$109.5
Family payment	\$32.2	\$34.0	\$36.7	\$39.6
Public cost	\$33.5	\$42.2	\$56.5	\$69.9
<b>Share of total</b>				
Family payment	49%	45%	39%	36%
Public cost	51%	55%	61%	64%

**TABLE 6-9** Dynamic Estimate of the Total Cost (onsite and system level) by Transformation Phase, with Estimated Shares of Public and Family Contributions (billions of 2016 constant dollars)

	Phase 1	Phase 2	Phase 3	Phase 4
<b>Total</b>	\$74.5	\$89.0	\$114.3	\$139.9
Family payment	\$40.7	\$45.1	\$51.9	\$58.2
Public/private assistance	\$33.8	\$43.9	\$62.5	\$81.7
<b>Shares of Total</b>				
Family payment	55%	51%	45%	42%
Public/private assistance	45%	49%	55%	58%

the phases. The family contribution increases from about \$32 billion in phase 1 (close to the current total, but distributed more fairly across income groups) to about \$40 billion by phase 4.<sup>31</sup> The remaining public and private assistance costs increase from about \$34 billion in phase 1 to \$70 billion in phase 4. The share of public and private assistance to total cost increases from about 51 percent in phase 1 to 64 percent in phase 4, as higher quality standards and cost make early care and education less affordable for some families unless they receive public or private assistance.

In the dynamic estimate (Table 6-9), total annual costs increase about \$65 billion over the four phases, from \$75 to \$140 billion, or an 88 percent increase. The family payments increase from \$41 to \$58 billion, but their share of the total costs decreases from 55 to 42 percent. The public and private costs for assistance to families and providers, plus system-level quality costs, more than doubles: from about \$34 to \$82 billion as costs increase by increments greater than families' ability to pay.

## CONCLUSION

In this chapter, the committee provides an illustrative but hypothetical example of a national-level estimate for total costs of offering accessible and affordable high-quality early care and education with a highly qualified workforce to all children, consistent with the *Transforming* report. Once fully implemented (i.e., in phase 4 of a four-phase process to realize a

<sup>31</sup> Whereas the share of income contributed by each income group remains constant across phases, the total cost of family payments increases for two reasons. First, family payments are capped at the estimated cost of service, so as cost increases, payments from upper-income families increase. Second, as costs increase they become less affordable for upper-middle-income families, who thereby become eligible for public support.

system consistent with the assumptions used for this particular example), the total cost amounts to at least \$140 billion per year. If full compensation parity with K–3 educators on a monthly basis were to be reached at full implementation and if all other leadership and instructional salaries were adjusted in a similar fashion, the estimated total system cost for the example would increase by about 10 percent.

The net cost to public and private agencies assisting families to afford access to higher-quality, higher-cost ECE services of course depends on the share of total cost borne by families and by market responses in setting prices. Comparing current public (federal and state) ECE-related spending of roughly \$29 billion<sup>32</sup> with these estimates of the cost to implement a high-quality ECE system (under the set of assumptions used in this illustration) suggests that current funding levels are well below what would be necessary to support access to high-quality early care and education for all children. If families contribute to the costs as shown in our illustration of an affordable family payment schedule (again, a hypothetical example dependent on a specific set of assumptions), the families' share of costs would be \$41 billion in phase 1 and \$58 billion in phase 4. Public costs, under this pair of scenarios (a scenario for ECE system transformation through a four-phase process and a second scenario for an affordable family payment schedule), would increase from about \$34 billion in phase 1 to \$82 billion in phase 4. For these illustrative scenarios, the *increase* in public funding from the actual current level would thus have to grow from about \$5 billion (in phase 1) to \$53 billion (phase 4) a year.<sup>33</sup>

It is clear that the committee's estimate of the total cost of providing high-quality early care and education, reinforced by previous cost estimates, suggests that there is a significant gap between the amount of funding currently in the ECE system and the amount of money needed to support access to high-quality early care and education for all children. Given the increased costs of a high-quality system, more families, including low- and middle-income families, will need assistance in order to access and afford high-quality care.

These numbers are large but are not out of line with current international practice nor with current spending on K–12 education. Using the dynamic estimate, which is in 2016 dollar values, ECE costs as a share of gross domestic product (GDP) rise from about four-tenths of 1 percent (0.40%) in phase 1 to three-quarters of 1 percent (0.75%) in phase 4, which is still slightly less than the current average of 0.8 percent of GDP allocated

<sup>32</sup> See Chapter 2 and Chaudry et al., 2017.

<sup>33</sup> If no-fee approaches were adopted, the public share of costs would be equivalent to the total cost of implementing a high-quality ECE system.

to early care and education for the nations in the OECD (Penn, 2017).<sup>34,35</sup> If families contribute to the costs using the illustrative family payment schedule in the committee's example, the public contribution would only be about one-fifth of 1 percent (0.18%) of GDP in phase 1 and less than one-half of 1 percent (0.44%) of GDP by phase 4. Moreover, the estimated total cost of high-quality early care and education amounts to only about 12 percent of total K–12 expenditures<sup>36</sup> in phase 1 and rises to about 22 percent in phase 4.<sup>37</sup> That is, expenditures for one-third as many children of ages 0 to 5 years as children of ages 6 to 18 years would cost only from one-seventh to one-fifth as much.<sup>38</sup> If families contribute to the costs using the illustrative family payment schedule, public ECE costs would only rise from about 5 percent of total K–12 expenditures to 13 percent of total K–12 expenditures across the phases.

Of course, the precise cost of a high-quality ECE system that is accessible and affordable to all families depends on the specific details of the system. In this chapter and Appendix A, the committee discusses a number of the decisions that would need to be made in creating a high-quality ECE system and explores ways that a decision maker could project drivers of cost. In doing so, we have provided a guide to decision makers for how to estimate the costs of their individual ECE systems, as well as providing a national-level estimate of the total cost of ensuring all children the opportunity to benefit from early care and education. Both levels of estimation will be necessary considerations in moving forward to an effective financing structure.

---

<sup>34</sup>The OECD and the European Union suggest that 1 percent of GDP should be spent on ECE services (Penn, 2017).

<sup>35</sup>The 2016 U.S. GDP was \$18.6 trillion (World Bank, 2017).

<sup>36</sup>K–12 expenditures for 2013–2014, adjusted to constant 2015–2016 dollars, total \$633.8 billion. See [https://nces.ed.gov/programs/digest/d16/tables/dt16\\_236.10.asp](https://nces.ed.gov/programs/digest/d16/tables/dt16_236.10.asp) [October 2017].

<sup>37</sup>The estimated total cost of early care and education (committee's dynamic estimate) is equivalent to 10.9 percent of K–12 expenditures in phase 1, 13 percent in phase 2, 16.9 percent in phase 3, and 20.5 percent in phase 4.

<sup>38</sup>Total expenditures for K–12 schools in the United States in 2013–2014 amounted to \$12,509 per public school student enrolled (in constant 2015–2016 dollars). See <https://nces.ed.gov/fastfacts/display.asp?id=66> [October 2017].

## A Vision for Financing Early Care and Education

Investments in high-quality early care and education for children from birth to kindergarten entry are critical to positive child development and early learning. These investments benefit not only children and their families but also society at large. Unfortunately, only a small share of children currently have access to such high-quality programs because the cost of providing access to affordable, high-quality early care and education for all children far exceeds current funding amounts. The majority of children in families choosing to use early care and education (ECE) services are in low- or mediocre-quality programs that do not have the resources necessary to support the emergence of the developmental and economic benefits that are possible (Bassok et al., 2016; Burchinal et al., 2010; Valentino, 2017). There are also a substantial number of children whose families wish to participate in early care and education but are unable to use any early care and education because of a lack of either available ECE services or family resources to pay for placement in the available settings. (Figure 7-1 represents these realities of the current system.) Given what science shows regarding the benefits of quality early learning experiences for positive childhood development and a lack of systemic progress to improve the quality of early care and education offered in the United States,<sup>1</sup> an effective financing structure is needed to address these persistent problems. This chapter offers a number of recommendations to develop an effective financing structure for a high-quality ECE system in the United States for all children from birth to kindergarten entry. Several central concepts

---

<sup>1</sup> Institute of Medicine and National Research Council (2015).



ECE FINANCING LANDSCAPE: CURRENT

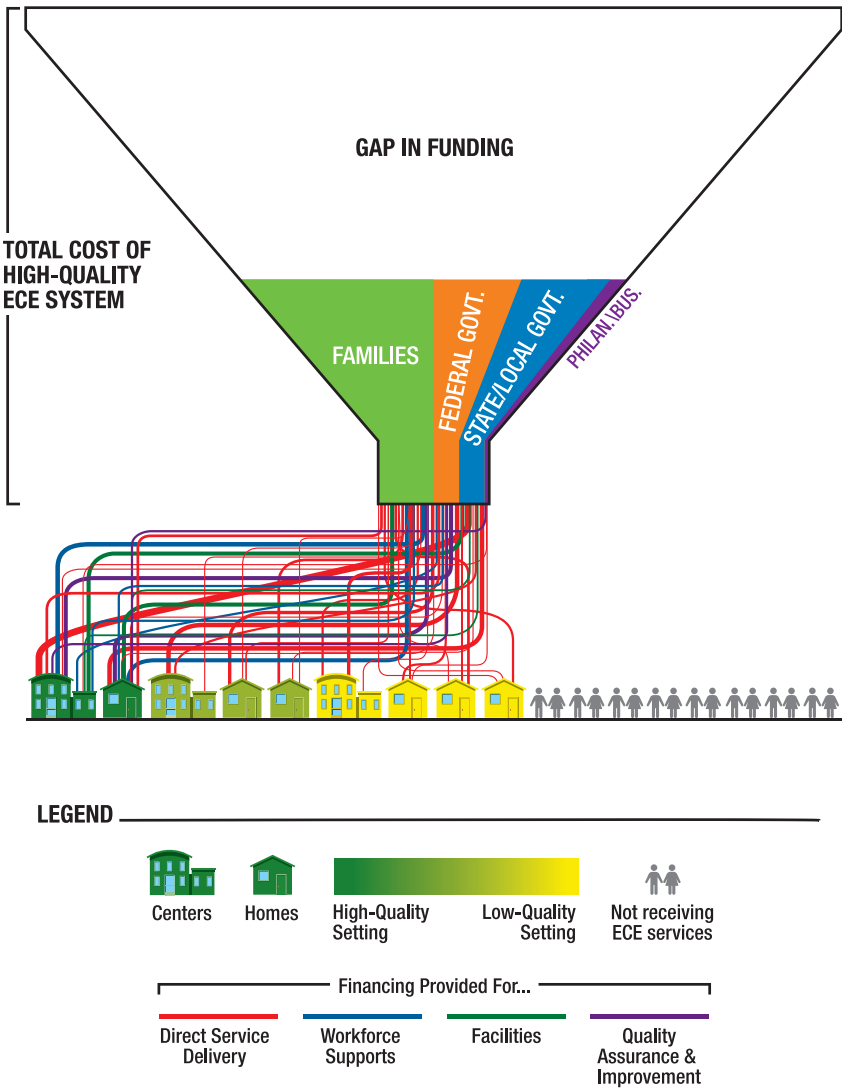


FIGURE 7-1 Landscape of current ECE financing structure.

underlying these recommendations have the potential to transform the current state and provide affordable access to high-quality ECE options for all children and families.

The committee envisions a transformed, effective ECE financing structure that builds on the six principles we presented in Chapter 1 (see Box 1-4):

1. High-quality early care and education requires a diverse, competent, effective, well-compensated, and professionally supported workforce across the various roles of ECE professionals.
2. High-quality early care and education requires that all children and families have equitable access to affordable services across all ethnic, racial, socioeconomic, and ability statuses as well as across geographic regions.
3. High-quality early care and education requires financing that is adequate, equitable, and sustainable, with incentives for quality. Moreover, it requires financing that is efficient, easy to navigate, easy to administer, and transparent.
4. High-quality early care and education requires a variety of high-quality service delivery options that are financially sustainable.
5. High-quality early care and education requires adequate financing for high-quality facilities.
6. High-quality early care and education requires systems for ongoing accountability, including learning from feedback, evaluation, and continuous improvement.

In the envisioned transformed and effective financing structure, an integrated system of laws and policies will ensure that each of the following goals is attained:

- Financial support for early care and education will be based on covering the total cost of high-quality early care and education (i.e., the costs of service delivery with a highly qualified and adequately compensated workforce and system-level supports, including mechanisms for accountability and improvement) and will hinge on a consistent set of quality standards applied across a mixed delivery system.
- All ECE providers meeting high quality-standards will have access to a core amount of institutional support based on the cost of recruiting, retaining, and professionally supporting a well-qualified workforce and meeting the developmental needs of all children.
- Families from all socioeconomic, racial, ethnic, and geographic backgrounds who choose ECE programs will pay either no fee or

an amount they can reasonably afford, with a systemwide harmonized combination of assistance mechanisms that do not leave gaps for any income groups and that are easy to navigate.

- Ongoing investments are made in an infrastructure for support and accountability in attaining quality goals, ensuring access, and spending funds effectively.
- Public funding is substantially increased, phased in over a transition period, to enable transformation and the building of an adequate, equitable, and sustainable system.

Full implementation will require a transition period; Figure 7-2 represents the ECE landscape during this transition period. Full implementation also will require ample political will and political leadership to shepherd necessary changes at the federal, state, and local levels.<sup>2</sup> At the same time, there is great urgency to begin to work on realizing this vision immediately. (Figure 7-3 shows the high-quality ECE system envisioned in this report.) Many components of the ECE structure in the United States are currently inadequate—for parents, for children, and for the ECE workforce. While all children and families stand to benefit from a coordinated, high-quality ECE system that is accessible and affordable, the consequences of the current approach to financing have left many families without access to affordable, high-quality early care and education, a situation that perpetuates and drives inequality.

### AN EFFECTIVE FINANCING STRUCTURE

The previous chapters make clear that the current structure for ECE financing is fragmented and inconsistent. Current financing mechanisms tend to treat each part of early care and education—service delivery, system supports, and workforce supports—as a separate area, rather than as parts of an integrated system with interdependent components. These financing

---

<sup>2</sup> In this chapter, when the committee recommends that federal, state, or local governments take action, we are recommending that all relevant agencies at each level of government participate in such actions. At the federal level, relevant agencies include those with programs that have an explicit ECE purpose (Department of Defense, Department of Education, Department of Health and Human Services, Department of the Interior), those that have programs that permit use of funds for ECE purposes (Department of Agriculture, Department of Education, Department of Health and Human Services, Department of the Interior, Department of Justice, Department of Labor, and the General Services Administration), and those that manage tax expenditures that support early care and education (Department of the Treasury) (U.S. Government Accountability Office, 2017). In order to realize the committee's coordinated vision of a cohesive ECE system, changes will need to occur across agencies and the existing silos between agencies, which are rooted in historical supports for either child development or work/welfare goals of early care and education, will need to be dismantled.

## ECE FINANCING LANDSCAPE: TRANSITION PERIOD

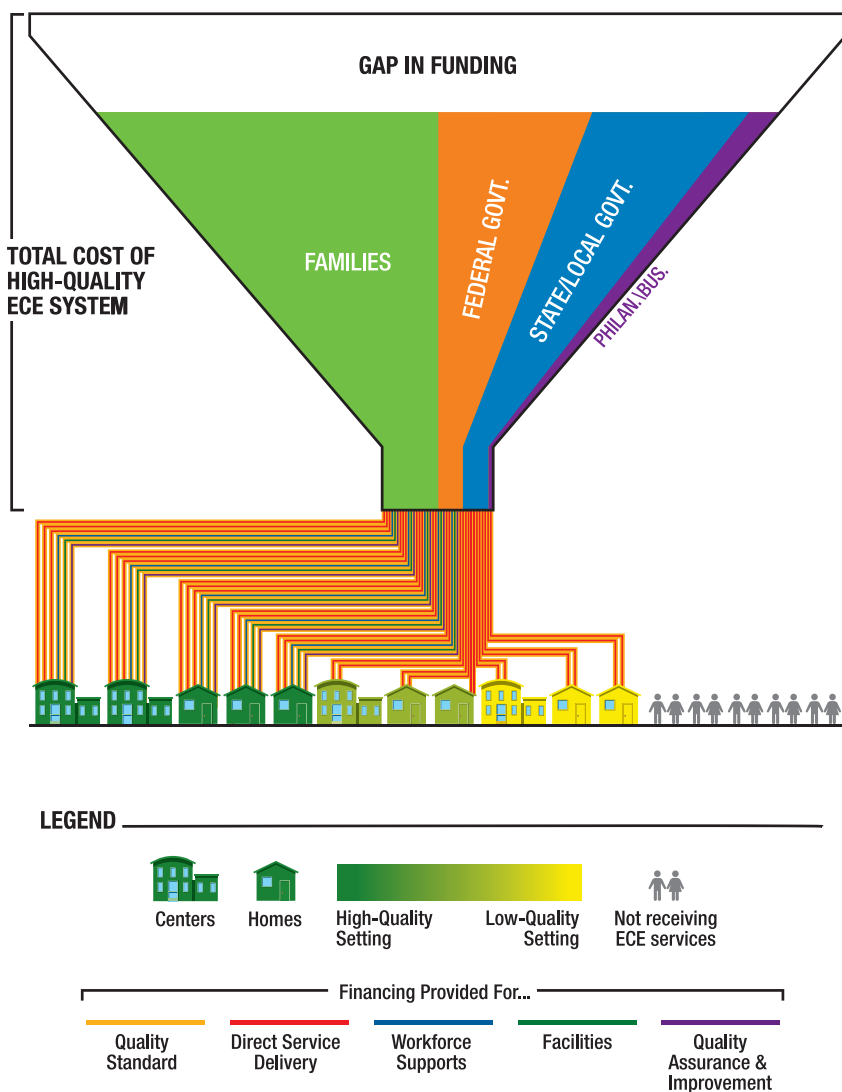


FIGURE 7-2 Landscape of ECE financing structure during the transition period for phased implementation.

ECE FINANCING LANDSCAPE: FUTURE

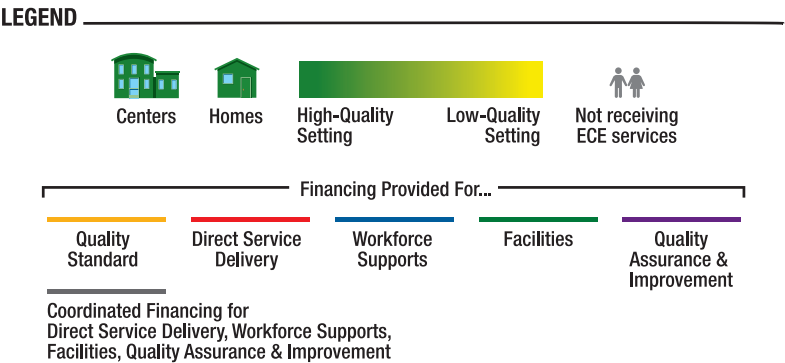
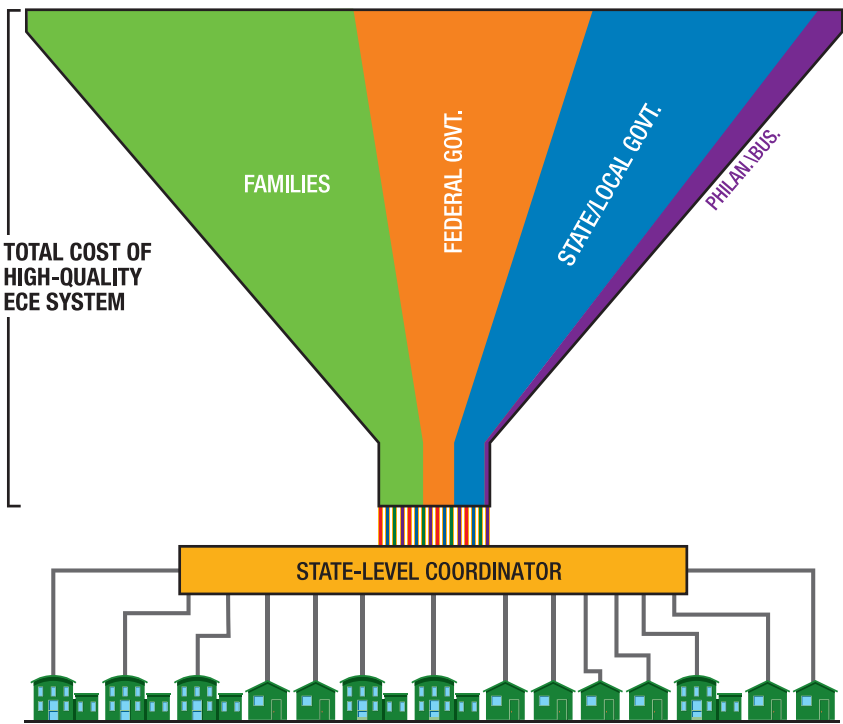


FIGURE 7-3 Envisioned future ECE financing structure.

mechanisms often do not adequately promote or incentivize high-quality ECE options. Moreover, public programs to assist families in finding and affording high-quality early care and education are either disconnected from one another, leaving families to navigate between complex and disparate systems, or not adequately funded, leaving eligible children without access to ECE services. The disjointed structure also places a heavy administrative burden on providers and is inadequate to reward and professionally support the nearly 2 million ECE professionals entrusted with the care and education of young children. The lack of a cohesive system of high-quality, affordable early care and education therefore represents significant missed opportunities: for children's positive development and school readiness, for families' workforce readiness, for creating viable employment for more than 2 million people in the ECE workforce, and for developing the nation's future workforce.

To realize the considerable potential benefits of early education, an integrated framework of laws and policies is needed, in which financing is used to bring about an accessible, affordable, and high-quality system for all children from birth to kindergarten entry. Such a financing structure should include adequate and coordinated funding for service delivery that allows for not only a professionally supported workforce but also system-level supports for workforce development and quality assurance, including mechanisms for accountability and improvement. This structure should facilitate the integration of funds from federal ECE programs (including but not limited to the Child Care and Development Fund [CCDF] and Head Start) and state and local ECE programs (including but not limited to state-funded prekindergarten programs). The financing structure should provide flexibility to reduce silos and facilitate nimble and efficient coordination of revenue streams, standards, and requirements from disparate sources. This section discusses the key aspects of the financing structure: consistent, high quality-standards and cost-based payments; elimination of parental employment contingencies; harmonization of financing mechanisms to ensure access; and state-level coordination.

### Consistent High Quality-Standards and Cost-Based Payments

**Recommendation 1:** Federal and state governments should establish consistent standards for high quality across all ECE programs. Receipt of funding should be linked to attaining and maintaining these quality standards. State and federal financing mechanisms should ensure that providers receive payments that are sufficient to cover the total cost of high-quality early care and education.

For the transformed financing structure to support the full cost of high-quality early care and education, all financing mechanisms need to use consistent, high quality-standards as the basis for receipt of funds through cost-based payments. Quality standards—where they even exist—currently vary across states and programs (Burchinal et al., 2010; see also Chapter 3). Providers find the complexity and cost of compliance obligations to multiple funders burdensome because they currently must meet the requirements of many authorities to generate enough revenue to support the costs of even the most basic services. In addition, because each financing mechanism has its own set of regulatory standards or monitoring requirements, standards are not coordinated and sometimes even conflict, resulting in confusion and inefficiencies.

To ensure equitable access to high-quality early care and education for all children, the federal government and the states should use consistent, high quality-standards across all public financing; that is, all financing mechanisms (provider-oriented and family-oriented) should be directly linked to standards consistent with the *Transforming* report (Institute of Medicine and National Research Council, 2015). Such standards would include requirements for services delivered to children, staff qualifications and compensation, professional development, coaching and mentoring, and quality monitoring and assurance. In addition, federal and state standards should allow for a mixed delivery system that can include a variety of developmental and pedagogical approaches. Box 7-1 describes Washington state's implementation of consistent base standards across its ECE programs.

The federal government should specify consistent, high quality-standards for all its financing mechanisms in consultation with the states, and any funding it provides should be linked to meeting those standards. Any state or local funding supporting those federal programs should also be linked to the same standards. In this way, the federal funding would act as a policy lever to induce high-quality early care and education with a highly qualified workforce at the state level. Individual states should also set consistent, high quality-standards across any financing mechanisms for which they are the primary funders, including any ECE mechanisms that the state is funding out of consolidated funding streams, which may include funds from the federal government. States should use the same standards across all financing mechanisms within the state and should not set different standards for state and federally funded mechanisms. In this way, states may exceed federal standards, but all programs in a state should be required to meet the same high quality-standards regardless of funding source.

These consistent, high quality-standards should be paired with accompanying financing mechanisms at levels adequate to attain and maintain quality (see discussion below on federal funding levels). Current federal

**BOX 7-1****Washington State Implementation of Consistent Standards**

In 2015, the Washington state legislature passed the Early Start Act. This law put in place a number of policies aimed at improving the state's ECE system, including a requirement that the state's Department of Early Learning (DEL) implement a single set of standards across three state programs: childcare licensing, Early Achievers (Washington's quality rating and improvement system [QRIS], and the Early Childhood Education and Assistance Program (the state's prekindergarten program for low-income 3- and 4-year-olds). DEL began the alignment process in late 2015 by gathering community input about the changes. An initial draft of aligned rules was released in April 2016, and over the next year and a half DEL invited comments from the public, engaged the ECE community in the process, negotiated the proposed rules with an ECE licensees union (as required by law), and released a second draft of proposed rules. The new rules and standards are set to be finalized by August 2018 and enforced starting in August 2019.

DEL's proposed rules note that the Child Care and Development Block Grant (CCDBG) reauthorization in 2014 updated minimum standards of care but also encouraged states to "go beyond these baseline standards to develop a comprehensive and robust set of health and safety standards that cover additional areas related to program design, caregiver safety, and child developmental needs."<sup>a</sup> DEL, which serves as the lead agency in Washington for the CCDBG, says this "is precisely" what it is doing with the proposed rules.

The proposed rules include a standardized progression for ECE programs, in recognition that "many children will attend some combination" of ECE programs, and that it is "essential that these early learning programs provide consistent services and use the same basic foundation so that higher levels of quality can be achieved" (Washington State Department of Early Learning, 2016). Also proposed are requirements for ECE workforce professional development, training, and qualifications, but pay standards are not included.<sup>b</sup> Most people working in ECE settings would be required to have one of three state certificates in early learning. These certificates—classified as an initial certificate, the ECE short certificate, and a state certificate—are "stackable," meaning that the required courses for each certificate build upon one another (Washington State Department of Early Learning, n.d.).

Included in the Early Start Act was \$100 million for supports for ECE providers to achieve quality. ECE providers have access to free trainings as part of the "Early Achievers Professional Training Series"; relationship-based professional development such as technical assistance, rating readiness consultation, and coaching; scholarships for ECE professionals to pursue child development associate credentials, stackable state credentials, associate's degrees, and bachelor's degrees; and financial incentives, including needs-based grants, quality improvement awards, and tiered reimbursement (Child Care Aware of Washington, n.d.; Washington State Department of Early Learning, 2015).

<sup>a</sup> See "Standards Alignment – Intent and Authority": [https://del.wa.gov/sites/default/files/public/Licensing/Intent\\_and\\_Authority\\_NRM.pdf](https://del.wa.gov/sites/default/files/public/Licensing/Intent_and_Authority_NRM.pdf) [December 2017], citing <https://www.gpo.gov/fdsys/pkg/FR-2016-09-30/pdf/2016-22986.pdf> [December 2017].

<sup>b</sup> See "Standards Alignment – Professional Development, Training, and Requirements": [https://del.wa.gov/sites/default/files/public/Licensing/Professional\\_Development\\_Training\\_and\\_Requirements\\_NRM.pdf](https://del.wa.gov/sites/default/files/public/Licensing/Professional_Development_Training_and_Requirements_NRM.pdf) [December 2017].



guidelines for ECE subsidies, for example, require consideration of market prices when setting state reimbursement levels. Market prices, however, do not reflect the costs of providing high-quality ECE, and states mostly do not set rates at a high enough percentile of market prices to cover the cost of quality, including recruiting and retaining a highly qualified workforce. A quality-oriented approach requires changing the basis on which reimbursement rates are determined so that rates reflect the total cost in each state or locality of high-quality early care and education, including the costs of service delivery with a highly qualified and adequately compensated workforce and system-level supports, including mechanisms for accountability and improvement.<sup>3</sup> Such costs should also reflect the differential costs of serving children with different physical, emotional, and linguistic needs, especially the different staff qualifications, training, and structure required to meet those needs.<sup>4</sup> Pegging reimbursement rates to the cost of delivering high-quality ECE services will increase stability and viability of providers and allow investments in quality improvements and the ECE workforce.

### **Ensuring Access to High-Quality Early Care and Education for All Children**

The previous chapters identified four major limitations of the current financing mechanisms: they fail to serve many low-income families eligible for assistance, they fail to make high-quality early care and education affordable for other low- and middle-income families; the major family-oriented mechanisms (ECE assistance programs and tax preferences) are contingent on parental employment rather than the needs of children; and the shares of income that families across income groups pay in fees are regressive. This section addresses the need to eliminate parental employment requirements and the need for a harmonized set of mechanisms to

---

<sup>3</sup> Compensation of qualified ECE staff is the main driver of high quality. Because staff costs and wages vary considerably across states and even by geographic region within a state, the dollar value of reimbursement rates would continue to vary across states and possibly by geographic regions within a state.

<sup>4</sup> In some cases, creating supports for a child with a disability only requires staff knowledge and receptivity. Other instances may entail costs such as specialized equipment and facility improvements. Personnel supports may range from a specialized master's-level professional to a one-on-one aide. A joint statement of the Division for Early Childhood and the National Association for the Education of Young Children on early childhood inclusion notes, "Specialized services and therapies must be implemented in a coordinated fashion and integrated with general early care and education services. Blended early childhood education/early childhood special education programs offer one example of how this might be achieved. Funding policies should promote the pooling of resources and the use of incentives to increase access to high quality inclusive opportunities" (Division for Early Childhood and National Association for the Education of Young Children, 2009, pp. 2-3).

avoid ECE utilization and affordability gaps; the need for greater public investments to ensure all eligible children can participate in early care and education is discussed in a subsequent section. Though the committee believes its recommendations will improve access and affordability of early care and education for all families, we note that greater access to mediocre- or low-quality care will not result in the desired developmental outcomes for children. While there may be a tension between improving access and improving quality if funding is insufficient or distributed through poorly designed financing mechanisms, the committee stresses that quality and access go hand-in-hand. In order to realize the potential for positive child development and early learning outcomes possible with early care and education, improved and equitable access to high-quality early care and education is needed.

**Recommendation 2: All children and families should have access to affordable, high-quality early care and education. ECE access should not be contingent on the characteristics of their parents, such as family income or work status.**

The committee expands on this recommendation with three corollaries that we view as essential to fulfilling the intent of the general recommendation:

- 2a. ECE programs and financing mechanisms (with the exception of employer-based programs) should not set eligibility standards that require parental employment, job training, education, or other activities.
- 2b. Federal and state governments should set uniform family payment standards that increase progressively across income groups and are applied if the ECE program requires a family contribution (payment).
- 2c. The share of total ECE system costs that are not covered by family payments should be covered by a combination of institutional support to providers who meet quality standards and assistance directly to families that is based on uniform income eligibility standards.

### *Eliminating Parental Employment Contingencies*

While federal Head Start and state and local school-based prekindergarten programs either consider all children who meet age and family income

standards eligible for their services or are universally offered (though they do not serve all who are eligible), federal ECE assistance programs and tax preferences are only available to children with parents who are either employed or participating in approved education and training activities. Thus, the current financing structure positions a child's early learning and development as dependent upon a parent's employment status, rather than basing it on the child's developmental and learning needs. This structure reduces access to needed financial support for some families, increases instability in ECE arrangements, and weakens the potential of early care and education to spur positive childhood development and enhance adult-life outcomes for all children. Family circumstances other than employment can make participation in ECE services desirable for children and their families, including enabling children to engage socially with their peers, improving school readiness through structured early learning, or supporting parents who care for other family members, among others (see Chapter 4). Affluent parents who are not employed are purchasing center-based early care and education for their children because they understand these advantages (see Chapter 4). Denying early care and education to children whose lower-income parents are not employed thus increases developmental gaps and inequities at the earliest ages. Given the need to ensure that every child has access to high-quality early care and education regardless of that child's families' circumstances, family-oriented financing should not be tied to requirements for parental employment or other activities (with the exception of employer-based programs).<sup>5</sup>

Eliminating the employment requirement for family-oriented assistance does not eliminate the promotion and encouragement of employment, rather it eliminates an unnecessary requirement that restricts access to ECE financial support only to children whose parents meet certain eligibility requirements including employment. Being able to access ECE services allows parents with young children to be employed, as research clearly demonstrates that reducing the cost of early care and education increases parental employment (see, e.g., Blau and Kahn, 2013) and that ECE access can be coordinated with access to services for training, education, and job placement, as exemplified in many two-generation approaches such as Head Start.<sup>6</sup>

---

<sup>5</sup> However, divorcing family-oriented financing from an employment requirement does not prevent states from having the flexibility to provide assistance to families to purchase regulation-exempt ECE services under some circumstances. This flexibility may be required for states to meet the needs of families who require additional care related to their work, such as overnight care for shift workers. In this way, assistance could still be given to families with unique needs.

<sup>6</sup> "Two-generation approaches focus on creating opportunities for and addressing needs of both children and the adults in their lives together." See <http://ascend.aspeninstitute.org/two-generation/what-is-2gen/> [December 2017].

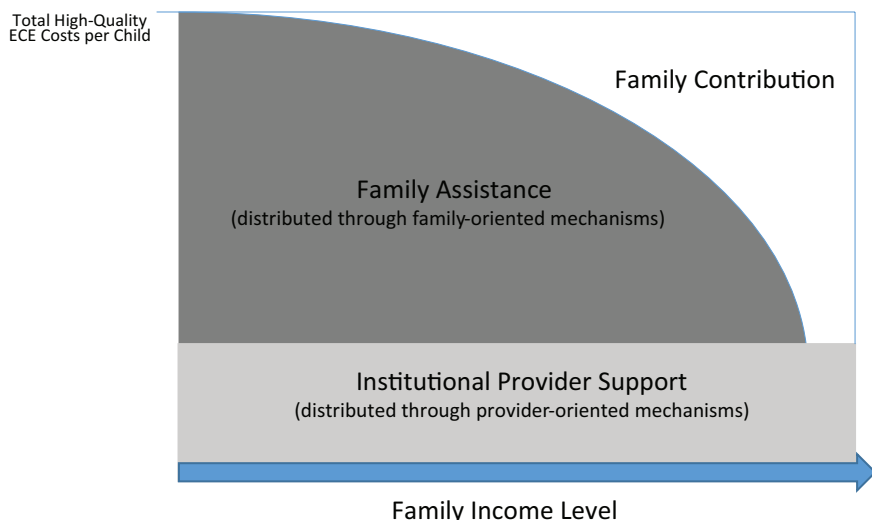
*A Harmonized Set of Financing Mechanisms*

A harmonized combination of provider-oriented and family-oriented financing mechanisms should be available to all families and to all center- and home-based providers that meet quality standards. That is, financing mechanisms should be designed to jointly cover the full costs of high-quality early care and education and eliminate gaps in family eligibility for assistance, which discourage and prevent participation. A harmonized set of financing mechanisms would benefit all ECE providers by creating financial stability and enabling investment in the ECE workforce; it would benefit all families by allowing them to select among providers that meet their needs and preferences without having to lose the opportunity for a high-quality experience for their children.

Institutional support for providers through provider-oriented mechanisms would give qualifying centers and home-based providers the financial stability and ensured resources they need to invest in high-quality ECE offerings. Such support should be set at a proportion of total costs for planned enrollment but also at a high enough level to provide an ample base for investment in the workforce. Institutional support would be conditional on the provider agreeing to meet or exceed the quality standards set for the provider's state or region, including standards for staffing qualifications and compensation, as appropriate, where staff encompasses leaders, educators, mentors/coaches, and specialists. In addition, centers would have to agree to accept children of specified ages, up to capacity, without discrimination with regard to income, special needs (except those requiring specialized programs), race/ethnicity, or religious background.

Family assistance, including ECE assistance programs and tax preferences, should ensure that families of all income groups can access high-quality early care and education. The levels of assistance and family payment amounts in ECE programs that charge a fee would be determined on a progressive scale, with the share of household income used for affordable payments increasing as income rises. This progressive scale would reverse the current pattern, in which lower-income families not eligible for no-fee ECE options pay a larger share of household income than do higher-income families. Figure 7-4 illustrates such a financing structure, showing how the total cost of a high-quality ECE system would be covered using institutional support, family assistance, and if applicable, family contributions.

Combining institutional support and family assistance has the potential to reduce economic segregation. Programs currently receiving institutional support but serving only low-income children could also serve children from other socioeconomic backgrounds, using family assistance to ensure that the costs of high-quality early care and education are met. Of course, geographic and socioeconomic segregation in housing may impede providers' ability to attract socioeconomically diverse families.



**FIGURE 7-4** ECE financing structure with harmonized financing mechanisms.

**NOTES:** The total cost of providing high-quality early care and education per child is fixed, regardless of financing mechanism or revenue stream. Family-oriented mechanisms include tax preferences and ECE assistance programs; provider-oriented mechanisms include grants, contracts, or direct operating funds. At the lowest level of family income, no family contribution (from household income) is needed. The family contribution increases steadily as family income rises until the “top-out” income is reached, above which the family contribution covers all of the per-child cost not covered by institutional provider support. If a program chose to offer services on a no-fee basis, the family contribution would be zero and family assistance would cover that portion of costs.

A major challenge to implementing such a harmonized system of support is balancing federal standards with reasonable state flexibility. Currently, for the CCDF portion of family assistance, states are granted the flexibility to determine a family’s eligibility for assistance. As described in Chapter 3, this discretion has resulted in great variation among the states, with 17 states setting eligibility standards so that families with an income above 150 percent of the federal poverty level (FPL) do not qualify for assistance, even though a family generally needs an income equal to at least 200 percent of the FPL to meet housing, food, childcare, transportation, health care, and other needs (Schulman and Blank, 2016).<sup>7</sup>

<sup>7</sup> Families with incomes just above 100 percent of the FPL (\$20,160 a year for a family of three in 2016) could qualify for ECE assistance in all states in 2016. However, families with incomes above 150 percent of the FPL (\$30,240 a year for a family of three in 2016) did not qualify for assistance in 17 states, and families with incomes above 200 percent of the FPL (\$40,320 a year for a family of three in 2016) did not qualify for assistance in 39 states (Schulman and Blank, 2016, p. 6).

Because the large majority of tax preferences that assist families come from the federal tax code, elimination of state flexibility regarding eligibility for ECE assistance programs is required to avoid gaps that arise for many middle-income families. These families are currently unable to access funding from ECE assistance programs because they exceed the income eligibility threshold set by their state, yet they do not benefit from federal and state tax preferences because their incomes are not high enough to incur a tax liability. Harmonizing the eligibility standards for ECE assistance programs and implementing tax preferences that are equitably progressive across income groups would increase ECE access for children from low-income families and eliminate the middle-income gap, provided that the states and the federal government adequately fund their ECE assistance programs so that all eligible families are served. States could choose to assist middle-income families through either tax preferences or through ECE assistance programs.

Although harmonizing provider-oriented and family-oriented mechanisms has the potential to allow providers to invest in raising staff salaries and supports, recruiting qualified personnel, and expanding or improving facilities, the current ECE financing structure lacks the stability and ensured funding that would allow providers to invest in these quality improvements. Other public programs have addressed these problems through advanced, multiyear funding. For example, federal elementary-secondary education grants are advance-funded. That is, federal contributions to elementary-secondary operating funds are appropriated annually, but on an advanced basis, with each year's appropriation supporting expenditures in the following year. With the following year's funding known and ensured, states and districts can initiate staffing and curriculum development activities in advance of the year in which they are needed. A similar approach for early care and education would provide similar value for ECE providers, families, and the ECE workforce.

Multiyear funding will also be critical during the transition period, and funds could be appropriated and allocated on a multiyear basis according to each phase of transition. For example, the committee's illustrative cost estimate provides for transition to a high-quality ECE system over four phases (see Chapter 6). Under such conditions, funds could be appropriated and allocated for each of the four phases, enabling providers to recoup the cost of investments necessary to meet or exceed high quality-standards and investments in quality assurance to measure progress toward quality and make adjustments to the system as needed.

### State-Level Coordination

**Recommendation 3:** In states that have demonstrated a readiness to implement a financing structure that advances principles for a high-quality ECE system and includes adequate funding, state governments or other state-level entities should act as coordinators for the various federal and state financing mechanisms that support early care and education, with the exception of federal and state tax preferences that flow directly to families.

The current structure of multiple ECE financing mechanisms places a heavy burden on providers, who must manage the various sources of funds. This complex structure also contributes to the fragmentation of the ECE landscape. To maintain multiple revenue streams and financing mechanisms supporting early care and education, while also eliminating this administrative burden placed on providers, state governments should act as coordinators of most of the revenue streams and financing mechanisms supporting early care and education. Allowing states to coordinate multiple revenue streams and financing mechanisms should only occur after a state has demonstrated a readiness to implement a financing structure that advances the principles for high-quality early care and education, including adequate and integrated funding for service delivery with appropriate qualifications and compensation for the workforce, workforce supports, and systems supports such as mechanisms for accountability and improvement and the adoption of consistent high quality-standards. The exceptions to this coordinator role for states are the federal and state tax preferences that flow directly to families.<sup>8</sup>

To foster efficiency and reduce administrative redundancy, states, as coordinators, should distribute federal and state funds to providers and families and have ample flexibility to create an administrative structure to fit their needs. States may choose to manage the process themselves or create a quasi-governmental entity or public/private intermediary organization at the state level to act as the coordinator. For example, in its implementation of its EarlyLearn initiative, New York City illustrates how such a “state-level coordinator” could act, as explained in Box 7-2. If state-level coordination is adopted, then additional legislative authorization may be required.

The committee emphasizes that coordination should not come at the expense of high-quality services, and high quality-standards should not be subjugated to administrative flexibility. Coordination of revenue streams and financing mechanisms should only occur after the federal government

---

<sup>8</sup> As noted above, tax preferences would be harmonized with other family-oriented mechanisms to increase access for children from low-income families and eliminate the middle-income gap.

### **BOX 7-2**

#### **EarlyLearn in New York City**

The New York City Administration for Children's Services (ACS) and the New York City Department of Education (DOE) oversee a system of contracted early care and education called EarlyLearn NYC. EarlyLearn NYC brought changes to early care and education in the city, increasing access and continuity for children from low-income families, establishing high program quality standards, and increasing the number of contracted care providers in high-need neighborhoods through redistribution.

The EarlyLearn system encompasses three types of ECE programs and four funding streams, successfully combining funds from CCDBG, Head Start, New York State's Universal Prekindergarten program, and a city tax levy to support the system. At the federal level, ACS acquires funds from both CCDBG and a Head Start grant. The CCDBG funds are used to offer contracted center-based and home-based care to eligible children in low-income working families. In addition, the Human Resources Administration and ACS distribute vouchers to qualified families to pay for early care and education from approved providers or subsidize enrollment in the city's contracted ECE system. The second source of federal funding, the Head Start grant, enables low-income children and children with special needs or limited English proficiency to enroll in high-quality ECE programs. Lastly, through the DOE, state and city revenue resources support public prekindergarten for 4-year-olds in local public schools and community-based ECE centers for children of families qualified for free or reduced school lunch. Available remaining slots are offered to families that are ineligible based on household income.

Prior to implementation of EarlyLearn NYC, a bifurcated system existed in which ACS established contracts with local providers to operate ECE and Head Start programs and the DOE provided prekindergarten to a limited number of 4-year-olds through contracts with school districts and community-based organizations. ACS and the DOE each also previously issued vouchers for care. Various and divergent procedures for enrollment, hours of operation, eligibility criteria, standards of quality, and family support services existed in these different systems. Moreover, administrative processes at ACS were not efficient because the separate management structures for ECE service support and Head Start were duplicative within the agency.

---

SOURCE: Adapted from Gelatt and Sandstrom (2014).



and the states have established and implemented consistent, high quality-standards and cost-based payments in accordance with Recommendation 1. As the committee recognizes, achieving a high-quality system will not occur overnight, and the committee's proposal for phased-in implementation recognizes that there will need to be a transition period. Recommendation 3 will necessarily occur after such a transition period and only once a state has demonstrated a readiness to act as a coordinator. One way, for example, a state may demonstrate a readiness to implement Recommendation 3 is by showing that it is meeting or exceeding Head Start standards in its prekindergarten programs and investing adequate funds to meet the cost of delivering high-quality early care and education to infants and toddlers. Another way in which states may demonstrate readiness would be by serving as a successful Early Head Start (EHS) grantee (which they are currently permitted to do), meaning the state, as the lead, shows a willingness to adhere to and implement EHS standards and its comprehensive program approach. In addition, that state's incorporation of the EHS standards and approaches into other state-based programs beyond EHS could be considered.

Such a coordinated financing structure would retain multiple financing mechanisms, such as provider-oriented financing for Head Start programs and family-oriented financing for subsidies for ECE services through the Child Care and Development Fund (CCDF). Retaining multiple revenue streams and financing mechanisms allows flexibility to address the differing needs of providers and the needs of families of different socioeconomic means. In an analysis of federal ECE financing, the Government Accountability Office suggested that there were positives to retention of multiple financing mechanisms (U.S. Government Accountability Office, 2017). For example, some families may receive Head Start services but also may need ECE services during nonstandard work hours. Conversely, if the family received only a subsidy for ECE services through CCDF, the child would not receive the comprehensive services provided by Head Start that are needed for healthy development and learning.

The committee stresses that we are not recommending that federal revenue streams be consolidated and distributed to states in the form of block grants. While proponents of block grants argue that they increase government efficiency and program effectiveness, critics of block grants argue that they are used to reduce government spending and that they decrease accountability (Dilger and Boyd, 2014). Though declines in funding are not intrinsic in the structure of block grants, the recent history has been that the creation of federal block grant programs to replace funding streams through federal programs has led to decreased federal funding. Several analyses of federal block grant programs have demonstrated that "even if a new block grant's funding in its initial year is similar to the existing

funding for the programs merged into that block grant, the initial level likely won't be sustained" (Reich et al., 2017, p. 1). Conversely, funding for CCDF has actually grown since its inception in 1997—although funding has declined from its peak in 2000, down by 3 percent, adjusted for inflation and population growth (Reich et al., 2017, p. 4; see also Dilger and Boyd, 2014; Finegold, Wherry, and Schardin, 2004). As discussed later in Recommendation 4, the committee strongly supports a significant ongoing federal role with corresponding investment of funds to build a system of high-quality early care and education that includes an infrastructure for support and accountability. Therefore, Recommendation 3 should be read in light of the other recommendations in this chapter, particularly Recommendations 1 and 4.

### SHARING THE COST FOR HIGH-QUALITY EARLY CARE AND EDUCATION

The cost of providing high-quality early care and education far exceeds the amount of funding currently in the system. The committee has no magic revenue source to propose. The reality is that substantial increases in funding are needed to realize the envisioned transformation of the ECE system. To build adequate, equitable, and sustainable financing with effective incentives for quality, additional resources will need to come from a combination of public and private resources, with the largest portion of the necessary increase coming from public investments. These multiple sources of revenue may come from families, employers and the private sector, the public sector, or various combinations of these sources, but revenue should be raised in ways that ensure that the burden of neither family payments nor tax revenue collection falls disproportionately on those families with the fewest resources.

#### Public Share of Costs

**Recommendation 4:** To provide adequate, equitable, and sustainable funding for a unified, high-quality system of early care and education for all children from birth to kindergarten entry, federal and state governments should increase funding levels and revise tax preferences to ensure adequate funding.

Existing financing mechanisms fail to serve many low-income families eligible for assistance and families ineligible for assistance but priced-out of accessing high-quality ECE services, indicating a need for greater public investments to ensure that all eligible children can participate in early care and education. Moreover, as ECE costs increase over the phased transition

period, the public's share of cost will necessarily increase because higher quality-standards and costs will make ECE services less affordable for additional families unless they receive public or private assistance.

The committee is cognizant that consideration must be given to the total amount of funding required. The committee's illustrative estimate is that by the final phase of implementation, our recommendations would require at least \$140 billion of annual funding, equivalent to about three-quarters of 1 percent (0.75%) of U.S. gross domestic product (GDP), or slightly less than the current average of 0.8 percent of GDP allocated to early care and education for the nations in the OECD.<sup>9</sup> The committee's illustrative estimate of an affordable family contribution would yield about a \$58 billion share of this total ECE system cost, leaving a requirement of at least \$82 billion in public funding, which is an increase of about \$53 billion over the current level. If a structure with no family contributions were enacted, it would require an annual increase of at least \$111 billion to reach the total cost of at least \$140 billion. If the costs of the recommended financing structure exceed that which policy makers are willing to allocate, then the potential results are either a failure to act or an allocation of funding inadequate, according to our analysis and assumptions, to achieve the committee's primary objectives of high-quality ECE services with a well-compensated workforce that are affordable for all families.

How the burden can best be distributed among levels of government and among revenue sources must be determined through political processes in which decision makers weigh different options for transitioning to and implementing a high-quality ECE system and weigh the benefits of such a system against the potential political and economic costs of reducing other public expenditures or raising taxes. But the dual function of the nation's ECE structure as providing early care and education for a critical period in child development and as economic security for families with parents in the workforce argues for continued public responsibility for ensuring ECE access for all children. The committee supports an ongoing significant federal role but also supports important roles for state and local governments.<sup>10</sup>

<sup>9</sup> The current OECD average spending on early care and education is 0.8 percent of GDP (Penn, 2017). The 2016 U.S. GDP was \$18.6 trillion (World Bank, 2017).

<sup>10</sup> Although the federal government does not have an explicit constitutional role in education, a number of judicial decisions have shaped the development of a federal role, including jurisprudence surrounding the Fourteenth Amendment's Equal Protection Clause. According to Harris and colleagues (2016, p. 9), "The quantity and quality of education children receive are significant determinants of life outcomes. Therefore, the protection of civil rights within this context, as well as support for education among the disadvantaged, is crucial to ensuring equal opportunity in society." This reasoning underpins the requirement for federal investment in education.

Regardless of the division of ECE funding responsibilities between the federal and subnational governments, additional funds will need to come from natural economic growth in existing revenue sources, from redirecting current expenditures, from entirely new revenue sources, or a combination of these options. If new revenue sources are sought, policy makers will have to consider tradeoffs among revenue sources based not only on current tax structures but also on issues that entail value choices. Among the issues to consider is whether to rely on a dedicated revenue source or on general tax revenue. An advantage of a dedicated revenue source such as, for example, a gas tax to finance highway maintenance, is that once enacted it is not subject to the vagaries of annual appropriations. The downside in this context, though not inherent in the mechanism itself, is the possibility that revenue from the dedicated tax may not be sufficient to cover the full costs of a high-quality ECE system and is unlikely to be responsive to changes in the costs of providing high-quality early care and education.

In the following discussion, the committee presents some of the principles—including fairness, stability of the tax base over the economic cycle, revenue-raising potential, and minimizing tax-induced distortions—that should guide decision makers in their quest to identify the necessary revenues. In addition, the committee stresses that increased ECE costs should not be covered by reducing other essential services to children and families, as child and family well-being is multidimensional and requires a wide range of supports. Furthermore, any offsetting cost reductions should be achieved by actual efficiency gains, not by simply shifting the costs from the public to families or from one level of government to another.

One of the main criteria for a good revenue source is fairness. The committee accepts the view of many tax experts that a fair tax—especially for a service such as early care and education—is one in which the tax burden is distributed in line with a taxpayer's ability to pay and, further, that the tax-paying unit's income serves as a reasonable measure of its ability to pay. A tax would be deemed to be fair, for example, if it imposes the same burden on taxpayers with similar abilities to pay (often referred to as horizontal equity) and if it imposes higher taxes on those with more ability to pay than on those with less ability to pay (often referred to as vertical equity). With respect to vertical equity, reasonable people may disagree about the relative fairness of a progressive versus a proportional tax. Under a progressive tax, high-income taxpayers pay a higher percentage of their income for that tax than those with lower income. Under a proportional tax, all taxpayers pay the same percentage of income for that tax. In any case, the committee believes that most people would accept the view that regressive taxes—those that take a higher share of income from lower-income taxpayers than the share they take from higher-income taxpayers—would be unfair. For ECE financing, this fairness criterion would argue against financing based on,

for example, lottery revenues (defined as net revenue to the government after administrative expenses and payouts to the winners) both because the burden differs across families with similar income depending on how much they play the lottery and because the burden across all families would be regressive.

If policy makers are seeking revenue sources that distribute the burden progressively across taxpayers, income taxes are a viable option because income taxes at the federal level are specifically designed to be progressive. Although most states also use income taxes, those taxes are more likely to be proportional because states have incentives to avoid highly progressive taxes that may have adverse effects on their local economies. Nonetheless, even proportional state income taxes are likely to be fairer than state sales taxes, which are likely to be regressive.

Payroll taxes are generally deemed to be regressive both because there is a cap on the level of earnings that is subject to the tax and because such taxes, even the portions that are nominally levied on the employer, are ultimately borne by employees in the form of lower wages. Raising the cap would make the tax more proportional with respect to wage income, but it still would not make it proportional with respect to total income because wage income accounts for a declining share of total household income, which includes both wages and unearned income (such as interest and rents), as household income rises.

A good tax source for funding a transformed ECE financing structure would also generate substantial revenue that is relatively stable over economic cycles, is sustainable, and increases with the growth of population and average wages. Stability of the tax base over the economic cycle is a desirable characteristic for a revenue source used to finance a service, such as early care and education, that must be delivered consistently over time. A tax at a specified rate on luxury items, for example, would fail the stability criterion because consumers are likely to spend more on such items when the economy is growing and to cut back when the economy is declining, thereby generating an uneven revenue flow. Further, the revenue source should be sustainable over time given the need for ongoing public revenue for ECE services. Based on this consideration (along with the fairness criterion), taxes on items such as tobacco or soft drinks are problematic for financing early care and education since, if the taxes have the intended effects, spending on such items will decline over time. In addition, the committee concludes that it would be desirable, to the extent possible, to rely on tax bases that grow along with population and general wages. Population growth is likely to increase the demand for quality ECE services, and overall wage growth is likely to increase the personnel costs of providing high-quality early care and education. By minimizing the need for frequent politically contentious debates about the level of the tax rate, reliance on

tax bases that grow with increases in these ECE cost drivers will help ensure that revenue will be available to cover the rising costs of high-quality early care and education.<sup>11</sup>

Finally, any tax raises legitimate concerns that it may distort people's behavior in undesirable ways, distortions that economists refer to as inefficiencies. A high marginal tax rate on earned income, for example, may induce some people to work fewer hours; a high sales tax on consumer goods may induce consumers to shift their consumption away from taxed goods in favor of untaxed goods. Such distortions are largest and most problematic when tax rates are high. One way to lessen such distortions is to rely on broad-based taxes that can generate substantial revenue with relatively low tax rates.<sup>12</sup> This line of reasoning would render broad-based taxes such as those on income or sales superior to taxes on narrower bases such as corporate profits or selected consumption goods. Moreover, such considerations would argue for relying on several revenue sources, each taxed at relatively lower rates, rather than a single revenue source taxed at a relatively high rate.

Although it might be tempting to view public sector borrowing as an additional revenue source, that approach is problematic. As discussed in Chapter 3, paying for ECE facilities by issuing bonds is a sensible financing strategy for high upfront costs, given the lumpiness of expenditures on facilities. Ultimately, however, that strategy does not obviate the need to increase taxes to pay the debt service (which includes both interest and principal payments) on the bond. Bond financing simply changes the timing of the tax increase by spreading the burden out over time.

### Families' Share of Costs

**Recommendation 5:** Family payments for families at the lowest income level should be reduced to zero, and if a family contribution is required by a program, that contribution, as a share of family income, should progressively increase as income rises.

<sup>11</sup> The committee acknowledges, however, that some observers may object to relying on revenue sources that grow with population and wages on the ground that the automatic revenue growth generated by such sources may keep policy makers from fulfilling their responsibility to closely monitor and evaluate funding levels.

<sup>12</sup> There is no controversy in the economics literature about the observation that distortions rise more than proportionately with the tax rate. More controversial is how this observation is best used by policy makers. On one side are economists such as Richard Musgrave who believe in the positive role of government and would support broad-based taxes, given the desirability of raising revenue in ways that minimize distortions, other considerations held constant. That is the perspective taken by this committee. On the other side are economists such as James Buchanan who believe that tax policies should be designed specifically to keep government from expanding (Buchanan and Musgrave, 1999; see also Brennan and Buchanan, 1977).

In the United States, families pay the majority of ECE expenditures for children under age 5 years. By comparison, public K–12 education is delivered with no fees charged to families.<sup>13</sup> The financial burden on non-affluent parents affects their decisions about using ECE services, including the amount, type, and quality of service they use. In the current system, some families are priced out of participating in paid ECE services due to unaffordable fees. Moreover, the fees paid by low- and middle-income families in the current system account for a much greater share of household income than the fees paid by more affluent families, resulting in a regressive financing structure that does not allocate limited funds to those most in need. While parents may contribute some portion to the costs of an improved ECE system, relying solely on parents to shoulder the burden for increased costs of higher-quality early care and education would likely lead to reductions in the use of high-quality ECE options and increased economic insecurity, resulting in less support for children’s early learning, development, and well-being.

While current levels of family payments clearly make early care and education unaffordable for many low- and middle-income families, determining what share of total ECE system costs families should pay is challenging, and the evolving policy and practice landscape in early care and education does not provide an unequivocal path forward. There are several approaches to determining a reasonable share for families to pay, where “reasonable share” means finding a balance between ensuring that significant economic barriers do not prevent families from using high-quality ECE services; increasing progressivity through family payments, tax revenue collection, or some combination of both; and ensuring that public revenues are expended reasonably (see discussion in Appendix C). A number of states and localities have implemented universal ECE programs, specifically prekindergarten programs, on a free, no-fee basis to all children, similar to public provision of kindergarten and elementary and secondary education. For example, Oklahoma and Georgia have established universal prekindergarten programs, some of which are offered with no out-of-pocket costs to parents. Other localities, such as Washington, D.C., and New York City, have also implemented universal prekindergarten programs that do not require parental payments. In other states, courts have included early education, for children of certain ages, as part of the right to education protected by state constitutions, while in some countries, for instance Germany and Nordic countries, access to ECE services is defined as a legal right, where demand must be met and relevant resources provided (Penn,

---

<sup>13</sup> Some kindergarten programs are provided on a no-fee basis, but some states allow school districts to charge a fee for full-day kindergarten programs (Parker, Diffey, and Atchison, 2016).



2017). However, the average ECE fees paid by families in the OECD member countries, for the programs to which they apply, represent 15 percent of household income, so the poorest and largest families pay less (Penn, 2017).<sup>14,15</sup> The committee discusses below the advantages and disadvantages of both no-fee approaches and approaches that require families to contribute an affordable share of costs.

As noted above, in K–12 public education fees are not charged to families; instead, the costs of delivering K–12 education are shared across the citizenry, and no family pays to ensure a place for its children.<sup>16</sup> This practice is part of the longstanding tradition in the United States that education is a public good, but this tradition has applied only to older children, namely those in grade 1 and older. Systemwide no-fee approaches for early care and education can help to reduce economic insecurity and boost the disposable income of families with young children, particularly where poverty is highly concentrated but also for many low- and middle-income families that may not be in poverty but may be economically insecure. A systemwide no-fee approach may also promote integration in ECE settings of children from across socioeconomic classes, if programs are designed and located to serve diverse groups of children without regard to family income. Such integration has been shown to benefit all children. A no-fee approach reduces or eliminates the financial barriers to ECE participation. However, not charging fees to any family transfers resources from the public to the affluent, in effect subsidizing high-income families, as is true in K–12 education but not true in other publicly supported goods such as housing and health care (see, e.g., Cascio, 2015). Such a financing structure lacks target efficiency for resources, but target efficiency could be improved if the tax revenues for the public share of ECE costs are generated progressively.

Asking families to contribute some of the cost of early care and education mirrors the financing structure of the higher education, housing, and health-care systems, in which families are expected to contribute to the cost of services used. An affordable family contribution can result in a progressive financing structure that targets resources to those most in need, reduces public costs, and retains an additional revenue stream. Requiring an

<sup>14</sup> See the OECD database at <https://www.oecd.org/els/family/database.htm> [December 2017].

<sup>15</sup> Expenditure profiles on early care and education in OECD and EU countries differ a great deal and vary according to the availability of wider social benefits such as maternal and parental leave, income support, and health coverage (Penn, 2017).

<sup>16</sup> Some kindergarten programs are provided on a no-fee basis, but some states allow school districts to charge a fee for full-day kindergarten programs (Parker, Diffey, and Atchison, 2016). Kindergarten was incorporated into most public school systems in the United States in the 1960s and 1970s, lowering the age of formal, public education to 5 years of age (see Chapter 2).



affordable family contribution, according to some economic literature, may also encourage parents to be more-informed consumers and may encourage ECE providers to be “cost-conscious” (see, e.g., Johnstone, 2003).

On a programmatic level, U.S. experiences in Head Start/Early Head Start and some state and local universal prekindergarten programs, as well as kindergarten programs, demonstrate that no-fee approaches for certain programs eliminate financial barriers to utilization and could ensure that participation in early care and education does not depend on family circumstances, greatly improving access. Like systemwide no-fee approaches, requiring no family contributions for these programs helps to promote equity, reduce poverty, and limit the administrative burden on providers. However, if the higher public cost of no-fee programs causes policy makers to limit eligibility to only low-income children, one consequence may be the promotion of harmful economic segregation.

Decision makers at the state and local level will need to balance the advantages and disadvantages of offering systemwide no-fee approaches, no-fee approaches for some programs, or requiring families to make an affordable contribution. If programs require a family contribution, a restructured family payment schedule that requires less from low- and middle-income families and progressively more from higher-income families will be needed to eliminate barriers to utilization and achieve an equitable distribution of family contributions.<sup>17</sup>

### **Other Private Sector Stakeholders**

The nonparental private sector (including businesses/employers, corporate foundations, and philanthropic organizations) currently plays an important role in championing early care and education. While employers’ and philanthropies’ financial contributions to early care and education are small relative to the scale of the contributions of parents and the public sector, this sector’s leadership and active participation in asserting the importance of and setting the vision for systemic transformation are essential. The private sector has the potential to play a critical role advocating for policies and leveraging available dollars to support high-quality ECE services and systems, particularly during the transition phases for moving from the current fragmented and failing system to an effective, high-quality ECE system (see discussion of the nonparental private sector’s role in facilitating the transition to high-quality early care and education in the next section).

---

<sup>17</sup> Chapter 6 provides an illustration of one possible way to structure progressive family contributions.

## PLANNING FOR THE TRANSITION TO HIGH QUALITY

**Recommendation 6:** A coalition of public and private funders, in coordination with other key stakeholders, should support the development and implementation of a first round of local-, state-, and national-level strategic business plans to guide transitions toward a reformed financing structure for high-quality early care and education.

The committee's vision outlines a child-centered financing strategy whereby access does not depend on families' circumstances, financing is conditional on ECE programs and services meeting high quality-standards, and funding is set to levels to meet the total cost of high-quality early care and education. However, because early care and education is currently fragmented, implementation of the committee's vision will require a transition period for incrementally building toward integration of currently distinct parts of the ECE landscape (service delivery, system-level workforce supports, and quality assurance and improvement systems). The process of transitioning from the current structure to the committee's vision of an integrated system will take time, resources, and intentional coordination and planning.

While the committee is unaware of a systematic review of the impact of the nonparental private sector in transforming systems, as noted above, key entities in the nonparental private sector have played an essential role in supporting transformation in the ECE field. Currently, they support high-quality early care and education in a number of ways, including offering family-friendly policies to their employees; providing benefits or incentives for employees, including onsite or discounted child care (though most employer benefits are nonfinancial); championing change in their communities as public policy and budgeting advocates and intermediaries; and directly supporting quality ECE services through direct corporate contribution, pay-for-success strategies, shared services alliances (SSAs), business technical assistance centers, and experimental model programs.

During the transition period, the nonparental private sector will continue to be an important stakeholder and may build coalitions to support initiatives to bring about systematic change, leverage investments to drive implementation of a new financing structure, and hold the public sector accountable for improving quality in early care and education for children and for the ECE workforce. Engaging and developing public and private partnerships will also be important in planning for the transition to high quality, in order to leverage resources and build constituencies and commitment to moving toward high quality. For example, the Virginia Early Childhood Foundation is a public-private partnership that, in its work to support the development of a well-qualified ECE workforce in Virginia, has shown how the nonparental private sector can be a crucial partner during the transition period, as explained in Box-7-3.

**BOX 7-3****Virginia Early Childhood Foundation**

In the summer of 2015, Virginia began a discussion regarding the importance of enhancing the quality of ECE services provided to children and families throughout the state. The Virginia Early Childhood Foundation (VECF), a public-private partnership that supports ECE programs, services, and policies, partnered with the Virginia Chamber of Commerce to host a meeting of high-level stakeholders that emphasized the importance of the knowledge, skills, and abilities of the ECE workforce in predicting and delivering quality services. This meeting, titled “Upskilling Virginia’s Early Educator Workforce,” brought high-level and multisector attention to the importance of the ECE workforce and the need for a cohesive system of pre-service education and professional development supports (Glazer et al., 2017). Following this initial meeting, VECF has continued to combine public and private financial resources and expertise to convene partners and advance progress in multiple areas:

- VECF, with representatives from the Virginia governor’s office, participated in the National Academy of Medicine’s Innovation to Incubation initiative, as part of the implementation following publication of the *Transforming* report. The team conducted an analysis of the higher-education pathway in Virginia, finding significant roadblocks for incumbent and prospective ECE professionals pursuing bachelor’s degrees: (1) “The existing Associate of Applied Science degree in early education does not transfer seamlessly into a bachelor’s degree program, which requires an individual to take an additional year of coursework.” (2) “Virginia has no early childhood-specific baccalaureate degree program to transfer into.”<sup>a</sup> In response, the team recommended that the state pursue a goal to streamline a career pathway for educators of children from birth–age 5 years that develops core skills early, intentionally, and affordably. This pathway needs to build on current assets, align with nationally recognized standards, and award meaningful credentials that indicate mastery of core skills as well as provide opportunities for enhancing skills and specialization.

- The School Readiness Committee was established by Virginia law in 2016, with mandated composition of legislators; state cabinet officials and agency leaders; and representatives from business, higher education, and early care and education. The priority charge for this high-caliber committee is to ensure access to a competency-based professional development system for Virginia's ECE educators. The committee assumes responsibility as Virginia's ECE advisory council; VECF is named in the statute to serve on the committee and provide for the facilitation of its work (Glazer et al., 2017).
- State general funds were appropriated for a scholarship program for ECE educators to access credit-bearing coursework in Virginia colleges and universities focused specifically on relevant competencies for children from birth–age 8 years. Scholarships for eligible educators cover tuition, fees, and the cost of books. The scholarship program, administered by VECF, incorporates alternative development options including dual enrollment for high school students interested in an ECE career and an apprenticeship program for incumbent ECE educators to access credit-bearing coursework at no cost to them or their employer, as well as an onsite mentor/coach and wage enhancements at the conclusion of each successful apprenticeship year.<sup>b</sup>
- A partnership of representatives from community colleges and universities, led by VECF, has designed 2+2 articulation programs (2 years of an associate-degree program that connects with [articulates into] a bachelor-level degree program) for the ECE workforce. These programs feature collaborative agreement on sequencing of high-quality coursework for (2-year) associate degree earners that articulate seamlessly and with full credit to 4-year undergraduate programs in Virginia's universities leading to educator licensure specific to children from birth–age 8 years (Virginia School Readiness Committee, 2017).

<sup>a</sup> See “Bridging the Divide: Higher Education and Early Childhood Leaders’ Position Statement on Early Childhood Teacher Preparation”: [http://sfc.virginia.gov/pdf/Jt%20Sub%20Education/2016%20-%20Sept%207/No3b\\_Glazer\\_Position\\_Statement.pdf](http://sfc.virginia.gov/pdf/Jt%20Sub%20Education/2016%20-%20Sept%207/No3b_Glazer_Position_Statement.pdf) [January 2018].

<sup>b</sup> See “Update on Mixed Delivery Preschool Pilots and Upskilling the Early Education Workforce”: [http://hac.virginia.gov/subcommittee/Jt\\_Preschool\\_Initiative\\_Sub/9-7-16/III.a%20-%20Glazer%20-%20JSC%20VECF%209%207%2016%20Slides%20-%20REVISED%20as%20of%2009%2006%2016.pdf](http://hac.virginia.gov/subcommittee/Jt_Preschool_Initiative_Sub/9-7-16/III.a%20-%20Glazer%20-%20JSC%20VECF%209%207%2016%20Slides%20-%20REVISED%20as%20of%2009%2006%2016.pdf) [January 2018].

In summary, the nonparental private sector, specifically private funders engaged in supporting high-quality early care and education, should work with public funders and other key stakeholders, including State Advisory Councils on Early Childhood Education and Care<sup>18</sup> and similar statewide and national coordinating bodies, as well as interested parent, provider (center-based and home-based), and ECE workforce representatives, to develop and implement local-, state-, and national-level strategic business plans to guide transitions toward a reformed financing structure for high-quality early care and education, with a specific emphasis on business, financial, and systems strategies.

At the national level, a strategic business plan would outline national goals and inform and coordinate state plans. This planning would include identifying strategies for increasing resources, assessing and monitoring progress against these goals, ensuring accountability throughout the financing system, and articulating and developing a coordinated research agenda. Such a planning process would facilitate coordination at the federal level among federal agencies and other national stakeholders to streamline the financing for monitoring and technical assistance structures, coordinate federal supports for the professional development of the ECE workforce—including supports to ensure diversity across professional roles—and harmonize federal data collection and research efforts, among others.

State-level and community-level plans could outline specific strategies for addressing quality components in their specific contexts, including

---

<sup>18</sup> Funded through the Administration for Children and Families and state resources, State Advisory Councils on Early Childhood Education and Care are “charged with developing a high-quality, comprehensive system of early childhood development and care” and “ensure statewide coordination and collaboration among the wide range of early childhood programs and services in the state, including childcare, Head Start, IDEA preschool [prekindergarten] and infants and families programs, and prekindergarten programs and services” (available: <https://www.acf.hhs.gov/ece/early-learning/state-advisory-councils> [December 2017]). These state councils are required to undertake the following activities: “conducting periodic statewide needs assessments on the quality and availability of early childhood education and development programs and services from birth to school entry; identifying opportunities for, and barriers to, collaboration and coordination; developing recommendations on increasing participation in child care and early education programs, including outreach to underrepresented and special populations; developing recommendations on the development of a unified data collection system for public early childhood and development programs and services; developing recommendations on statewide professional development and career advancement plans for early childhood educators; assessing the capacity and effectiveness of institutes of higher education supporting the development of early childhood educators; making recommendations for improvements in state early learning standards and undertake [sic] efforts to develop high-quality comprehensive early learning standards, as appropriated; and facilitating the development or enhancement of high-quality systems for early childhood education and care designed to improve school readiness” (available: <https://www.acf.hhs.gov/ece/early-learning/state-advisory-councils> [December 2017]).

strategies for increasing staff compensation and setting workplace standards, building the supply of high-quality ECE providers, and engaging public and private partners in support of additional resources. In addition, the planning process undertaken by states and communities may bring together stakeholders to identify resources for support of initiatives for improving the career and education pathways available to the ECE workforce, to sequence transition efforts to improve access to high-quality ECE for children across age groups, or to identify resources for facilities improvements in their communities.

Local-, state-, and national-level planning efforts, taken together, are critical to facilitating the implementation of an integrated financing system as envisioned in this report by identifying key stakeholders charged with moving the plans forward, building constituencies to support systemic transformation, and leveraging resources to bring about high-quality early care and education that is affordable and accessible for all children.

## FINANCING WORKFORCE TRANSFORMATION

The transitional period necessary to build a more coherently financed ECE system with a highly qualified workforce will likely require specific types of supports and significant funding in the short term to ensure that each quality component is adequately addressed. This section discusses special considerations, related to improved staff compensation, higher education, and professional development, that will be required during the transition to high-quality early care and education with a highly qualified workforce.

### Staff Compensation

As described in the *Transforming* report, linking qualifications to compensation is an essential element of quality and higher compensation levels foster the recruitment and retention of a highly qualified workforce (Institute of Medicine and National Research Council, 2015, pp. 461–478). However, in the currently underfunded system, qualification requirements have not driven compensation to adequate levels, suggesting a need for intervention in the market, at least during the transition period (see Chapter 3). That is, increased funding to the system and programs is a necessary but not sufficient condition for better pay.

Ensuring that increased per-child funding translates into better compensation for the ECE workforce is complex. While various workforce-oriented financing mechanisms have been used to supplement ECE professionals' compensation, these mechanisms in the current system have been insufficient to raise compensation to an adequate level at scale. The temporary

nature of the supplements also does not create the predictable and steady salaries necessary for recruiting and retaining a highly qualified workforce. Increasing income to the program is also not guaranteed to lead to higher salaries for ECE educators employed in centers, homes, or schools.<sup>19</sup> For example, historically in voucher programs, because income to the provider fluctuates when a child's participation in that ECE setting changes, administrators tend to be wary of increasing salaries, given that the ongoing resources are not reasonably reliable. Further, if only some children are subsidized, increased resources from these subsidies may not be sufficient to bolster salaries for all educator staff.<sup>20</sup> On the other hand, some state pre-kindergarten programs have recently made strides on increasing base pay for ECE educators through contracts between funders and providers that set requirements on compensation levels that directly guarantee adequate compensation for ECE professionals (see Chapter 3).

While the transition to a highly qualified and adequately compensated workforce is taking place, ensuring that the workforce is receiving improved compensation will require testing the market's response and accountability with some experimentation around sufficiently robust and dependable mechanisms. Because QRISs communicate important messages about what areas are deemed most important for focusing resources and attention, engaging the state's QRIS in wage guidelines might be important. However, it is unclear what role QRISs could play in setting wage guidelines. To date, only some QRISs identify whether a program has a salary schedule, but even these systems do not provide direction as to the schedule's parameters.

### Onsite Professional Development

As discussed in the *Transforming* report, educational qualifications and compensation are instrumental to high-quality early care and education but cannot in themselves guarantee high quality. It is essential that educators and leaders engage in consistent professional learning and professional development experiences during ongoing practice. Such experiences include pedagogical leadership training, coaching and mentoring, business

---

<sup>19</sup> For home-based providers that operate as small businesses with one owner/educator, institutional support and per-child reimbursements apply more directly to educator earnings. Additional mechanisms to link per-child funding to compensation will likely not be necessary, though stipends and tax credits could benefit home-based providers directly, as well as other providers. As with center employees, some wage guidance for additional individuals employed in home-based settings will likely be required to ensure that increased rates to home-based providers support improved wages for their non-owner employees.

<sup>20</sup> This may also occur if higher reimbursements are targeted only to certain children, as in the case of prekindergarten classrooms in community-based programs, where educators in one room may earn less than their equivalently qualified colleague in the next classroom.

training and technical assistance, paid time for attending onsite professional development activities, paid time for planning and assessment and for professional sharing and reflection, and training to support the needs of children with disabilities and other special needs. These support components would add to onsite costs because they require additional staffing: hiring of coaches and mentors, substitutes to allow for release time to attend offsite courses and training, and staff support to give educators non-child-contact time for planning and assessment. Other supports will need to be financed at the system level (see discussion below).

### System-level Workforce Development

**Recommendation 7:** Because compensation for the ECE workforce is not currently commensurate with desired qualifications, the ECE workforce should be provided with financial assistance to increase practitioners' knowledge and competencies and to achieve required qualifications through higher-education programs, credentialing programs, and other forms of professional learning. The incumbent ECE workforce should bear no cost for increasing practitioners' knowledge base, competencies, and qualifications, and the entering workforce should be assisted to limit costs to a reasonable proportion of postgraduate earnings, with a goal of maintaining and further promoting diversity in the pipeline of ECE professionals.

The committee views the following points to be essential aspects of fulfilling this general recommendation:

- 7a. Existing grant-based resources should be leveraged, and states and localities, along with colleges and universities, should work together to provide additional resources and supports to the incumbent workforce, as practitioners further their qualifications as professionals in the ECE field.
- 7b. States and the federal government should provide financial and other appropriate supports to limit to a reasonable proportion of expected postgraduate earnings any tuition and fee expenses that are incurred by prospective ECE professionals and are not covered by existing financial aid programs.

**Recommendation 8:** States and the federal government should provide grants to institutions and systems of postsecondary education to develop faculty and ECE programs and to align ECE curricula with the science of child development and early learning and with principles of high-quality professional practice. Federal funding should be leveraged through grants



that provide incentives to states, colleges, and universities to ensure higher-education programs are of high quality and aligned with workforce needs, including evaluating and monitoring student outcomes, curricula, and processes.

Resources for system-level workforce development, including higher education and professional development, will be needed to transition the current workforce to the highly qualified workforce envisioned in the *Transforming* report.

Currently in early care and education, and generally in other sectors, the cost for professional training is either borne directly by prospective employees or shared between the employee and the employer. However, because compensation for the ECE workforce is not currently commensurate with desired qualifications, the ECE workforce should be provided with financial assistance to increase practitioners' knowledge and competencies and to achieve required qualifications through higher education programs, credentialing programs, and other forms of professional learning. The incumbent ECE workforce should bear no cost for increasing practitioners' knowledge base, competencies, and qualifications, and those entering the ECE workforce should have financial assistance to limit their education costs to a reasonable proportion of postgraduate earnings, with a goal of maintaining and further promoting diversity in the pipeline of ECE professionals.

Due to the ECE workforce's low levels of compensation, asking individuals to contribute out of pocket to their educational expenses or to cover them using loans that must be repaid with future wages is not feasible. Similarly, asking center- or home-based providers to cover educational costs in the current system could pose significant difficulties for many employers, especially for small-business ECE providers that operate with relatively limited budgetary discretion. For these reasons, additional federal and state funding will be necessary to avoid disrupting service provision.

A number of grant-based resources for higher education are currently available from the federal government, states, private entities, and individual colleges and universities (see Chapter 3). These resources should be leveraged to offset the costs of tuition and fees for ECE professionals pursuing higher education. Additional funding may also be necessary to ensure that ECE professionals are able to pursue higher education and other forms of credentialing at an affordable rate. States and localities, along with colleges and universities, should work together to provide these additional resources to the incumbent workforce as practitioners further their qualifications as professionals in the ECE field. They should have the flexibility to determine certain requirements for supports, such as number of years in service required to qualify for assistance and length of commitment required after completing training.

These recommendations assume improved compensation for the ECE workforce at the conclusion of the phased transition period because adequate compensation will be necessary to retain these highly qualified professionals in ECE positions (Institute of Medicine and National Research Council, 2015, pp. 461–478). Once compensation reaches adequate levels, it may be appropriate to ask ECE professionals to contribute to their costs of attaining additional qualifications as ECE professionals, either through their own savings or through the use of student loans. However, the amount that these professionals should be expected to contribute should be a small percentage of their expected earnings upon completion of their degree.<sup>21</sup> States should use their public colleges and universities to promote high-quality, affordable higher education and training for ECE professionals, and they should create options for private institutions within the state to develop high-quality, affordable opportunities. This needed support includes providing financial and other appropriate supports to prospective ECE professionals to limit any tuition and fee expenses not covered by existing financial aid programs to a reasonable proportion of postgraduate earnings. Targeted financing mechanisms to support professionals with culturally, linguistically, and professionally diverse backgrounds who are pursuing opportunities for higher education will also be needed, to reduce the racial and ethnic stratification present across job roles in the current ECE workforce.

States should also promote greater alignment of higher-education programs with the core competencies needed by ECE professionals, including pedagogical leadership, to ensure positive outcomes for children. Since state budgets often face many other pressures and funding for higher education has been declining in many states, federal funding may be necessary to further incentivize high-quality higher education by providing grants to state systems and to colleges and universities, to align curricula with the science of child development and early learning and with the principles of high-quality professional practice, to ensure affordability for the ECE workforce and to support faculty and program development.

Attention must also be given to funding efforts that support the development of career pathways for the incumbent and prospective ECE workforce. Given that many ECE professionals will not enter the field with a bachelor's-level degree in early childhood education, states along

---

<sup>21</sup> An emerging standard of an affordable debt burden in higher education sets annual loan payments at 8–12 percent of total income or 20–30 percent of total income, amortized over a 10 year repayment period (see <https://studentaid.ed.gov/sa/about/data-center/school/ge> [January 2018]). Similarly, income-driven repayment plans cap monthly loan payments at 10–15 percent of a borrower's discretionary income and aim to limit monthly payments to an “affordable” amount (see <https://studentaid.ed.gov/sa/repay-loans/understand/plans/income-driven> [January 2018]).

with institutions of higher education and other stakeholders should support efforts to streamline career pathways for ECE professionals, including efforts to develop stackable credentials and sequencing of coursework for seamless articulation between programs. Evaluations of those efforts to support incumbent ECE professionals in strengthening their qualifications while they work in ECE settings are needed to determine the effects of such programs on quality.

Moreover, states, the federal government, and other stakeholders should work together to evaluate outcomes and monitor curricula and processes of both new and existing programs for ECE educators, to ensure that minimum quality standards are met by all ECE higher-education programs, that the skills and competencies of the students they serve are meaningfully improved through higher-education experiences, that programs retain and graduate students in these fields, and that costs are proportional to post-graduate earnings. This quality assurance role will be particularly important if the demand for higher-education programs in ECE fields increases.

### BUSINESS SUPPORTS

The transition to a high-quality ECE system will also require expanded efforts to support the ECE workforce with business, planning, and financial management tools, resources, and technical assistance. As ECE providers, both center- and home-based, increase the quality of their services, it will also be important to ensure that these operations are sustainable. Access to high-quality early care and education depends on the viability of providers. As discussed in Chapter 3, Box 3-8, the 2014 CCDBG Act reauthorization mandated that states develop and implement strategies for strengthening the business practices of ECE providers and required states to submit details about how they provide this technical assistance to businesses. Minnesota and Iowa, for example, offer a range of business and financial technical assistance services to providers, including business training, business cohort coaching and technical assistance, consulting for community projects that help build supply and sustainability, the creation and implementation of rural ECE economic development plans, and facility financing and technical assistance. Twelve states are now creating business technical assistance plans with the help of the private sector and a mix of public and private funding.<sup>22</sup>

The committee's recommendations do not assume that industry consolidation is necessary. In fact, the provider-oriented support (for both center-based and home-based providers) described in the above section

<sup>22</sup> See: <http://www.firstchildrensfinance.org/blog/2017/08/16/first-childrens-finance-invites-applications/> [January 2018] and <http://rccipmn.org/> [January 2018].

on “A Harmonized Set of Financing Mechanisms” may make more small-scale providers financially viable. However, there is potential for increasing provider sustainability through concerted focus on developing financial and business expertise within providers, such as the ability to efficiently devise budgets that leverage available funding streams, to clearly articulate the gap between revenue and costs, and to improve quality. Though owners of ECE businesses or ECE program administrators may not have the experience or expertise to manage these financial and business responsibilities on their own, participating in a collective such as a SSA would provide for tapping into these strengths and enable cost savings by sharing business functions. Such savings could be invested in quality improvements, including increasing compensation for ECE educators in their classrooms. As discussed in Chapter 2, SSAs also provide an opportunity through shared governance and infrastructure to create accountability and responsibility for child outcomes, as well as ensuring the sustainability of a diverse range of service providers. Though SSAs appear to be a promising approach, the committee is not aware of any systematic literature reviews of these efforts. Private sector funders can support the implementation of shared services strategies, ensure that ECE providers have the resources and expertise necessary to ensure that such efforts become self-sustaining, and invest in evaluations of program impact on quality and child outcomes.

Because many ECE providers are small operations and one-third of small businesses fail within their first 2 years of operation (U.S. Small Business Association, 2012), business supports (including training and technical assistance on financial management, human resources management, leadership development, financial planning, and capital investments for facilities) and access to capital are needed to sustain and grow these small operations, making business intermediaries and other strategies important system-level supports necessary for sustaining high-quality early care and education. Moreover, integrating skills development in these areas into higher-education programs for ECE professionals is also needed to ensure that program leaders have these necessary competencies.

### ASSESSING PROGRESS TOWARD QUALITY

**Recommendation 9:** The federal and state governments, as well as other funders, should provide sustained funding for research and evaluation on early childhood education, particularly during the transition period to ensure efforts to improve the ECE system are resulting in positive outcomes for children and in the recruitment and retention of a highly qualified workforce.

As early care and education transitions from its current state into the integrated system described above, it will be essential to monitor and evaluate the impact of the changes, including the extent to which they are leading to improvements in the well-being of children, families, and the ECE workforce. The *Transforming* report laid out 13 recommendations to guide an ambitious overhaul of the ECE workforce and currently fragmented range of service options and program supports in the United States (Institute of Medicine and National Research Council, 2015, pp. 6–15). Those recommendations were based on a totality of evidence drawn from the science of child development and early learning, research on instructional practices, and what has been documented and studied about the ECE workforce and system. However, as that report clearly articulates, and reinforces in its recommendation for improving the knowledge base, there is not yet a strong evidentiary base on many critical issues related to the ECE workforce.

For instance, the empirical evidence about the effects of requiring particular degrees for ECE educators is inconclusive. Associational research does not show that degree attainment by ECE educators is systematically linked to improvements in classroom practices or child outcomes, and there have not been compelling causal studies examining the effects of increases in ECE educator education levels on key outcomes of interest (see e.g., Bogard, Traylor, and Takanishi, 2008; Early et al., 2007). Interpreting the evidence is complicated by the limited extent to which available studies have been designed to examine the impact of increases in education levels of ECE educators on key outcomes of interests, in the context of factors that have a great deal of variability, particularly the content of the degree programs accessed by the educators participating in the studies and the conditions of their postgraduation practice environments (Institute of Medicine and National Research Council, 2015, pp. 434–439).

For these reasons, the *Transforming* report did not recommend simply changing policy to require a bachelor's degree. Rather, drawing on the totality of evidence reviewed and considering the potential benefits of bachelor's degrees (such as elevating the profession's perceived stature, driving increased knowledge and competencies linked to increased compensation, improving the well-being and work conditions of the workforce, and improving retention of competent educators in positions in early care and education), the report called for the development of a coordinated pathway of changes, tailored in their approach and pace to different localities and policy contexts, to transition to a future in which all lead educators have a bachelor's degree with specialized knowledge and competencies. Such coordinated changes would encompass improving the quality of and access to higher-education programs and improving conditions of employment. The report noted that to ensure that a degree requirement serves as a transformative lever, assessment plans to monitor progress, to monitor and mitigate

unintended negative consequences, and to adapt implementation strategies as needed would be necessary (Institute of Medicine and National Research Council, 2015, pp. 515–519). Similarly, although evidence shows that professional development for ECE educators can have meaningful impacts, there are also several examples of large-scale professional development efforts that did not yield the desired impacts. Therefore, the *Transforming* report recommended improvements to ensure that content and quality align with the knowledge and competencies educators need and with what is known about best practices in ongoing professional learning (Institute of Medicine and National Research Council, 2015, pp. 529–530).

Despite these uncertainties in the available evidence, there is ample evidence that the quality in the current system is inadequate and inconsistent, and therefore there is urgency for action. Decision makers must grapple with the open questions about the best strategies and move forward with formulating a plan most likely to work within their own context to transform the landscape of early care and education. However, even without conclusive evidence that a lead ECE educator with a bachelor's-level degree is more effective than one without, the committee believes, consistent with the rationale stated by the *Transforming* report's authoring committee, that practical reasons exist for developing a system in which more ECE professionals have such degrees and competencies. The possession of stronger qualifications will strengthen the case for increasing compensation for the ECE workforce to the levels needed to recruit and retain a highly qualified workforce, will elevate the stature of the ECE workforce to levels appropriate to their responsibility, and will improve the well-being of ECE professionals. That said, adding qualification requirements without attention to the many other systems changes necessary (as outlined in this report and the *Transforming* report) or without careful planning for unintended consequences (e.g., reductions in supply and reductions in diversity of the workforce) is unlikely to result in better outcomes for children.

Given the large amount of resources required, it is essential to monitor the effects of key changes as they are phased in, to ensure investments yield desired results for children, the workforce, and families. It is also important to incentivize innovation and a diversity of approaches to quality improvement and to evaluate those innovations and approaches. In this way, the phased approach with context-specific implementation choices will create a tremendous opportunity to continue to learn the best ways to foster transformative change in early childhood.

It is therefore essential that this phased transformation is accompanied by systems that allow for regular monitoring and accountability, as well as rigorous research to examine the impacts of these changes over time. This research should assess carefully the extent to which changes in the system lead to the creation of a highly qualified and adequately compensated

workforce, whether those changes lead to improvements in key outcomes of interest, and the extent to which improvement efforts may lead to unintended consequences and a need for course corrections.

### **Assessing Quality during the Transition**

Sustained funding for research is essential to ensure that efforts to transform the workforce and the ECE system are successful. While evidence continues to grow about young children's development, evidence remains underdeveloped regarding the role of educators in supporting this development and the effectiveness of various strategies for supporting educators. Policy makers need to move quickly and make "best guesses" on the design of their quality improvement investments. To ensure learning from these experiments, continual assessment is needed of the extent to which investments are yielding the desired outcomes. Multiyear evaluations should be funded as part of each phase of the transition process. This would ensure that preliminary findings could be reported annually, which would allow the gradual development of midcourse corrections that could be implemented in the next phase. Key among these evaluation needs is the collection of data throughout the transition period to assess whether compensation levels are leading to recruiting and retaining qualified, high-performing staff at different levels of responsibility and in different local labor markets.

In addition, as documented in Chapters 5 and 6, a large number of ECE programs in some areas of the country are estimated to need major improvements or entirely new facilities, but no national-level survey of ECE facilities has been conducted. To understand the financing needed during the transition for ECE facilities, which are an important component of a high-quality ECE system, a facilities needs assessment, together with an analysis of real estate markets, should be completed to determine which communities need capital investment in newly constructed facilities and which may be better served by renting or retrofitting existing commercial space.

### **Ongoing Evaluation and Improvement**

A number of systems are already in place for ongoing monitoring, but these systems are underdeveloped, fragmented, and insufficient for tracking systemwide progress. The nation needs a comprehensive system for ongoing evaluation and improvement that supports the uniform collection, reporting, sharing, and use of key information on the status of the ECE system during and after transformation. Assessment of progress needs to be made at the levels of children and families, the workforce, the providers, the



state, and the nation as a whole. At each level, a diverse set of measures is needed, including measures of adequacy of resources, accessibility for families, workforce characteristics (including measures of ECE practitioner well-being), program quality and costs (including measures of structural and process features), and the quality of higher-education systems (including capacity and capability to prepare a highly functioning ECE workforce). Ultimately, there must also be measures of children's development across a broad set of domains. It is essential that such a system allow for learning over time, include data that allow for tracking over time, ensure coverage across different types of programs, measure quality beyond structural inputs to include processes and outcomes, and use methodologies appropriate for studying policy and systems change to understand how different quality components are progressing in the context of each other.

Assessment of professional practice is an important element of a financing structure, in that it is needed to measure and reward performance. As noted in the *Transforming* report:

A continuous improvement system of evaluation and assessment [of professional practice] should . . . be comprehensive in its scope of early developmental and learning objectives, reflect day-to-day practice competencies and not just single-point assessments, reflect what professionals do in their practice settings and also how they work with professional colleagues and with families, be tied to access to professional learning, and account for setting-level and community-level factors beyond the control of practitioners that affect their capacity to practice effectively . . .

(Institute of Medicine and National Research Council, 2015, p. 10)

Such an evaluation and assessment system for ECE professional practice would help to illuminate the effect of financing, program structure, and leadership on staff performance with children. It is therefore essential that systems developed for monitoring and tracking program quality conceive of quality broadly, to include not only structural features of care but also process measures, including observational measures of educator-child interactions and measures of the content covered in ECE settings. Measures of classroom quality that focus on process quality are systematically predictive of children's learning gains. In fact, there are now hundreds of studies, including randomized controlled trials, documenting the ways in which children's development may be influenced by process quality (Hamre, 2014). It is also important that efforts to monitor quality improvement include measures of children's development.

It is essential to regularly and systematically assess the well-being of the workforce, which drives these processes and child outcomes. Several recently developed instruments are promising tools for measuring



key program-level factors related to the recommendations in this report, including professional development, leadership, and work environment. For instance, the Five Essentials for Early Education is a survey tool that captures leadership and organization conditions in ECE settings, and the Supportive Environmental Quality Underlying Adult Learning instruments assess five domains of the work environment related to supporting educator practice and growth (Ehrlich et al., 2016; Faria et al., 2017; Whitebook, McLean, and Austin, 2016). Further development and validation of these types of new measures are essential for accurately assessing the experiences of the ECE workforce. As part of this process, linking workforce outcomes to specific higher-education programs would enable an understanding of the specific processes that best prepare ECE professionals to work with young children.

### Ongoing Data Collection and Research

**Recommendation 10:** The federal government should align its data collection requirements across all federal ECE funding streams to collect comprehensive information about the entire ECE sector and sustain investments in regular, national, data collection efforts from state and nationally representative samples that track changes in the ECE landscape over time, to better understand the experiences of ECE programs, the ECE workforce, and the developmental outcomes of children who participate in ECE programs.

An effective financing structure should include financing to align data collection requirements across all federal ECE funding streams. With the shift to consistent standards for quality recommended above, aligned program monitoring is also needed. The lack of comparable data across ECE sectors poses a major hurdle for analyzing trends over time across the entire ECE workforce. All federally funded programs should be required to submit the same type of program information, to allow for comparability of data across settings. Further, the federal government could create incentives for states to incorporate aligned data collection in their systems for state and local ECE initiatives. In the K–12 sector, comprehensive annual data about all public and private schools are collected through the Common Core of Data. The Integrated Postsecondary Education Data System serves a similar role for institutions of higher education. There is a need for comparable, comprehensive information about the entire ECE sector, and integrated data reporting across all federal funding streams would be one important component in building such a comprehensive system.

A fundamental goal of investments in the ECE workforce is to ensure that all children have access to high-quality ECE experiences and that all children enter elementary school ready to learn. Therefore, an effective financing

structure should include resources for collecting rich data from a nationally representative sample of young children, over regular intervals. Since 1969, similar data on what children in 4th, 8th, and 12th grade in the United States know has been collected using the National Assessment of Educational Progress (NAEP). The NAEP uses a common assessment tool across all states and over time; it thus provides a best metric for assessing changes over time in what students know, as well as skills gaps across groups. The NAEP also allows for cross-state comparisons of students' skills.

Accurately collecting data about very young children's skills is certainly a more costly endeavor than data collection on K–12 students, due to the need for one-on-one assessments with young children. However, such data are essential to track whether substantial investments in ECE experiences are associated with improvements in child outcomes across a diverse set of measures. One approach to collecting these data could be similar to the Early Childhood Longitudinal Study, Kindergarten Cohort. To date, the National Center for Education Statistics (NCES) has collected data on two nationally representative cohorts of children: one starting kindergarten in 1998, the second cohort starting kindergarten in 2010. Unfortunately, the assessments used across those two waves differ, and no crosswalk has been released to enable comparisons of children's abilities across the two waves. In addition, the 12-year interval between the two waves is long, making the results less useful for informing policy and practice. Therefore, the federal government should undertake a regular direct assessment of young children's skills at least every 5 years, including comparable assessments to allow comparisons over time.

The federal government should also regularly collect data about young children's experiences in ECE settings. This could be accomplished either through repeated cross-sectional data collections or through repeated longitudinal studies. The NCES Early Childhood Longitudinal Study, Birth Cohort, and the earlier Study of Early Child Care and Youth Development, sponsored by the National Institute of Child Health and Human Development, provide useful models.<sup>23</sup> Both studies provided a detailed look at children's early childhood experiences and have been used extensively by researchers to examine the impacts of policy and practices on children's learning. However, each of these longitudinal studies occurred only once.

---

<sup>23</sup> The NCES Early Childhood Longitudinal Study, Birth Cohort, study provided rich information about the early childhood experiences of a nationally representative sample of about 14,000 children tracked from their birth in 2001 until they entered kindergarten. The study was designed to provide policy makers with rich information about children's early years. It included detailed surveys of parents, caregivers (across diverse ECE settings), and program directors. It also included classroom observations for a subsample of children. Similarly, the earlier Study of Early Child Care and Youth Development tracked 1,300 children and families from infancy through age 15 (1991–2007).

To track changes in ECE quality over time, it is essential to have regular assessments of the quality of ECE settings over time.

Finally, it is essential to track changes in the ECE workforce over time. Here again, the NCES offers a useful example of how such data have been collected for the K–12 sector. Since 1987, NCES has collected seven rounds of its Schools and Staffing Survey, which provides a detailed look at educator and principal characteristics, compensation, climate, etc. Each round allows for a careful examination of variation in educator experiences across diverse settings, and when rounds are combined, the survey data provide a detailed look at changes in the educator workforce over time. The National Survey of Early Care and Education provides an analogue for the early childhood context. This large, nationally representative study conducted interviews with more than 8,000 center directors, as well as thousands of ECE workforce members including center-based educators and home-based practitioners. Although this study provides an unprecedented resource for understanding the ECE landscape in the United States, it only provides a single snapshot. We recommend collecting data at regular intervals, in order to track changes over time.

Improving the definition and identification of the ECE workforce in the large national economic surveys of occupations and employment would also provide ongoing data for use in evaluating the ECE system. Federal agencies currently collect rich workforce data at the levels of occupation and sector through the various surveys conducted by the Census Bureau and Bureau of Labor Statistics. These are available on a frequent basis and at detailed geographic levels. Unfortunately, as demonstrated in a recent white paper commissioned for the Administration for Children and Families, the current occupational categories are too flawed to allow these data to be useful for characterizing the ECE workforce. The Administration for Children and Families submitted a request to the federal Standard Occupational Categories Policy Committee for a set of practical changes to the data. Acceptance of those changes to occupational categories used in federal data systems would make these data useful for assessments of the ECE workforce and thereby obviate the need for many additional surveys (Workgroup on the Early Childhood Workforce and Professional Development, 2016).

## CONCLUSION

The majority of children in the United States do not have access to high-quality early care and education. Implementing a new financing structure to ensure that all children have the opportunity to access affordable, high-quality ECE options will take time and will require ample political will and leadership. However, there is great urgency in realizing this vision.

The deficiencies in the current system are hurtful to all children and families in need of ECE options and to the adults who are ECE practitioners and educators—who are themselves often in extreme economic distress. Investments in high-quality early care and education of children from birth to kindergarten entry are critical and will benefit not only children and their families but also society at large.

We have articulated a vision for a financing structure that will support the total cost of a high-quality ECE system and will give ECE providers access to the resources they need to recruit and retain a highly qualified workforce. In our vision, if families are required to pay for services, they should pay an amount they can reasonably afford, whatever their racial, ethnic, geographic, or socioeconomic context. The remaining support should come from federal, state, and local funds, as each of these societal levels benefits from providing these young children with a high-quality ECE system. For such a system to have financial stability and to continually improve its performance in all domains, we envision ongoing investment in an infrastructure for support that is available in a timely manner and for accountability through regular and ongoing collection of system-level data nationwide.

We want to highlight the emphatic statement from the *Transforming* report: for too long, the nation has been making do with ECE policies and systems that were known to be broken. This committee hopes, as did the committee that produced the *Transforming* report, that our report will stimulate policy makers, practitioners, leaders, and all other ECE stakeholders to make the commitment to plan and implement the transformed and effective financing structure that we recommend here. Once in place, such a structure will realize the hope of the *Transforming* report: creation of a self-perpetuating cycle of excellence that will attract highly qualified professionals, serve the needs of all families, and finally allow the nation to do what is right to get its very youngest citizens off to the best possible start in life.



## References

- Ackerman, D.J. (2007). “The Learning Never Stops”: Lessons from Military Child Development Centers for Teacher Professional Development Policy. *Early Childhood Research & Practice* 9(1), n1.
- Adams, G., and Matthews, H. (2013). *Confronting the Child Care Eligibility Maze: Simplifying and Aligning with Other Work Supports*. Washington, DC: Center for Law and Social Policy. Available: <http://webarchive.urban.org/UploadedPDF/412971-confronting-the-child-care.pdf> [January 2018].
- Adams, G., Zaslow, M., and Tout, K. (2007). *Early Care and Education for Children in Low-Income Families Patterns of Use, Quality, and Potential Policy Implications*. Washington, DC: Urban Institute.
- Administration for Children and Families. (2009). *Enrollment of Children with Disabilities*. ACF-PI-HS-09-04. Washington, DC: U.S. Department of Health and Human Services. Available: <https://eclkc.ohs.acf.hhs.gov/archive/policy/pi/acf-pi-hs-09-04> [August 2017].
- Administration for Children and Families. (2013a). *First Look: CCDF Quality Data FY 2012*. Washington, DC: U.S. Department of Health and Human Services. Available: [https://www.acf.hhs.gov/sites/default/files/occ/workforce\\_first\\_look\\_ag\\_7\\_25\\_13\\_final\\_508.pdf](https://www.acf.hhs.gov/sites/default/files/occ/workforce_first_look_ag_7_25_13_final_508.pdf) [September 2017].
- Administration for Children and Families. (2013b). *Research Brief #1: Trends in Child Care Center Licensing Regulations and Policies for 2011*. Fairfax, VA: National Center on Child Care Quality Improvement. Available: [https://childcareta.acf.hhs.gov/sites/default/files/public/065\\_1304\\_center\\_licensing\\_trends\\_brief\\_final.pdf](https://childcareta.acf.hhs.gov/sites/default/files/public/065_1304_center_licensing_trends_brief_final.pdf) [September 2017].
- Administration for Children and Families. (2015). *FY2015 Federal TANF and State MOE Financial Data*. Washington, DC: U.S. Department of Health and Human Services. Available: [https://www.acf.hhs.gov/sites/default/files/ofa/tanf\\_financial\\_data\\_fy\\_2015.pdf](https://www.acf.hhs.gov/sites/default/files/ofa/tanf_financial_data_fy_2015.pdf) [October 2017].
- Administration for Children and Families. (2016a). *Justification of Estimates for Appropriations Committees*. Washington, DC: U.S. Department of Health and Human Services. Available: [https://www.acf.hhs.gov/sites/default/files/olab/2016\\_acf\\_cj.PDF](https://www.acf.hhs.gov/sites/default/files/olab/2016_acf_cj.PDF) [September 2017].

- Administration for Children and Families. (2016b). *Program Instruction: CCDF-ACF-2016-02*. Washington, DC: U.S. Department of Health and Human Services. Available: <https://www.acf.hhs.gov/occ/resource/pi-2016-02> [August 2017].
- Administration for Children and Families. (n.d.). *Head Start Program Performance Standards Final Rule: General Fact Sheet*. Available: [https://eclkc.ohs.acf.hhs.gov/sites/default/files/docs/pdf/hs-prog-pstandards-final-rule-factsheet\\_0.pdf](https://eclkc.ohs.acf.hhs.gov/sites/default/files/docs/pdf/hs-prog-pstandards-final-rule-factsheet_0.pdf) [August 2017].
- Alkon, A., Bernzweig, J., To, K., Mackie, J.K., Wolff, M., and Elman, J. (2008). Child care health consultation programs in California: Models, services, and facilitators. *Public Health Nursing*, 25(2), 126–139.
- American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education. (2011). *Caring for Our Children: National Health and Safety Performance Standards; Guidelines for Early Care and Education Programs* (3rd ed.). Elk Grove Village, IL: American Academy of Pediatrics; Washington, DC: American Public Health Association. Available: [http://cfoc.nrckids.org/WebFiles/CFOC3\\_updated\\_final.pdf](http://cfoc.nrckids.org/WebFiles/CFOC3_updated_final.pdf) [January 2018].
- American Federation of State, County, and Municipal Employees. (2017). *Training Resources for Family Child Care Providers*. Washington, DC: Author. Available: <https://www.afsme.org/members/education-and-trainings/training-resources-for-family-child-care-providers> [September 2017].
- Augenblick, Palaich, and Associates. (2017). *Early Childhood Education Cost Study*. Available: <http://futurereadycollier.org/wp-content/uploads/Florida-ECE-Costing-Out-Study-Report-Final-with-Cover.pdf> [October 2017].
- Barnett, W.S., and Friedman-Krauss, A.H. (2016). *State(s) of Head Start*. New Brunswick, NJ: National Institute for Education Research. Available: [http://nieer.org/wp-content/uploads/2016/12/HS\\_Full\\_Reduced.pdf](http://nieer.org/wp-content/uploads/2016/12/HS_Full_Reduced.pdf) [August 2017].
- Barnett, W.S., and Kasmin, R. (2016). *Funding Landscape for Preschool with a Highly Qualified Workforce*. Commissioned for the Funding Landscape for Preschool with a Highly Qualified Workforce: An Expert Meeting. Available: [http://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse\\_175816.pdf](http://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_175816.pdf) [January 2018].
- Barnett, W.S., and Kasmin, R. (2017). *Teacher Compensation Parity Policies and State-Funded Pre-K Programs*. New Brunswick, NJ: The National Institute for Early Education Research and Berkeley: Center for the Study of Child Care Employment, University of California.
- Barnett, W.S., Robin, K.B., Hustedt, J.T., and Schulman, K.L. (2003). *The State of Preschool: 2003 State Preschool Yearbook*. New Brunswick, NJ: National Institute for Education Research. Available: <http://nieer.org/wp-content/uploads/2016/10/2003yearbook.pdf> [September 2017].
- Barnett, W.S., Friedman-Krauss, A.H., Weisenfeld, G.G., Horowitz, M., Kasmin, R., and Squires, J.H. (2017). *The State of Preschool 2016*. New Brunswick, NJ: National Institute for Early Education Research. Available: [http://nieer.org/wp-content/uploads/2017/09/Full\\_State\\_of\\_Preschool\\_2016\\_9.15.17\\_compressed.pdf](http://nieer.org/wp-content/uploads/2017/09/Full_State_of_Preschool_2016_9.15.17_compressed.pdf) [September 2017].
- Barrett, B., and Laitinen, A. (2017). *Off Limits: More to Learn Before Congress Allows Colleges to Restrict Student Borrowing*. Washington, DC: New America. Available: <https://na-production.s3.amazonaws.com/documents/Off-Limits.pdf> [September 2017].
- Bartik, T.J., Gormley, W., and Adelstein, S. (2012.) Earnings benefits of Tulsa's pre-K program for different income groups. *Economics of Education Review*, 31, 1143–1161.
- Bassok, D., and Galdo, E. (2016). Inequality in preschool quality? Community-level disparities in access to high-quality learning environments. *Early Education and Development*, 27(1), 128–144.

## REFERENCES

- Bassok, D., Fitzpatrick, M., and Loeb, S. (2011). *Disparities in Child Care Availability Across Communities: Differential Reflection of Targeted Interventions and Local Demand*. CEPA Working Paper. Stanford, CA: Stanford Center for Education Policy Analysis. Available: <http://cepa.stanford.edu/content/disparities-child-care-availability-across-communities-differential-reflection-targeted> [September 2017].
- Bassok, D., Fitzpatrick, M., Greenberg, E., and Loeb, S. (2016). Within- and between-sector quality differences in early childhood education and care. *Child Development*, 87(5), 1627–1645.
- Baum, C.L., and Ruhm, C.J. (2013). *The Effects of Paid Family Leave in California on Labor Market Outcomes*. Working Paper No. 19741. Cambridge, MA: National Bureau of Economic Research.
- Belsky, J. (1986). Infant day care: A cause for concern? *Zero to Three*, 7(4), 1–7.
- Benjamin, S.E., Ammerman, A., Sommers, J., Dodds, J., Neelon, B., and Ward, D.S. (2007). Nutrition and Physical Activity Self-Assessment for Child Care (NAP SACC): Results from a pilot intervention. *Journal of Nutrition Education and Behavior*, 39(3), 142–149.
- Bennett, D.C. (2001). Assessing quality in higher education. *Liberal Education*, 87(2). Available: <https://www.aacu.org/publications-research/periodicals/assessing-quality-higher-education> [September 2017].
- Berger, L.M., and Waldfogel, J. (2004). Maternity leave and the employment of new mothers in the United States. *Journal of Population Economics*, 17(2), 331–349.
- Berger, M., and Black, D. (1992). Child care subsidies, quality of care, and the labor supply of low-income, single mothers. *The Review of Economics and Statistics*, 74(4), 635–642.
- Bifulco, R., and Ladd, H.F. (2007). School choice, racial segregation, and test-score gaps: Evidence from North Carolina's charter school program. *Journal of Policy Analysis and Management*, 26(1), 31–56.
- Bipartisan Policy Center. (2017). *A Bipartisan Case of Early Childhood Development*. Washington, DC: Author. Available: <https://bipartisanpolicy.org/wp-content/uploads/2017/10/BPC-A-Bipartisan-Case-For-Early-Childhood-Development.pdf> [January 2018].
- Blau, D.M. (2000). The production of quality in child care centers: Another look. *Applied Developmental Science*, 4(3), 136–149.
- Blau, D.M. (2001). *The Child Care Problem: An Economic Analysis*. New York: Russell Sage Foundation.
- Blau, D.M., and Hagy, A.P. (1998). The demand for quality in child care. *Journal of Political Economy*, 106(1), 104–146.
- Blau, F.D., and Kahn, L.M. (2013). *Female Labor Supply: Why Is the U.S. Falling Behind?* Discussion Paper No. 7140. Bonn, Germany: Institute for the Study of Labor. Available: <http://ftp.iza.org/dp7140.pdf> [January 2018].
- Bogard, K., Traylor, F., and Takanishi, R. (2008). Teacher education and PK outcomes: Are we asking the right questions? *Early Childhood Research Quarterly*, 23(1), 1–6.
- Booker, K., Zimmer, R., and Buddin, R. (2005). *The Effect of Charter Schools on School Peer Composition*. Santa Monica, CA: RAND Corporation. Available: [https://www.rand.org/content/dam/rand/pubs/working\\_papers/2005/RAND\\_WR306.pdf](https://www.rand.org/content/dam/rand/pubs/working_papers/2005/RAND_WR306.pdf) [September 2017].
- Brandon, R.N. (2004). *Financing Access to Early Education for Children Age Four and Below: Concepts and Costs*. Welfare Reform & Beyond Working Paper. Washington, DC: The Brookings Institution. Available: <https://www.brookings.edu/wp-content/uploads/2016/06/200411Brandon.pdf> [September 2017].
- Brandon, R.N. (2011). *Enhancing Social Protection and Inclusion of Children in Bosnia and Herzegovina—Capacity Development to Strengthen Fiscal Planning for Children: Final Report*. New York: UNICEF.



- Brandon, R.N., and Scarpa, J.P. (2006). *Supply, Demand and Accountability: Effective Strategies to Enhance the Quality of Early Learning Experiences Through Workforce Improvement*. Seattle: University of Washington, Human Services Policy Center. <http://hspsc.org/publications/pdf/SupplyDemandAccountability.pdf> [October 2017].
- Brandon, R.N., Kagan, S.L., and Joesch, J.M. (2000). *Design Choices*. Seattle: University of Washington, Human Services Policy Center. Available: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.544.9995&rep=rep1&type=pdf> [September 2017].
- Brandon, R.N., Stutman, T.J., and Maroto, M. (2010). The economic value of early care and education in the U.S. In E. Weiss and R. Brandon (Eds.), *Economic Analysis: The Early Childhood Sector* (pp. 96–133). Washington, DC: Partnership for America's Economic Success.
- Brandon, R.N., Maher, E.J., Joesch, J.M., and Wiechel, J. (2004a). *Ohio's School Readiness Goal: Starting Early to Close the Achievement Gap: Summary of Findings from the Financing High Quality Early Care and Education for Ohio's Children Project*. Columbus, OH: Human Services Policy Center, Evans School of Public Affairs, University of Washington and the Ohio Department of Education.
- Brandon, R.N., Maher, E.J., Li, G., and Joesch, J.M. (2004b). *Orchestrating Access to Affordable, High-Quality Early Care and Education for All Young Children*. Seattle: University of Washington, Human Services Policy Center.
- Brennan, G., and Buchanan, J.M. (1977). Toward a tax constitution for Leviathan. *Journal of Public Economics*, 8(3), 255–273.
- Brown, C., and Medoff, J. (1989). The employer-size wage effect. *Journal of Political Economy*, 97(5), 1027–1059.
- Brown, J., Kurzweil, M., and Pritchett, W. (2017). *Quality Assurance in U.S. Higher Education: The Current Landscape and Principles for Reform*. New York, NY: Ithaka S+R. Available: [http://www.sr.ithaka.org/wp-content/uploads/2017/06/SR\\_Report\\_Quality\\_Assurance\\_US\\_Higher\\_Education\\_06082017.pdf](http://www.sr.ithaka.org/wp-content/uploads/2017/06/SR_Report_Quality_Assurance_US_Higher_Education_06082017.pdf) [January 2018].
- Buchanan, J.M., and Musgrave, R.A. (1999). *Public Finance and Public Choice: Two Contrasting Views of the State*. Cambridge, MA: MIT Press.
- Buckley, J., Schneider, M., and Shang, Y. (2004). *The Effects of School Facility Quality on Teacher Retention in Urban School Districts*. Washington, DC: National Clearinghouse for Educational Facilities. Available: <http://www.ncef.org/pubs/teacherretention.pdf> [April 2017].
- Bueno, M., Darling-Hammond, L., and Gonzales, D. (2010). *A Matter of Degrees: Preparing Teachers for the Pre-K Classroom*. Washington, DC: Pre-K Now.
- BUILD Initiative. (2017). *Finance and Quality Rating and Improvement Systems*. Boston, MA: Author. Available: <http://www.buildinitiative.org/Portals/0/Uploads/Documents/Resources/QRIS%203/FinanceQRIS.pdf> [September 2017].
- Burchinal, M., Vandergrift, N., Pianta, R., and Mashburn, A. (2010). Threshold analysis of association between child care quality and child outcomes for low-income children in pre-kindergarten programs. *Early Childhood Research Quarterly*, 25(2010), 166–176.
- Bureau of Labor Statistics (2014). *Occupational Employment and Wages*. News Release. Washington, DC: U.S. Department of Labor. Available: <https://www.bls.gov/news.release/ocwage.htm> [January 2015].
- Bureau of Labor Statistics. (2016). *Occupational Employment Statistics Query System*. Available: <https://data.bls.gov/oes/#/occGeo/One%20occupation%20for%20multiple%20geographical%20areas> [August 2017].
- Bureau of Labor Statistics. (2017). *Employer Costs for Employee Compensation—June 2017*. News Release, USDL-17-1222. Washington, DC: U.S. Department of Labor. Available: <https://www.bls.gov/news.release/pdf/eccec.pdf> [September 2017].

- Burgess, K., Chien, N., Morrissey, T., and Swenson, K. (2014). *Trends in the Use of Early Care and Education, 1995–2011*. Washington, DC: U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation.
- Burgess, K., Campbell, C., Chien, N., Morrissey, T., and Wolf, S. (2017). *Income & Employment Fluctuations Among Low-Income Working Families and Their Implications for Child Care Subsidy Policy*. Washington, DC: U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation.
- Burstein, N., and Layzer, J.I. (2007). *National Study of Child Care for Low-Income Families: Patterns of Child Care Use Among Low-Income Families*. Final Report. Cambridge, MA: ABT Associates. Available: [http://www.acf.hhs.gov/sites/default/files/opre/patterns\\_child-care.pdf](http://www.acf.hhs.gov/sites/default/files/opre/patterns_child-care.pdf) [September 2017].
- Cahan, E.D. (1989). *Past Caring: A History of U.S. Preschool Care and Education for the Poor, 1820–1965*. New York: Columbia University, National Center for Children in Poverty. Available: <https://www.researchconnections.org/childcare/resources/2088/pdf> [September 2017].
- Cannon, J.S., Kilburn, M.R., Karoly, L.A., Mattox, T., Muchow, A., and Buenaventura, M. (2017). *Investing Early: Taking Stock of Outcomes and Economic Returns from Early Childhood Programs*. Santa Monica, CA: RAND Corporation.
- Cardoza, K. (2015). Military’s preschool program considered a national model. *NPR News*, January 1. Available: <http://www.npr.org/2015/01/01/374417457/militarys-preschool-program-considered-a-national-model> [October 2017].
- Caronongan, P., Kirby, G., Boller, K., Modlin, E., and Lyskawa, J. (2016). *Assessing the Implementation and Cost of High Quality Early Care and Education: A Review of the Literature*. OPRE Report 2016-31. Washington, DC: U.S. Department of Health and Human Services; Administration for Children and Families; Office of Planning, Research and Evaluation. Available: [https://www.acf.hhs.gov/sites/default/files/opre/ece\\_ichq\\_lit\\_review\\_final\\_508compliant.pdf](https://www.acf.hhs.gov/sites/default/files/opre/ece_ichq_lit_review_final_508compliant.pdf) [October 2017].
- Cascio, E.U. (2010). What happened when kindergarten went universal? *EducationNext*, 10(2), 63–69. Available: <http://educationnext.org/what-happened-when-kindergarten-went-universal/> [January 2018].
- Cascio, E.U. (2015). The promises and pitfalls of universal early education. *IZA World of Labor*, 116. Available: <https://wol.iza.org/uploads/articles/116/pdfs/promises-and-pitfalls-of-universal-early-education.pdf?v=1> [October 2017].
- Cascio, E.U., and Schanzenbach, D.W. (2013). The impacts of expanding access to high-quality preschool education. NBER working paper no. 19735. *Brookings Papers on Economic Activity*, 27(2), 127–192. Available: <http://www.nber.org/papers/w19735> [January 2018].
- Centers for Disease Control and Prevention. (2016). *Early Care and Education: Why Is This Setting Important?* Atlanta, GA: Author. Available: <https://www.cdc.gov/obesity/strategies/childcareece.html> [April 2017].
- Center for the Study of Child Care Employment. (2016). *Early Childhood Workforce Index 2016*. Available: <http://cscce.berkeley.edu/files/2016/Median-Wages-by-Occupation-and-State-2015.pdf> [September 2017].
- Chandler, M.A. (2017). For a better-educated child-care workforce, Washington looks to high school. *Washington Post* (August 5). Available: [https://www.washingtonpost.com/local/social-issues/for-a-better-educated-child-care-workforce-washington-looks-to-high-school/2017/08/05/2a93a3e2-77b0-11e7-8f39-eeb7d3a2d304\\_story.html?utm\\_term=.3befb9d97c4c](https://www.washingtonpost.com/local/social-issues/for-a-better-educated-child-care-workforce-washington-looks-to-high-school/2017/08/05/2a93a3e2-77b0-11e7-8f39-eeb7d3a2d304_story.html?utm_term=.3befb9d97c4c) [December 2017].
- ChangeLab Solutions. (2016). *Funding the Fundamentals: A Primer on Early Care and Education Funding for Public Health Practitioners*. Available: [http://www.changelabsolutions.org/sites/default/files/ECE\\_Report\\_FINAL\\_20160202.pdf](http://www.changelabsolutions.org/sites/default/files/ECE_Report_FINAL_20160202.pdf) [September 2017].

- Chase, R., and Valorose, J. (2010). *Child Care Use in Minnesota: Report of the 2009 Statewide Household Child Care Survey*. St Paul, MN: Wilder Research.
- Chaudry, A. (2004). *Putting Children First: How Low-Wage Working Mothers Manage Child Care*. New York, NY: Russell Sage Foundation.
- Chaudry, A., Pedroza, J., Sandstrom, H., Danziger, A., Grosz, M., Scott, M.M., and Ting, S. (2011). *Child Care Choices of Low-Income Working Families*. Washington, DC: Urban Institute. Available: <https://www.urban.org/sites/default/files/publication/27331/412343-Child-Care-Choices-of-Low-Income-Working-Families.PDF> [September 2017].
- Chaudry, A., Pedroza, J.M., and Sandstrom, H. (2012). *How Employment Constraints Affect Low-Income Families' Child Care Decisions*. Brief 23. Washington, DC: Urban Institute. Available: <https://www.urban.org/sites/default/files/publication/32731/412513-How-Employment-Constraints-Affect-Low-Income-Working-Parents-Child-Care-Decisions.PDF> [January 2018].
- Chaudry, A., Morrissey, T., Weiland, C., and Yoshikawa, H. (2017). *Cradle to Kindergarten: A New Plan to Combat Inequality*. New York: Russell Sage.
- Chien, N. (2015). *Estimates of Child Care Eligibility and Receipt for Fiscal Year 2012*. ASPE Issue Brief. Washington, DC: U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, Office of Human Services Policy. Available: <https://aspe.hhs.gov/system/files/pdf/153591/ChildEligibility.pdf> [September 2017].
- Child Care Aware of America. (2016). *Parents and the High Cost of Child Care*. Arlington, VA: Author. Available: [http://usa.childcareaware.org/wp-content/uploads/2017/01/CCA\\_High\\_Cost\\_Report\\_01-17-17\\_final.pdf](http://usa.childcareaware.org/wp-content/uploads/2017/01/CCA_High_Cost_Report_01-17-17_final.pdf) [July 2017].
- Child Care Aware of America. (n.d.). *Planning for Success in Your Child Care Business*. Arlington, VA: Author. Available: <http://childcareaware.org/providers/planning-for-success> [September 2017].
- Child Care Aware of Washington. (n.d.) *Early Start Act FAQs for Providers*. Olympia, WA: Author. Available: <http://www.childcarenet.org/news/cc-a-of-wa-esa-faq-providers-2016-update> [January 2018].
- Child Care Inc. (2007). *Early Care and Education: What It Costs*. New York: Author. Available: [http://www.centerforchildrensinitiatives.org/images/2014/Early\\_Care\\_and\\_Education\\_-\\_What\\_it\\_Costs.pdf](http://www.centerforchildrensinitiatives.org/images/2014/Early_Care_and_Education_-_What_it_Costs.pdf) [April 2017].
- Child Care Services Association. (2012). *Working in Early Care and Education in North Carolina: 2011 Workforce Study*. Chapel Hill, NC: Child Care Services Association.
- Child Care Services Association. (2017a). *Child Care WAGES Project of North Carolina*. Chapel Hill, NC: Author. Available: <http://www.childcareservices.org/wagesapps> [February 2017].
- Child Care Services Association. (2017b). *Teach Early Childhood Project Annual Report, July 1, 2016–June 30, 2017*. Chapel Hill, NC: Author. Available: [http://www.childcareservices.org/wp-content/uploads/2017/08/TEACHAnnualReport16\\_17-final-2.pdf](http://www.childcareservices.org/wp-content/uploads/2017/08/TEACHAnnualReport16_17-final-2.pdf) [October 2017].
- Child Trends. (2016). *Child Care: Indicators of Child and Youth Well-Being*. Available: <https://www.childtrends.org/indicators/child-care> [September 2017].
- Cochi Ficano, C.K. (2006). Child-care market mechanisms: Does policy affect the quantity of care? *Social Service Review*, 80(3), 453–484.
- Cohen, A.J. (1996). A brief history of federal financing for child care in the United States. *Financing Child Care*, 6(2), 26–40.
- Cohen-Zada, D., and Sander, W. (2008). Religion, religiosity and private school choice: Implications for estimating the effectiveness of private schools. *Journal of Urban Economics*, 64(1), 85–100.
- Collins, G. (2009). *When Everything Changed: The Amazing Journey of American Women from 1960 to the Present*. New York: Little, Brown, and Company.

- Collins, S., Gunja, M., Doty, M., and Beutel, S. (2015). *How High Is America's Health Care Cost Burden? Findings from the Commonwealth Fund Health Care Affordability Tracking Survey, July–August 2015*. Washington, DC: The Commonwealth Fund. Available: <http://www.commonwealthfund.org/publications/issue-briefs/2015/nov/how-high-health-care-burden> [October 2017].
- Congressional Budget Office. (2016). *Eliminate Certain Tax Preferences for Education Expenses*. Washington, DC: Author. Available: <https://www.cbo.gov/budget-options/2016/52263> [September 2017].
- Council of Economic Advisors. (2014). *The Economics of Early Childhood Investments*. Washington, DC: Executive Office of the President, Council of Economic Advisors. Available: [https://obamawhitehouse.archives.gov/sites/default/files/docs/the\\_economics\\_of\\_early\\_childhood\\_investments.pdf](https://obamawhitehouse.archives.gov/sites/default/files/docs/the_economics_of_early_childhood_investments.pdf) [January 2018].
- Cryer, D., and Burchinal, M. (1997). Parents as child care consumers. *Early Childhood Research Quarterly*, 12(1), 35–58.
- Darling-Hammond, L. (1998). Teachers and teaching: Testing policy hypotheses from a national commission report. *Educational Researcher*, 27(1), 5–15.
- Dastur, N., Dutta-Gupta, I., Tatum, L., Edelman, P., Grant, K., and Goldvale, C. (2017). *Building the Caring Economy: Workforce Investments to Expand Access to Affordable, High-Quality Early and Long-Term Care*. Washington, DC: Creative Commons, Georgetown Center on Poverty and Inequality.
- Davis, E.E., Krafft, C., and Forry, N.D. (2017). The role of policy and practice in short spells for child care subsidy participation. *Journal of Public Administration Research and Theory*, 27(1), 1–19.
- Delisle, J., and Dancy, K. (2015). *A New Look at Tuition Tax Benefits: National Survey Data Reveal the Surprising and Not-So-Surprising Effects of Policy Changes*. Washington, DC: New America. Available: <https://static.newamerica.org/attachments/10416-a-new-look-at-tuition-tax-benefits/TaxCredits11.2.277d3f7daa014d5a8632090f97641cee.pdf> [January 2018].
- Dellert, J.C., Gasalberti, D., Sternas, K., Lucarelli, P., and Hall, J. (2006). Outcomes of child care health consultation services for child care providers in New Jersey: A pilot study. *Pediatric Nursing*, 32(6), 530–537.
- Dennis, J., Phinney, J., and Chuateco, L. (2005). The role of motivation, parental support, and peer support in the academic success of ethnic minority first-generation college students. *Journal of College Student Development*, 46(3), 223–236.
- Dilger, R.J., and Boyd, E. (2014). *Block Grants: Perspectives and Controversies*. Washington, DC: Congressional Research Service. Available: <https://fas.org/sgp/crs/misc/R40486.pdf> [December 2017].
- District of Columbia Public Schools. (2017). *Early Learning*. Available: <https://dcps.dc.gov/ece> [September 2017].
- Division for Early Childhood and National Association for the Education of Young Children. (2009). *Early Childhood Inclusion: A Joint Position Statement of the Division for Early Childhood and the National Association for the Education of Young Children*. Chapel Hill, NC: The University of North Carolina Child Development Institute. Available: [https://www.naeyc.org/sites/default/files/globally-shared/downloads/PDFs/resources/position-statements/DEC\\_NAEYC\\_EC\\_updatedKS.pdf](https://www.naeyc.org/sites/default/files/globally-shared/downloads/PDFs/resources/position-statements/DEC_NAEYC_EC_updatedKS.pdf) [January 2018].
- Dynarski, S.M. (2004). Who benefits from the education saving incentives? Income, educational expectations. *National Tax Journal*, 57(2), 359–383.
- Dynarski, S.M., and Scott-Clayton, J.E. (2006). The cost of complexity in federal student aid: Lessons from optimal tax theory and behavioral economics. *National Tax Journal*, 59(2), 319–356.

- Early Childhood Alliance. (2015). *Starting a Child Care Business*. Fort Wayne, IN: Author. Available: <https://www.ecalliance.org/providers/starting-a-child-care-business> [September 2017].
- Early Childhood Data Collaborative. (2014). *2013 State of States' Early Childhood Data Systems*. Bethesda, MD: Author. Available: <http://www.ecedata.org/files/2013%20State%20of%20States'%20Early%20Childhood%20Data%20Systems.pdf> [December 2017].
- Early Learning Challenge Technical Assistance. (2015). *Early Childhood Workforce Data: Collection Practices and Possibilities*. Available: <https://elc.grads360.org/services/PDC-Service.svc/GetPDCDocumentFile?fileId=15240> [September 2017].
- Early Learning Ventures. (n.d.). *A Groundbreaking Endeavor*. Available: <http://www.merage.org/early-childhood-education/early-learning-ventures/> [December 2017].
- Early, D.M., Maxwell, K.L., Burchinal, M., Alva, S., Bender, R.H., Bryant, D., Cai, K., Clifford, R.M., Ebanks, C., Griffin, J.A., Henry, G.T., Howes, C., Iriondo-Perez, J., Heon, H.J., Mashburn, A.J., Peisner-Feinberg, E., Pianta, R.C., Vandergrift, N., and Zill, N. (2007). Teachers' education, classroom quality, and young children's academic skills: Results from seven studies of preschool programs. *Child Development*, 78(2), 558–580.
- Edelman, M.W. (2016). Recalling a time when congressional bipartisanship worked for young children. *Huffington Post, The Blog*, October 23. Available: [http://www.huffingtonpost.com/marian-wright-edelman/recalling-a-time-when-con\\_b\\_8374898.html](http://www.huffingtonpost.com/marian-wright-edelman/recalling-a-time-when-con_b_8374898.html) [September 2017].
- Ehrlich, S.B., Pacchiano, D.M., Stein, A.G., and Lupescu, S. (2016). *Essential Organizational Supports for Early Education: The Development of a New Survey Tool to Measure Organizational Conditions*. Chicago, IL: University of Chicago Consortium on School Research and the Ounce of Prevention Fund.
- Elicker, J., Brandon, R., and MacDermid, S.L. (2016). *Preschool Access Feasibility Study for DoDEA*. Lafayette, IN: Purdue University, Military Family Research Institute. Available: [http://www.dodea.edu/DEC/upload/2015\\_PreschoolAccessFeasibilityStudy\\_2-5-16\\_Full-Report.pdf](http://www.dodea.edu/DEC/upload/2015_PreschoolAccessFeasibilityStudy_2-5-16_Full-Report.pdf) [September 2017].
- Faria, A., Hawkinson, L., Metzger, I., Bouacha, N., and Cantave, M. (2017). *The "I" in the QRIS Survey: Collecting Data on Quality Improvement Activities for Early Childhood Education Programs*. Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Midwest. Available: [https://ies.ed.gov/ncee/edlabs/regions/midwest/pdf/REL\\_2017221.pdf](https://ies.ed.gov/ncee/edlabs/regions/midwest/pdf/REL_2017221.pdf) [October 2017].
- Federal Student Aid. (2017). *FY 2017 Annual Report*. Washington, DC: U.S. Department of Education. Available: <https://www2.ed.gov/about/reports/annual/2017report/fsa-report.pdf> [January 2018].
- Fernald, A., Marchman, V., and Weisleder, A. (2013). SES differences in language processing skill and vocabulary are evident at 18 months. *Developmental Science*, 16(1), 234–248.
- Finegold, K., Wherry, L., and Schardin, S. (2014). *Block Grants: Historical Overview and Lessons Learned*. Washington, DC: The Urban Institute. Available: [http://webarchive.urban.org/UploadedPDF/310991\\_A-63.pdf](http://webarchive.urban.org/UploadedPDF/310991_A-63.pdf) [December 2018].
- Fishman, R. (2015). *2015 College Decisions Survey: Part I, Deciding to Go to College*. Washington, DC: New America. Available: <http://dev-edcentral.pantheonsite.io/wp-content/uploads/2015/05/FINAL-College-Decisions-Survey-528.pdf> [September 2017].
- Fjortoft, I. (2004). Landscape as playscape: The effects of natural environments on children's play and motor development. *Children, Youth and Environments*, 14(2), 21–44.
- Flores, A. (2014). *How Public Universities Can Promote Access and Success for All Students*. Washington, DC: Center for American Progress. Available: <https://www.americanprogress.org/issues/education/reports/2014/09/09/96689/how-public-universities-can-promote-access-and-success-for-all-students> [October 2017].

- Floyd, L., and Phillips, D., (2013). Child care and other support programs. *The Future of Children* 23(2), 79-97.
- Forry, N.D., Tout, K., Rothenberg, L., Sandstrom, H., and Vesely, C. (2013). *Child Care Decision-Making Literature Review*. OPRE Brief 2013-45. Washington, DC: U.S. Department of Health and Human Services; Office of Planning, Research and Evaluation; Administration for Children and Families. Available: [http://www.acf.hhs.gov/sites/default/files/opre/child\\_care\\_decision\\_making\\_literature\\_review\\_pdf\\_version\\_v2.pdf](http://www.acf.hhs.gov/sites/default/files/opre/child_care_decision_making_literature_review_pdf_version_v2.pdf) [September 2017].
- Fuller, B. (2007). *Standardized Childhood: The Political and Cultural Struggle Over Early Education*. Palo Alto, CA: Stanford University Press.
- Garcia, J.L., Heckman, J.J., Leaf, D.E., and Prados, M.J. (2017). *Quantifying the Life-cycle Benefits of a Prototypical Early Childhood Program*, Working Paper 22993. Cambridge, MA: National Bureau of Economic Research.
- Gelatt, J., and Sandstrom, H. (2014). *Innovations in NYC Health and Human Services Policy: Early Learn NYC*. Washington, DC: Urban Institute. Available: <https://www.urban.org/sites/default/files/publication/22466/413079-Innovations-in-NYC-Health-and-Human-Services-Policy-Early-Learn-NYC.PDF> [October 2017].
- Giannarelli, L., Lippold, K., Minton, S., and Wheaton, L. (2015). *Reducing Child Poverty in the US: Costs and Impacts of Policies Proposed by the Children's Defense Fund*. Washington, DC: Urban Institute.
- Gillman, A., Raynor, D., and Young, M. (2011). *Facilities for Early Care and Education*. Newark, NJ: Opportunity Finance Network. Available: [http://www.liifund.org/wp-content/uploads/2015/05/NEXT-Opp\\_Facilities-for-ECES.pdf](http://www.liifund.org/wp-content/uploads/2015/05/NEXT-Opp_Facilities-for-ECES.pdf) [April 2017].
- Glazer, K., Miller, S., Schull, C., Ginsberg, M., Coy, H., and Hamre, B. (2017). *Connecting Stakeholders to Bridge the Divide: Upskilling Virginia's Early Childhood Educators*. Discussion Paper. Washington, DC: National Academy of Medicine. Available: <https://nam.edu/connecting-stakeholders-to-bridge-the-divide> [September 2017].
- Goldring, R., Taie, S., and Riddles, M. (2014). *Teacher Attrition and Mobility: Results from the 2012-13 Teacher Follow-up Survey* (NCES 2014-2017). Washington, DC: National Center for Education Statistics, U.S. Department of Education.
- Gordon, L., and Batlan, F. (2011). *The Legal History of the Aid to Dependent Children Program*. Richmond, VA: VCU Libraries, Social Welfare History Project. Available: <http://socialwelfare.library.vcu.edu/programs/aid-to-dependent-children-the-legal-history> [September 2017].
- Gordon, R.A., and Chase-Lansdale, P.L. (2001). Availability of child care in the United States: A description and analysis of data sources. *Demography*, 38(2), 299-316.
- Gormley, W.T. (2008). The effects of Oklahoma's pre-K program on Hispanic children. *Social Science Quarterly*, 89(4), 916-936.
- Gould, E., Austin, L., and Whitebook, M. (2017). *What Does Good Child Care Reform Look Like?* Washington, DC: Economic Policy Institute. Available: <http://www.epi.org/publication/what-does-good-child-care-reform-look-like> [September 2017].
- Greenberg, J.P. (2010). Assessing policy effects on enrollment in early childhood education and care. *Social Service Review*, 84(3), 461-490. Available: <http://joygreenberg.com/resources/social-service-review.pdf> [January 2018].
- Gruber, J. (1994). The incidence of mandated maternity benefits. *The American Economic Review*, 84(3), 622-641.
- Gruber, J., and Krueger, A.B. (1991). The incidence of mandated employer-provided insurance: Lessons from workers' compensation insurance. In D. Bradford (Ed.), *Tax Policy and the Economy* (pp. 111-144). Cambridge, MA: MIT Press.
- Gupta, R.S., Shuman, S., Taveras, E.M., Kulldorff, M., and Finkelstein, J.A. (2005). Opportunities for health promotion education in child care. *Pediatrics*, 116(4), e499-e505.



- Gustafsson-Wright, E., Boggild-Jones, I., and Gardiner, S. (2017). *The Standardized Early Childhood Development Tool (SECT): A Global Good to Increase and Improve Investments in Young Children*. Washington, DC: Brookings Center for Universal Education. Available: <https://www.brookings.edu/wp-content/uploads/2017/09/standardized-ecd-costing-tool.pdf> [September 2017].
- Halle, T., Forry, N., Hair, E., Perper, K., Wandner, L., Wessel, J., and Vick, J. (2009). *Disparities in Early Learning and Development: Lessons from the Early Childhood Longitudinal Study Birth Cohort (ECLS-B)*. Washington, DC: Child Trends.
- Hamre, B.K. (2014). Teachers' daily interactions with children: An essential ingredient in effective early childhood programs. *Child Development Perspectives*, 8(4), 223–230.
- Han, W.J., and Waldfogel, J. (2003). Parental leave: The impact of recent legislation on parents' leave taking. *Demography*, 40(1), 191–200.
- Harkness, J., and Newman, S.J. (2005). Housing affordability and children's well-being: Evidence from the national survey of America's families. *Housing Policy Debate*, 16(2), 223–255.
- Harris, D.N., Ladd, H.F., Smith, M.S., and West, M.R. (2016). *A Principled Federal Role in PreK–12 Education*. Washington, DC: Brookings Institution. Available: [https://www.brookings.edu/wp-content/uploads/2016/12/gs\\_20161206\\_principled\\_federal\\_role\\_browncenter1.pdf](https://www.brookings.edu/wp-content/uploads/2016/12/gs_20161206_principled_federal_role_browncenter1.pdf) [October 2017].
- Head Start Early Childhood Learning & Knowledge Center. (n.d.). *Head Start Policy and Regulations: Sec. 648A Staff Qualifications and Development*. Available: <https://eclkc.ohs.acf.hhs.gov/policy/head-start-act/sec-648a-staff-qualifications-development> [September 2017].
- Helburn, S. (1995). *Cost, Quality, and Child Outcomes in Child Care Centers, Technical Report*. Denver: University of Colorado, Department of Economics. Available: <http://files.eric.ed.gov/fulltext/ED386297.pdf> [August 2017].
- Helburn, S.W., and Bergmann, B.R. (2002). *America's Child Care Problem: The Way Out*. New York: Palgrave Macmillan.
- Henly, J.R., and Lyons, S. (2000). The negotiation of child care and employment demands among low-income parents. *Journal of Social Issues*, 56(4), 683–706.
- Henly, J.R., and Lambert, S.J. (2005). Nonstandard work and child-care needs of low-income parents. In S. Bianchi, L.M. Casper, and B.R. King (Eds.), *Work, Family, Health, and Well-Being* (pp. 473–492). Mahwah, NJ: Lawrence Erlbaum.
- Herbst, C.M. (2017). Universal child care, maternal employment, and children's long-run outcomes: Evidence from the U.S. Lanham Act of 1940. *Journal of Labor Economics*, 35(2), 519–564.
- Hofferth, S.L., and Wissoker, D.A. (1992). Price, quality, and income in child care choice. *The Journal of Human Resources*, 27(1), 70–111.
- Houser, L., and Vartanian, T.P. (2012). *Pay Matters: The Positive Impacts of Paid Family Leave for Families, Businesses, and the Public*. New Brunswick, NJ: Center for Women and Work. Available: <http://www.nationalpartnership.org/research-library/work-family/other/pay-matters.pdf> [January 2018].
- Horizons Workforce Consulting. (2016). *The Lasting Impact of Employer-Sponsored Child Care Centers*. Watertown, MA: Horizons Workforce Consulting. Available: <https://www.brighthorizons.com/~media/baaef6571dc04ae4802d735ec39b6745.pdf> [March 2017].
- Institute of Education Sciences. (2015). *Digest of Education Statistics*. Washington, DC: National Center for Education Statistics. Available: [https://nces.ed.gov/programs/digest/d15/tables/dt15\\_205.10.asp?current=yes](https://nces.ed.gov/programs/digest/d15/tables/dt15_205.10.asp?current=yes) [September 2017].

- Institute of Medicine and National Research Council. (2015). *Transforming the Workforce for Children Birth Through Age 8: A Unifying Foundation*. Committee on the Science of Children Birth to Age 8: Deepening and Broadening the Foundation for Success. L. Allen and B.B. Kelly (Eds.). Board on Children, Youth, and Families. Washington, DC: The National Academies Press.
- Internal Revenue Service. (2016a). *Tax Expenditures*. Available: <https://www.treasury.gov/resource-center/tax-policy/Documents/Tax-Expenditures-FY2016.pdf> [September 2017].
- Internal Revenue Service. (2016b). *Publication 503, Child and Dependent Care Expenses*. Washington, DC: Department of the Treasury. Available: <https://www.irs.gov/pub/irs-pdf/p503.pdf> [December 2017].
- Internal Revenue Service. (2017a). *Child and Dependent Care Credit*. Available: <https://www.irs.gov/credits-deductions/individuals/child-and-dependent-care-credit> [September 2017].
- Internal Revenue Service. (2017b). *Form 2441, Child and Dependent Care Expenses*. Washington, DC: Department of the Treasury. Available: <https://www.irs.gov/pub/irs-pdf/i2441.pdf> [December 2017].
- Isbell, P., Kotch, J.B., Savage, E., Gunn, E., Lu, L.S., and Weber, D.J. (2013). Improvement of child care programs' policies, practices, and children's access to health care linked to child care health consultation. *NHSA Dialog: A Research to Practice Journal*, 16(2), 34–52.
- Isner, T., Tout, K., Zaslow, M., Soli, M., Quinn, K., Rothenberg, L., and Burkhauser, M. (2011). *Coaching in Early Care and Education Programs and Quality Rating and Improvement Systems (QRIS): Identifying Promising Features*. Washington, DC: Child Trends. Available: <https://www.childtrends.org/wp-content/uploads/2013/05/2011-35CoachingQualityImprovement.pdf> [September 2017].
- Jacobson, L. (2017). *First High School CDA Student Becomes College Graduate*. Washington, DC: Council for Professional Recognition. Available: <https://www.cdacouncil.org/council-blog/824-first-high-school-cda-student-becomes-college-graduate> [January 2018].
- Jiang, Y., Granja, M.R., and Koball, H. (2017). *Basic Facts About Low-Income Children: Children under 3 Years, 2015*. New York: National Center for Children in Poverty. Available: [http://www.nccp.org/publications/pub\\_1171.html](http://www.nccp.org/publications/pub_1171.html) [October 2017].
- Jimenez-Castellanos, O., and Topper, A.M. (2012). The cost of providing an adequate education to English language learners: A review of the literature. *Review of Educational Research*, 82(2), 179–232.
- Johnson, A., Ryan, R.M., and Brooks-Gunn, J. (2012). Child care subsidies: Do they impact the quality of care children experience? *Child Development*, 83(4), 1444–1461.
- Johnson, L.B. (1965). Remarks on Project Head Start, May 18, 1965. Online by G. Peters and J.T. Woolley, *The American Presidency Project*. Available: <http://www.presidency.ucsb.edu/ws/?pid=26973> [September 2017].
- Johnstone, D.B. (2003). Cost sharing in higher education: Tuition, financial assistance, and accessibility in a comparative perspective. *Czech Sociological Review*, 39(3), 351–374.
- Kagan, S.L., Brandon, R.N., Ripple, C.H., Maher, E.J., and Joesch, J.M. (2002). Supporting quality early childhood care and education: Addressing compensation and infrastructure. *Young Children*, 57(3), 58–65.
- Kaplan, M., and Mead, S. (2017). *The Best Teachers for Our Littlest Learners? Lessons from Head Start's Last Decade*. Boston, MA: Bellwether Education Partners. Available: [https://bellwethereducation.org/sites/default/files/Bellwether\\_HeadStartWorkforce.pdf](https://bellwethereducation.org/sites/default/files/Bellwether_HeadStartWorkforce.pdf) [September 2017].
- Karoly, L.A. (2014). *Validation Studies for Early Learning and Care Quality Rating and Improvement Systems: A Review of the Literature*. Washington, DC: RAND Corporation. Available: [https://www.rand.org/content/dam/rand/pubs/working\\_papers/WR1000/WR1051/RAND\\_WR1051.pdf](https://www.rand.org/content/dam/rand/pubs/working_papers/WR1000/WR1051/RAND_WR1051.pdf) [September 2017].



- Karoly, L.A. (2016). The economic returns to early childhood education. *Future of Children*, 26(2), 37–55.
- Karoly, L.A., and Auger, A. (2016). *Informing Investments in Preschool Quality and Access in Cincinnati: Evidence of Impacts and Economic Returns from National, State, and Local Preschool Programs*. Santa Monica, CA: RAND Corporation.
- Karoly, L.A., Kilburn, M.R., and Cannon, J. (2005). *Proven Benefits of Early Childhood Interventions*. Santa Monica, CA: RAND Corporation.
- Karoly, L.A., Auger, A., Kase, C., McDaniel, R.C., and Rademacher, E.W. (2016). *Options for Investing in Access to High-Quality Preschool in Cincinnati*. RR-1615. Santa Monica, CA: RAND Corporation. Available: [http://www.rand.org/pubs/research\\_reports/RR1615.html](http://www.rand.org/pubs/research_reports/RR1615.html) [September 2017].
- Kauerz, K., and Coffman, J. (2013). *Framework for Planning, Implementing, and Evaluating PreK–3rd Grade Approaches*. Seattle, WA: University of Washington, College of Education.
- Kilburn, M.R., and Karoly, L.A. (2008). *The Economics of Early Childhood Policy: What the Dismal Science Has to Say about Investing in Children*. Santa Monica, CA: RAND Corporation.
- Kipnis, F., Whitebook, M., Almaraz, M., Sakai, L., and Austin, L.J.E. (2012). *Learning Together: A Study of Six B.A. Completion Cohort Programs in Early Care and Education. Year 4*. Berkeley: Center for the Study of Child Care Employment, University of California. Available: <http://csce.berkeley.edu/files/2012/LearningTogetherYear4Report.pdf> [September 2017].
- Krafft, C., Davis, E.E., and Tout, K. (2017). Child care subsidies and the stability and quality of child care arrangements. *Early Childhood Research Quarterly*, 39, 14–34.
- Ladd, H. (2017). *Weighing the Benefits and Costs of Universal versus Targeted Pre-K Programs*. Washington, DC: Brookings Institution Brown Center Chalkboard. Available: <https://www.brookings.edu/blog/brown-center-chalkboard/2017/06/27/weighing-the-benefits-and-costs-of-universal-versus-targeted-pre-k-programs> [September 2017].
- Ladd, H., Clotfelter, C., and Holbein, J. (2017). The growing segmentation of the charter sector in North Carolina. *Education Finance and Policy*, 12(4), 536–563.
- Latham, S. (2017). *Data Analysis from the National Survey of Early Care and Education, 2010–2015*. Commissioned by the Committee on Financing Early Care and Education with a Highly Qualified Workforce.
- Laughlin, L. (2010). *Who’s Minding the Kids? Child Care Arrangements: Spring 2005/Summer 2006*. Current Population Reports. Washington, DC: U.S. Census Bureau. Available: <https://www2.census.gov/library/publications/2010/demo/p70-121.pdf> [September 2017].
- Lieberman, A. (2014). *Inadequate Access to High Quality Early Education Programs Widens Readiness*. Washington, DC: New America Foundation. Available: <https://www.newamerica.org/education-policy/edcentral/inadequate-access-high-quality-early-education-programs-widens-readiness-gap> [September 2017].
- Lieberman, A. (2017). *A Tale of Two Pre-K Leaders: How State Policies for Center Directors and Principals Leading Pre-K Programs Differ, and Why They Shouldn’t*. Washington, DC: New America Foundation. Available: <https://na-production.s3.amazonaws.com/documents/Tale-Two-PreK-Leaders.pdf> [January 2018].
- Loewenberg, A. (2017). *Tax Reforms Proposed to Increase Access to Early Education: But More Reforms Necessary to Address Issues of Quality*. Washington, DC: New America Foundation. Available: <https://www.newamerica.org/education-policy/edcentral/tax-reforms-proposed-increase-access-early-education/#> [February 2017].
- Lombardi, J. (2003). *Time to Care: Redesigning Child Care to Promote Education, Support Families, and Build Communities*. Philadelphia, PA: Temple University Press.

- Louisiana Department of Education. (2017a). *Frequently Asked Questions: Child Care Assistance Program (CCAP) Application Process for Households*. Available: <http://www.louisianabelieves.com/docs/default-source/child-care-providers/ccap-household-eligibility-faqs-application-process-for-families-7-14-1.pdf?sfvrsn=4> [September 2017].
- Louisiana Department of Education. (2017b). *Louisiana Quality Start Child Care Rating System*. Baton Rouge: Author. Available: [http://www.qrsloisiana.org/qs\\_model.html](http://www.qrsloisiana.org/qs_model.html) [February 2017].
- Louisiana Policy Institute for Children. (2016). *Giving Credit Where It's Due: School Readiness Tax Credits Benefit Louisiana Families and Communities*. New Orleans: Author. Available: [http://docs.wixstatic.com/ugd/20d35d\\_12a743491b814db99e85ae3cde0a4907.pdf](http://docs.wixstatic.com/ugd/20d35d_12a743491b814db99e85ae3cde0a4907.pdf) [January 2018].
- LUME Institute. (2016). *LUME Early Childhood Apprenticeship*. St. Louis, MO: Author. Available: <http://www.lumeinstitute.org/lume-career-pathway/> [February 2017].
- Lynch, R., and Vaghul, K. (2015). *The Benefits and Costs of Investing in Early Childhood Education*. Washington, DC: The Washington Center for Equitable Growth. Available: <http://equitablegrowth.org/report/the-benefits-and-costs-of-investing-in-early-childhood-education> [September 2017].
- Magg, E. (2015). *Tax Subsidies for Childcare Expenses Target Middle-Income Families, Missing Many Poor Parents*. Washington, DC: Tax Policy Center, Urban Institute, and Brookings Institution. Available: <http://www.taxpolicycenter.org/taxvox/tax-subsidies-childcare-expenses-target-middle-income-families-missing-many-poor-parents> [September 2017].
- Magnuson, K.A., Meyers, M.K., and Waldfogel, J. (2007). Public funding and enrollment in formal child care in the 1990s. *Social Service Review*, 81(1), 47–83.
- Maine Child Care and Family Services. (2017). *Child Care Tax Credits*. Augusta, ME: Child and Family Services, Maine Department of Health and Human Services. Available: <http://www.maine.gov/dhhs/ocfs/ec/occhs/taxcredits.htm> [September 2017].
- Malik, R., and Hamm, K. (2017). *Mapping America's Child Care Deserts*. Washington, DC: Center for American Progress. Available: <https://www.americanprogress.org/issues/early-childhood/reports/2017/08/30/437988/mapping-americas-child-care-deserts> [September 2017].
- Marcario, R. (2016). Patagonia's CEO explains how to make on-site child care pay for itself. *Fast Company*, August 15. Available: <https://www.fastcompany.com/3062792/patagonias-ceo-explains-how-to-make-onsite-child-care-pay-for-itself> [March 2017].
- Maroto, M., and Brandon, R. (2012). Summary of background data on the ECCE workforce. In Institute of Medicine and National Research Council (Eds.), *The Early Childhood Care and Education Workforce: Challenges and Opportunities: A Workshop Report* (pp. 107–210). Washington, DC: The National Academies Press.
- Marshall, N.L., Robeson, W.W., Tracy, A.J., Frye, A., and Roberts, J. (2013). Subsidized child care, maternal employment and access to quality, affordable child care. *Early Childhood Research Quarterly*, 28(4), 808–819.
- Maryland Family Network. (2017). *Child Care Subsidy Program*. Available: <http://www.marylandfamilynetwork.org/child-care-subsidy-program-ccsp> [September 2017].
- Matos, K., and Galinsky, E. (2012). *2012 National Study of Employers*. New York: Society for Human Resource Management, Families and Work Institute. Available: [http://familiesandwork.org/site/research/reports/NSE\\_2012.pdf](http://familiesandwork.org/site/research/reports/NSE_2012.pdf) [September 2017].
- Matos, K., Galinsky, E., and Bond, J.T. (2017). *2016 National Study of Employers*. New York: Society for Human Resource Management, Families and Work Institute. Available: <http://whenworkworks.org/downloads/2016-National-Study-of-Employers.pdf> [September 2017].

- Matthews, H., Schulman, K., Vogtman, J., Johnson-Staub, C., and Blank, H. (2015). *Implementing the Child Care and Development Block Grant Reauthorization: A Guide for States*. Washington, DC: CLASP and National Women's Law Center. Available: <https://www.clasp.org/sites/default/files/public/resources-and-publications/publication-1/ccdbg-guide-for-states-final.pdf> [October 2017].
- Maxwell, K., Sosinsky, L., Tout, K., and Hegseth, D. (2016). *Coordinated Monitoring Systems for Early Care and Education*. OPRE Research Brief #2016-19. Washington, DC: U.S. Department of Health and Human Services; Office of Planning, Research and Evaluation; Administration for Children and Families. Available: [https://www.acf.hhs.gov/sites/default/files/opre/coordinated\\_monitoring\\_systems\\_in\\_early\\_care\\_and\\_education.pdf](https://www.acf.hhs.gov/sites/default/files/opre/coordinated_monitoring_systems_in_early_care_and_education.pdf) [September 2017].
- McLean, C., Dichter, H., and Whitebook, M. (2017). *Strategies in Pursuit of Pre-K Teacher Compensation Parity: Lessons from Seven States and Cities*. Berkeley, CA: Center for the Study of Child Care Employment, University of California, Berkeley and New Brunswick, NJ: The National Institute for Early Education Research.
- Mead, A. (2016). *Education Facilities for Young Children*. PEB Exchange 2006/5. Auckland, NZ: Office of Economic Cooperation and Development. Available: <http://www.oecd.org/education/innovation-education/centreforeffectivelearningenvironmentscele/37697238.pdf> [April 2017].
- Military One Source. (n.d.). *Come Grow with Us!* Available: [http://download.militaryonesource.mil/12038/Project%20Documents/MilitaryHOMEFRONT/Troops%20and%20Families/Employment/Spouse%20Employment\\_Q-A\\_2009%2011%2009.pdf](http://download.militaryonesource.mil/12038/Project%20Documents/MilitaryHOMEFRONT/Troops%20and%20Families/Employment/Spouse%20Employment_Q-A_2009%2011%2009.pdf) [December 2017].
- Miller, B. (2017). *Who Are Student Loan Defaulters?* Washington, DC: Center for American Progress. Available: <https://www.americanprogress.org/issues/education-postsecondary/reports/2017/12/14/444011/student-loan-defaulters/> [January 2018].
- Mitchell, A. (2012). *Financial Incentives in Quality Rating and Improvement Systems: Approaches and Effects*. Washington, DC: U.S. Department of Health and Human Services' QRIS National Learning Network. Available: <http://www.qrisnetwork.org/sites/all/files/resources/gscobb/2012-05-24%2015:13/Approaches%20to%20Financial%20Incentives%20in%20QRIS.pdf> [February 2017].
- Mitchell, M., Leachman, M., and Masterson, K. (2017). *A Lost Decade in Higher Education Funding: State Cuts Have Driven Up Tuition and Reduced Quality*. Washington, DC: Center on Budget and Policy Priorities. Available: [https://www.cbpp.org/sites/default/files/atoms/files/2017\\_higher\\_ed\\_8-22-17\\_final.pdf](https://www.cbpp.org/sites/default/files/atoms/files/2017_higher_ed_8-22-17_final.pdf) [January 2018].
- Mocan, N. (2007). Can consumers detect lemons? An empirical analysis of information asymmetry in the market for child care. *Journal of Population Economics*, 20, 743–780.
- Montgomery County Department of Health and Human Services. (2017). *Montgomery County Early Care and Education Strategic Plan 2017: Investments in Our Future*. Rockville, MD: Author. Available: <http://www.montgomerycountymd.gov/HHS/Resources/Files/Reports/ECStrategicPlanfinal.pdf> [January 2018].
- Morrissey, T.W. (2017). Child care and parent labor force participation: A review of the research literature. *Review of Economics of the Household*, 15(1), 1–24.
- National Academies of Sciences, Engineering, and Medicine. (2016a). *Advancing the Power of Economic Evidence to Inform Investments in Children, Youth, and Families*. Washington, DC: The National Academies Press.
- National Academies of Sciences, Engineering, and Medicine. (2016b). *Parenting Matters: Supporting Parents of Children Ages 0-8*. Washington, DC: The National Academies Press.
- National Academies of Sciences, Engineering, and Medicine. (2017). *Promoting the Educational Success of Children and Youth Learning English: Promising Futures*. Washington, DC: The National Academies Press.

- National Association for the Education of Young Children. (2017). *Early Learning Standards and Accreditation Criteria & Guidance for Assessment*. Washington, DC: Author. Available: [https://www.naeyc.org/sites/default/files/globally-shared/downloads/PDFs/accreditation/early-learning/Standards%20and%20Accreditation%20Criteria%20%26%20Guidance%20for%20Assessment\\_April%202017\\_3.pdf](https://www.naeyc.org/sites/default/files/globally-shared/downloads/PDFs/accreditation/early-learning/Standards%20and%20Accreditation%20Criteria%20%26%20Guidance%20for%20Assessment_April%202017_3.pdf) [June 2018].
- National Association of Student Financial Aid Administrators. (2013). *A Tale of Two Income Years: Comparing Prior-Prior Year and Prior-Year through Pell Grant Awards*. Available: [https://www.nasfaa.org/uploads/documents/ppy\\_report.pdf](https://www.nasfaa.org/uploads/documents/ppy_report.pdf) [September 2017].
- National Center on Early Childhood Quality Assurance. (2015). *Monitoring License-Exempt CCDF Homes*. No. 258. Available: [https://childcareta.acf.hhs.gov/sites/default/files/public/monitoring\\_exempt\\_ccdf\\_homes\\_0.pdf](https://childcareta.acf.hhs.gov/sites/default/files/public/monitoring_exempt_ccdf_homes_0.pdf) [September 2017].
- National Center on Program Management and Fiscal Operations. (n.d.). *Financing and Budgeting for Early Care and Education Facilities*. Washington, DC: Office of Head Start. Available: <https://eclkc.ohs.acf.hhs.gov/sites/default/files/pdf/financing-budgeting-guidebook.pdf> [October 2017].
- National Conference of State Legislators. (2016). *The Child Care and Development Block Grant (CCDBG) Act of 2014: Reauthorizing the Child Care and Development Fund (CCDF) Program*. Available: <http://www.ncsl.org/ncsl-in-dc/standing-committees/health-and-human-services/the-child-care-and-development-block-grant-ccdbg-act-of-2014-reauthorizing-the-child-care-and-development-fund-ccdf-program-635938974.aspx#new-key-statutory-requirements> [September 2017].
- National Council on Teacher Quality. (2012). TR3 trends: Teacher planning time. *The NCTQ Teacher Trendline*, June 18. Available: <http://www.nctq.org/commentary/article.do?id=56> [September 2017].
- National Head Start Association. (2017). *National Head Start Fact Sheet*. Alexandria, VA: Author. Available: <https://www.nhsa.org/facts> [September 2017].
- National Institute of Child Health and Human Development (NICHD) Early Child Care Research Network (ECCRN). (2003). Does quality of child care affect child outcomes at age 4? *Developmental Psychology*, 39(3), 451–469.
- National Institute of Child Health and Human Development (NICHD) Early Child Care Research Network (ECCRN). (2005) *Child Care and Child Development: Results from the NICHD Study of Early Child Care and Youth Development*. New York: Guilford Press.
- National Research Council. (2012). *The Early Childhood Care and Education Workforce, Challenges and Opportunities: A Workshop Report*. Washington, DC: The National Academies Press.
- National Research Council and Institute of Medicine. (2000). *From Neurons to Neighborhoods: The Science of Early Childhood Development*. Committee on Integrating the Science of Early Childhood Development. J.P. Shonkoff and D.A. Phillips (Eds.). Board on Children, Youth, and Families; Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press.
- National Survey of Early Care and Education Project Team. (2013). *Number and Characteristics of Early Care and Education (ECE) Teachers and Caregivers: Initial Findings from the National Survey of Early Care and Education (NSECE)*. OPRE Report #2013-38. Washington, DC: U.S. Department of Health and Human Services; Office of Planning, Research and Evaluation; Administration for Children and Families. Available: [https://www.acf.hhs.gov/sites/default/files/opre/nsece\\_wf\\_brief\\_102913\\_0.pdf](https://www.acf.hhs.gov/sites/default/files/opre/nsece_wf_brief_102913_0.pdf) [October 2017].

- National Survey of Early Care and Education Project Team. (2014). *Characteristics of Center-based Early Care and Education Programs: Initial Findings from the National Survey of Early Care and Education (NSECE)*. OPRE Report #2014-73a. Washington, DC: U.S. Department of Health and Human Services; Office of Planning, Research and Evaluation; Administration for Children and Families. Available: [https://www.acf.hhs.gov/sites/default/files/opre/characteristics\\_of\\_cb\\_ece\\_programs\\_111014.pdf](https://www.acf.hhs.gov/sites/default/files/opre/characteristics_of_cb_ece_programs_111014.pdf) [October 2017].
- National Survey of Early Care and Education Project Team. (2015a). *Measuring Predictors of Quality in Early Care and Education Settings in the National Survey of Early Care and Education*. OPRE Report #2015-93. Washington, DC: U.S. Department of Health and Human Services; Office of Planning, Research and Evaluation; Administration for Children and Families. Available: [https://www.acf.hhs.gov/sites/default/files/opre/measuring\\_predictors\\_of\\_quality\\_mpoq\\_in\\_the\\_nsece\\_final\\_092315\\_b508.pdf](https://www.acf.hhs.gov/sites/default/files/opre/measuring_predictors_of_quality_mpoq_in_the_nsece_final_092315_b508.pdf) [October 2017].
- National Survey of Early Care and Education Project Team. (2015b). *Provision of Early Care and Education during Non-Standard Hours*. Fact Sheet. Washington, DC: U.S. Department of Health and Human Services; Office of Planning, Research and Evaluation; Administration for Children and Families. Available: [https://www.acf.hhs.gov/sites/default/files/opre/factsheet\\_nonstandard\\_hours\\_provision\\_of\\_ece\\_toopre\\_041715\\_508.pdf](https://www.acf.hhs.gov/sites/default/files/opre/factsheet_nonstandard_hours_provision_of_ece_toopre_041715_508.pdf) [September 2017].
- National Survey of Early Care and Education Project Team. (2015c). *Which Early Care and Education Centers Participate in Head Start or Public Pre-Kindergarten?* Technical Report. Washington, DC: U.S. Department of Health and Human Services; Office of Planning, Research and Evaluation; Administration for Children and Families. Available: [https://www.acf.hhs.gov/sites/default/files/opre/hs\\_pk\\_technical\\_report\\_final\\_092515\\_b508.pdf](https://www.acf.hhs.gov/sites/default/files/opre/hs_pk_technical_report_final_092515_b508.pdf) [September 2017].
- National Survey of Early Care and Education Project Team. (2015d). *Prices Charged in Early Care and Education: Initial Findings from the National Survey of Early Care and Education (NSECE)*. OPRE Report #2015-45. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.
- National Survey of Early Care and Education Project Team. (2016a). *Early Care and Education Usage and Households' Out-of-Pocket Costs: Tabulations from the National Survey of Early Care and Education (NSECE)*. OPRE Report #2016-09. Washington, DC: U.S. Department of Health and Human Services; Office of Planning, Research and Evaluation; Administration for Children and Families. Available: [https://www.acf.hhs.gov/sites/default/files/opre/nsece\\_usage\\_and\\_cost\\_tabulations\\_081216\\_toopre\\_b508\\_2.pdf](https://www.acf.hhs.gov/sites/default/files/opre/nsece_usage_and_cost_tabulations_081216_toopre_b508_2.pdf) [September 2017].
- National Survey of Early Care and Education Project Team. (2016b). *Characteristics of Home-based Early Care and Education Providers: Initial Findings from the National Survey of Early Care and Education*. OPRE Report #2016-13. Washington, DC: U.S. Department of Health and Human Services; Office of Planning, Research and Evaluation; Administration for Children and Families. Available: [https://www.acf.hhs.gov/sites/default/files/opre/characteristics\\_of\\_home\\_based\\_early\\_care\\_and\\_education\\_toopre\\_032416.pdf](https://www.acf.hhs.gov/sites/default/files/opre/characteristics_of_home_based_early_care_and_education_toopre_032416.pdf) [October 2017].
- National Women's Law Center. (2014). *The Schedules That Work Act: Giving Workers the Tools They Need to Succeed*. Washington, DC: Author. Available: [http://www.nwlc.org/sites/default/files/pdfs/schedules\\_that\\_work\\_act\\_fact\\_sheet\\_7.22.14.pdf](http://www.nwlc.org/sites/default/files/pdfs/schedules_that_work_act_fact_sheet_7.22.14.pdf) [February 2017].
- National Women's Law Center. (2016). *State Child Care and Dependent Care Tax Provisions: Tax Provisions, Tax Year 2015*. Available: <https://nwlc.org/resources/state-child-care-and-dependent-care-tax-provisions> [September 2017].

- Nebraska Department of Education. (n.d.). *School Readiness Tax Credits for the Early Childhood Workforce and Step Up to Quality Program Participants*. Available: <https://www.education.ne.gov/stepuptoquality/providers-educators/resources/tax-credits.html> [September 2017].
- Nixon, R. (1969). *Special Message to the Congress on the Nation's Antipoverty Programs, February 19, 1969*. Online by G. Peters and J.T. Woolley, The American Presidency Project. Available: <http://www.presidency.ucsb.edu/ws/?pid=2397> [September 2017].
- Nixon, R. (1972). *Veto of the Economic Opportunity Amendments of 1971, December 9, 1971*. Online by G. Peters and J.T. Woolley, The American Presidency Project. Available: <http://www.presidency.ucsb.edu/ws/?pid=3251> [September 2017].
- O'Brien, E.M., and Dervarics, C. (2007). *Pre-Kindergarten: What the Research Shows*. Alexandria, VA: Center for Public Education. Available: <http://www.centerforpubliceducation.org/Main-Menu/Pre-kindergarten/Pre-Kindergarten/Pre-kindergarten-What-the-research-shows.html> [September 2017].
- Office of Assistant Secretary for Planning and Evaluation. (n.d.). *U.S. Federal Poverty Guidelines Used to Determine Financial Eligibility for Certain Federal Programs*. Available: <https://aspe.hhs.gov/poverty-guidelines> [September 2017].
- Office of Child Care. (2014). *Child Care and Development Block Grant Act (CCDBG) of 2014: Plain Language Summary of Statutory Changes*. Available: <https://www.acf.hhs.gov/occ/resource/ccdbg-of-2014-plain-language-summary-of-statutory-changes> [September 2017].
- Office of Child Care. (2015). *Characteristics of Families Served by the Child Care and Development Fund (CCDF) Based on Preliminary FY 2015 Data*. Available: <https://www.acf.hhs.gov/occ/resource/characteristics-of-families-served-by-child-care-and-development-fund-ccdf> [September 2017].
- Office of Child Care. (2016a). *FY2015 Preliminary Data Table 9—Average Monthly Percentages of Children in Care by Age Group (FY2014)*. Washington, DC: U.S. Department of Health and Human Services. Available: <https://www.acf.hhs.gov/occ/resource/fy-2015-preliminary-data-table-9> [October 2017].
- Office of Child Care. (2016b). *FY2016 CCDF Allocations (Including Redistributed Funds)*. Washington, DC: U.S. Department of Health and Human Services. Available: <https://www.acf.hhs.gov/occ/resource/fy-2016-ccdf-allocations-including-redistributed-funds> [October 2017].
- Office of Child Care. (2016c). *Professional Development System Cost Analysis Tool*. Available: <https://childcareta.acf.hhs.gov/systemsbuilding/professional-development-system-cost-analysis-tool> [September 2017].
- Office of Child Care. (n.d.). *Which Quality Activities Count Toward the Quality Set-Aside?* Available: <https://www.acf.hhs.gov/occ/faq/which-quality-activities-count-toward-the-quality-set-aside> [September 2017].
- Office of Head Start. (2015a). *Head Start Early Learning Outcomes Framework: Birth to Five*. Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families. Available: <http://eclkc.ohs.acf.hhs.gov/hslc/hs/sr/approach/pdf/ohs-framework.pdf> [September 2017].
- Office of Head Start. (2015b). *Head Start Facilities Report, Fiscal Year 2015*. Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families. Available: <https://eclkc.ohs.acf.hhs.gov/sites/default/files/pdf/hs-facilities-report-fy2015.pdf> [October 2017].
- Office of Head Start. (2016a). *Head Start Program Facts, Fiscal Year 2016*. Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families. Available: <https://eclkc.ohs.acf.hhs.gov/sites/default/files/pdf/hs-program-fact-sheet-2016.pdf> [October 2017].



- Office of Head Start. (2016b). *Head Start Program Performance Standards: 45 CFR Chapter XIII*. Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families. Available: <https://eclkc.ohs.acf.hhs.gov/hslc/hs/docs/hspss-final.pdf> [August 2017].
- Office of Head Start. (2016c). *Technical Assistance*. Available: <https://www.acf.hhs.gov/ohs/assistance> [September 2017].
- Office of Head Start. (2017). *Head Start Programs*. Available: <https://www.acf.hhs.gov/ohs/about/head-start> [September 2017].
- Office of Planning, Research, and Evaluation. (2012). *FACES of Head Start: Our Children, Our Families, Our Classrooms*. Washington, DC: Author. Available: [https://www.acf.hhs.gov/sites/default/files/opre/friendly\\_faces\\_findings2009\\_final.pdf](https://www.acf.hhs.gov/sites/default/files/opre/friendly_faces_findings2009_final.pdf) [September 2017].
- Olson, C.A. (2002). Do workers accept lower wages in exchange for health benefits? *Journal of Labor Economics*, 20(2, Part 2), S91–S114.
- Opportunities Exchange. (n.d.). *Shared Services in Early Care and Education: Introduction and Alliance Examples*. Available: <http://opportunities-exchange.org/wp-content/uploads/Shared-Services-Introduction-and-Examples-rev.pdf> [December 2017].
- Palmer, I. (2016). *How to Fix Remediation at Scale*. Washington, DC: New America. Available: <https://static.newamerica.org/attachments/12907-how-to-fix-remediation-at-scale/How-to-Fix-Remediation-at-Scale.61f8602de1cd43c6b7b6d70105fbc45a.pdf> [October 2017].
- Pardee, M. (2011). *Building an Infrastructure for Quality: An Inventory of the Early Childhood Education and Out-of-School Time Facilities in Massachusetts*. Boston, MA: Children's Investment Fund. Available: <https://cedac.org/Uploads/Files/CIFBldgInfrastructureReport.pdf> [April 2017].
- Parker, E., Diffey, L., and Atchison, B. (2016). *Full-day Kindergarten: A Look Across the States*. Denver, CO: Education Commission of the States. Available: <https://files.eric.ed.gov/fulltext/ED569133.pdf> [January 2018].
- Parsons, T., and Shils, E.A. (1965). *Toward a General Theory of Action: Theoretical Foundations for the Social Sciences*. Piscataway, NJ: Transaction.
- Penn, H. (2017). *Report for SOW on the Financing of Early Childhood Education and Care in Europe, and, in Particular, on the Training and Remuneration of Childcare Workers and Its Costs*. Commissioned by the Committee on Financing Early Care and Education with a Highly Qualified Workforce.
- Perna, L.W. (2010). *Understanding the Working College Student*. Washington, DC: American Association of University Professors. Available: <https://www.aaup.org/article/understanding-working-college-student#.Wd58spXrs5s> [October 2017].
- PNC Financial Services Group. (2017). *Inspiring Great Futures for Young Children*. Pittsburgh, PA: Author. Available: [https://www.pnc.com/content/dam/pnc-com/pdf/GUG/FactSheets/GrowUpGreat\\_ProgramOverview.pdf](https://www.pnc.com/content/dam/pnc-com/pdf/GUG/FactSheets/GrowUpGreat_ProgramOverview.pdf) [January 2018].
- Public Health Management Corporation. (2017). *City of Philadelphia: Child Care Facility Fund*. Philadelphia, PA: Author. Available: [http://philafacilityfund.org/images/PDF/CCFF\\_Facility\\_Fund\\_Commercial\\_Presentation\\_2017.pdf](http://philafacilityfund.org/images/PDF/CCFF_Facility_Fund_Commercial_Presentation_2017.pdf) [April 2017].
- Reardon, S. (2011). The widening academic achievement gap between the rich and the poor: New evidence and possible explanations. In R. Murnane and G. Duncan (Eds.), *Whither Opportunity? Rising Inequality and the Uncertain Life Chances of Low-Income Children* (pp. 91–115). New York: Russell Sage Foundation Press.
- Reardon, S., and Portilla, X.A. (2016). Recent trends in income, racial, and ethnic school readiness gaps at kindergarten entry. *AERA Open*, 2(3), 1–18.

- Reich, D., Shapiro, I., Cho, C., and Kogan, R. (2017). *Block-granting Low-income Programs Leads to Large Funding Declines Over Time, History Shows*. Washington, DC: Center on Budget and Policy Priorities. Available: <https://www.cbpp.org/research/federal-budget/block-granting-low-income-programs-leads-to-large-funding-declines-over-time> [December 2017].
- Reidt-Parker, J. (2015). *Professional Development System Cost Analysis Tool Guide and Case Studies*. Available: <https://earlyeducatorcentral.acf.hhs.gov/sites/default/files/public/resources/Professional%20Development%20System%20Cost%20Analysis%20Tool%20Guide%20and%20Case%20Studies.pdf> [September 2017].
- Renwick, T., and Fox, L. (2016). *The Supplemental Poverty Measure: 2015*. Report No. P60-258. Washington, DC: U.S. Census Bureau. Available: <https://www.census.gov/content/dam/Census/library/publications/2016/demo/p60-258.pdf> [January 2018].
- Rickus, G., Barnett, W.S., and Nores, M. (2016). *Cost of Preschool Quality (CPQ)*. New Brunswick, NJ: Center on Enhancing Early Learning Outcomes. Available: <http://nieer.org/research/research-instruments> [September 2017].
- Rossin-Slater, M., Ruhm, C.J., and Waldfogel, J. (2013). The effects of California's Paid Family Leave Program on mothers' leave-taking and subsequent labor market outcomes. *Journal of Policy Analysis and Management*, 32(2), 224–245.
- Ryan, R.M., Johnson, A., Rigby, E., and Brooks-Gunn, J. (2011). The impact of child care subsidy use on child care quality. *Early Childhood Research Quarterly*, 26(3), 320–331.
- Sakai, L., Kipnis, F., and Whitebook, M. (2014). Yes they can: Supporting bachelor degree attainment for early childhood practitioners. *Early Childhood Research and Practice*, 16(1).
- Sakai, L., Petig, A.C., Austin, L.J.E. (2017). *Early Childhood Preparation for School Leaders: Lessons from New Jersey Principal Certification Programs*. Berkeley, CA: Center for the Study of Child Care Employment. Available: <http://cscce.berkeley.edu/files/2017/12/Early-Childhood-Preparation-for-School-Leaders.pdf> [January 2018].
- Saporito, S. (2003). Private choices, public consequences: Magnet school choice and segregation by race and poverty. *Social Problems*, 50(2), 181–203.
- Save the Children. (2017). *Innovative Financing for Early Childhood Education: Recommendations from the Early Childhood Action Tank*. Washington, DC: First Five Years Fund.
- Scarr, S., Phillips, D., and McCartney, K. (1990). Facts, fantasies, and the future of child care in the United States. *Psychological Science*, 1(1), 26–35. Available: <http://journals.sagepub.com/doi/pdf/10.1111/j.1467-9280.1990.tb00061.x> [January 2018].
- Schmit, S., and Walker, C. (2016). *Disparate Access: Head Start and CCDBG Data by Race and Ethnicity*. Washington, DC: Center for Law and Social Policy. Available: <https://www.clasp.org/sites/default/files/public/resources-and-publications/publication-1/Disparate-Access.pdf> [January 2018].
- Schulman, K., and Blank, H. (2016). *Red Light Green Light: State Child Care Assistance Policies 2016*. Washington, DC: National Women's Law Center. Available: <https://nwlw.org/wp-content/uploads/2016/10/NWLC-State-Child-Care-Assistance-Policies-2016-final.pdf> [October 2017].
- Shell, S. (2015). *Effect of the Physical Environment on Teacher Satisfaction with Indoor Environmental Quality in Early Learning Schools*. Ph.D. Dissertation. Lincoln: University of Nebraska.
- Silverstein, P., and Hansen, D. (2012). *The Return on Investment of the Early Learning Ventures Shared Services Model*. Available: <http://www.merage.org/wp-content/uploads/2013/05/ELV-ROI-Study-Final.pdf>. [December 2017].
- Simons, V., and Helhoski, A. (2016). How students missed out on \$2.7 billion in free FAFSA college aid. *Nerdwallet*, January 27. Available: <https://www.nerdwallet.com/blog/loans/student-loans/college-students-fafsa-money> [September 2017].



- Singh, M., and Bluestein, R. (2016). *Building Pre-K: Philanthropy and CDFI Collaborations in Financing Early Education Facilities*. San Francisco, CA: Low Income Investment Fund. Available: <http://bit.ly/LIIF-PREK> [September 2017].
- Slemrod, J. (1996). *Tax Progressivity and Income Inequality*. Cambridge, UK: Cambridge University Press.
- Smith, S. (2017). *Dependent Care Assistance Program vs. Dependent Care Tax Credit*. Available: <https://www.nbsbenefits.com/dependent-care-assistance-program-vs-dependent-care-tax-credit> [September 2017].
- Stanley, T.D., and Jarrell, S.B. (1998). Gender wage discrimination bias? A meta-regression analysis. *The Journal of Human Resources*, 33(4), 947–973.
- Stevens, K.B. (2017). *Workforce of Today, Workforce of Tomorrow: The Business Case for High-Quality Healthcare*. Washington, DC: U.S. Chamber of Commerce Foundation, Center for Education and Workforce. Available: [https://www.uschamberfoundation.org/sites/default/files/Workforce%20of%20Today%20Workforce%20of%20Tomorrow%20Report\\_0.pdf](https://www.uschamberfoundation.org/sites/default/files/Workforce%20of%20Today%20Workforce%20of%20Tomorrow%20Report_0.pdf) [January 2018].
- Stoney, L., and Mitchell, A. (2007). *Using Tax Credits to Promote High Quality Early Care and Education Services*. Washington, DC: Partnership for America's Economic Success.
- Sussman, C., and Gillman, A. (2007). *Building Early Childhood Facilities: What States Can Do to Create Supply and Promote Quality*. New York: National Institute for Early Education Research. Available: <http://nieer.org/wp-content/uploads/2016/08/14.pdf> [April 2017].
- Tax Credits for Workers and Their Families. (2016). *State Tax Credits*. Available: <http://www.taxcreditsforworkersandfamilies.org/state-tax-credits/#1468434107561-be99920d-11c4> [September 2017].
- Tax Policy Center. (2016). *Key Elements of the U.S. Tax System*. Briefing Book. Washington, DC: Urban Institute, Brookings Institution. Available: <http://www.taxpolicycenter.org/briefing-book/how-do-standard-deduction-and-itemized-deductions-compare> [September 2017].
- Tax Policy Center. (2017). *Statistics: Credit Type and Amount*. Washington, DC: Urban Institute, Brookings Institution. Available: <http://www.taxpolicycenter.org/statistics/credit-type-and-amount> [September 2017].
- Taylor, M. (2014). *The 2014-15 Budget: California Spending Plan*. Sacramento, CA: Legislative Analyst's Office. Available: <http://www.lao.ca.gov/reports/2014/budget/spending-plan/california-spending-plan-080414.pdf> [January 2018].
- T.E.A.C.H. Early Childhood National Center. (2016). *T.E.A.C.H. Early Childhood and Child Care WAGES Annual National Program Report 2015-2016*. Chapel Hill, NC: Author. Available: <http://teachecnationalcenter.org/wp-content/uploads/2016/11/T.E.A.C.H.-and-WAGE-2016-Annual-Program-Report-e-version.pdf> [December 2017].
- T.E.A.C.H. Early Childhood National Center. (n.d.). *Who Are WAGES Participants?* Available: <http://teachecnationalcenter.org/child-care-wage/who-are-wage-recipients> [September 2017].
- Teachers College Newsroom. (2015). *Cost-Effectiveness Analysis Made Easy: A New Tool from Teachers College*. New York: Columbia University Teachers College. Available: <http://www.tc.columbia.edu/articles/2015/september/cost-effectiveness-analysis-made-easy-a-new-tool-from-teachers-college-> [September 2017].
- Thompson, B.A. (2017). *Financing Workforce Transformations*. Panel discussion at the third meeting of the Committee on Financing Early Care and Education with a Highly Qualified Workforce, Washington, DC, May 17.
- Tout, K., Halle, T., Daily, S., Albertson-Junkans, L., and Moodie, S. (2013). *The Research Base for a Birth Through Age Eight State Policy Framework*. Washington, DC: Alliance for Early Success and Child Trends.

- Tout, K., Magnuson, K., Lipscomb, S., Karoly, L., Starr, R., Quick, H., Early, D., Epstein, D., Joseph, G., Maxwell, K., Roberts, J., Swanson, C., and Wenner, J. (2017). *Validation of the Quality Ratings Used in Quality Rating and Improvement Systems (QRIS): A Synthesis of State Studies*, OPRE Report #2017-92, Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.
- Ullrich, R., Hamm, K., and Schochet, L. (2017). *6 Policies to Support the Early Childhood Workforce*. Washington, DC: Center for American Progress. Available: <https://www.americanprogress.org/issues/early-childhood/reports/2017/02/06/298085/6-policies-to-support-the-early-childhood-workforce> [September 2017].
- University Libraries. (n.d.). *Essay: The Federal Emergency Relief Act*. Seattle: University of Washington. Available: <https://content.lib.washington.edu/feraweb/essay.html#top> [September 2017].
- U.S. Department of Agriculture. (2017). *Community Facilities Direct Loan & Grant Program*. Washington, DC: Author. Available: <https://www.rd.usda.gov/programs-services/community-facilities-direct-loan-grant-program> [April 2017].
- U.S. Department of Defense. (2009). *Sure Start Program Guide*. Washington, DC: Author. Available: [http://www.dodea.edu/Curriculum/eChildhood/upload/guide\\_surestart.pdf](http://www.dodea.edu/Curriculum/eChildhood/upload/guide_surestart.pdf) [September 2017].
- U.S. Department of Education. (2010). *National Evaluation of Student Support Services: Examination of Student Outcomes After Six Years*. Washington, DC: Office of Planning, Evaluation and Policy Development, Policy and Program Studies Service.
- U.S. Department of Education. (2015). *A Matter of Equity: Preschool in America*. Washington, DC: Author. Available: <https://www2.ed.gov/documents/early-learning/matter-equity-preschool-america.pdf> [July 2017].
- U.S. Department of Education. (2015b). *Fact Sheet: Focusing Higher Education on Student Success*. Washington, DC: Author. Available: <https://www.ed.gov/news/press-releases/fact-sheet-focusing-higher-education-student-success> [December 2017].
- U.S. Department of Education. (2016). *38th Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act, 2016*. Washington, DC: Education Publications Center. Available: <http://www.ed.gov/about/reports/annual/osep> [August 2017].
- U.S. Department of Education. (2017). *State Formula Grants*. Available: <https://sites.ed.gov/idea/state-formula-grants> [August 2017].
- U.S. Department of Education. (n.d.). *Building or Enhancing an Early Learning Data System to Improve Instruction, Practices, Services, and Policies*. Available: <https://www.ed.gov/early-learning/elc-draft-summary/selection-criteria-a4> [September 2017].
- U.S. Department of Education, Federal Student Aid. (2017). *FY 2017 Annual Report*. Washington, DC: Author. Available: <https://www2.ed.gov/about/reports/annual/2017report/fsa-report.pdf> [January 2018].
- U.S. Department of Labor. (2016). *Facts Over Time*. Available: [https://www.dol.gov/wb/stats/facts\\_over\\_time.htm](https://www.dol.gov/wb/stats/facts_over_time.htm) [September 2017].
- U.S. Government Accountability Office. (2015). *Higher Education: Better Management of Federal Grant and Loan Forgiveness Programs for Teachers Needed to Improve Participant Outcomes*. GAO-15-314. Washington, DC: Author. Available: <http://www.gao.gov/assets/670/668634.pdf> [September 2017].
- U.S. Government Accountability Office. (2016). *Child Care: Access to Subsidies and Strategies to Manage Demand Vary Across States*. Washington, DC: Author. Available: <https://www.gao.gov/assets/690/681652.pdf> [January 2018].
- U.S. Government Accountability Office. (2017). *Early Learning and Child Care: Overview of Federal Investment and Agency Coordination*. GAO-17-671T. Washington, DC: Author.

- U.S. Small Business Association. (2012). *Small Business Facts*. Washington, DC: Author. Available: <https://www.sba.gov/sites/default/files/Business-Survival.pdf> [October 2017].
- U.S. Small Business Administration. (2017). *Microloan Program*. Available: <https://www.sba.gov/loans-grants/see-what-sba-offers/sba-loan-programs/microloan-program> [April 2017].
- U.S. Small Business Administration. (n.d.). *How to Start a Quality Child Care Business*. Available: [https://www.sba.gov/sites/default/files/files/pub\\_mp29.pdf](https://www.sba.gov/sites/default/files/files/pub_mp29.pdf) [September 2017].
- Valentino, R.A. (2017). *Will Public Pre-K Really Close Achievement Gaps? Gaps in Pre-kindergarten Quality Between Students and Across States*. Stanford, CA: Stanford Center for Education Policy Analysis. Available: [https://cepa.stanford.edu/sites/default/files/Valentino\\_Quality%20Gaps\\_CEPA%20website\\_FINAL.pdf](https://cepa.stanford.edu/sites/default/files/Valentino_Quality%20Gaps_CEPA%20website_FINAL.pdf) [September 2017].
- Virginia Chamber of Commerce. (2017). *Blueprint Virginia 2025: A Business Plan for the Commonwealth*. Richmond: Author. Available: <https://www.vachamber.com/wp-content/uploads/2017/11/20171120-VACOC-BlueprintV12FINAL-PROOF.pdf> [January 2018].
- Virginia School Readiness Committee. (2017). *Report on Activities: August 2016 to July 2017*. Richmond: Author. Available: <http://sfc.virginia.gov/pdf/Jt%20Sub%20PreSchool%20Initiative/IIIB%20-%20School%20Readiness%20Committee%20-%20Summary%20of%20Work.pdf> [January 2018].
- Washington State Department of Early Learning. (2015). *The Early Start Act: Annual Report*. Olympia: Author. Available: [https://del.wa.gov/sites/default/files/public/Full%20ESA%20report\\_December2015.pdf](https://del.wa.gov/sites/default/files/public/Full%20ESA%20report_December2015.pdf) [January 2018].
- Washington State Department of Early Learning. (2016). *Standards Alignment*. Olympia: Author. Available: <https://del.wa.gov/government/standards-alignment> [October 2017].
- Washington State Department of Early Learning. (n.d.). *Washington State Stackable Certificates*. Olympia: Author. Available: [http://ececareers.del.wa.gov/sites/default/files/images/stackable\\_certificates\\_8-17-16.pdf](http://ececareers.del.wa.gov/sites/default/files/images/stackable_certificates_8-17-16.pdf) [October 2017].
- Weber, R.B., Grobe, D., and Davis, E.E. (2014). Does policy matter? The effect of increasing child care subsidy policy generosity on program outcomes. *Children and Youth Services Review*, 44, 135–144.
- White House Conference on Children. (1971). *White House Conference on Children, Report to the President*. Washington, DC: U.S. Government Printing Office. Available: <https://archive.org/details/whitehouseconfer00inwhit> [September 2017].
- Whitebook, M. (2014). *Building a Skilled Teacher Workforce Shared and Divergent Challenges in Early Care and Education and in Grades K–12*. Seattle, WA: Bill & Melinda Gates Foundation. Available: [http://csce.berkeley.edu/files/2014/Building-a-Skilled-Teacher-Workforce\\_September-2014\\_9-25.pdf](http://csce.berkeley.edu/files/2014/Building-a-Skilled-Teacher-Workforce_September-2014_9-25.pdf) [September 2017].
- Whitebook, M., and Austin, L.J.E. (2015). *Early Childhood Higher Education: Taking Stock of the States*. Available: <http://csce.berkeley.edu/files/2016/Cross-state-Brief-Final.pdf> [September 2017].
- Whitebook, M., and McLean, C. (2017a). *Educator Expectations, Qualifications, and Earnings: Shared Challenges and Divergent Systems in ECE and K–12*. Berkeley: Center for the Study of Child Care Employment, University of California, Berkeley.
- Whitebook, M., and McLean, C. (2017b). *In Pursuit of Pre-K Parity: A Proposed Framework for Understanding and Advancing Policy and Practice*. Berkeley: Center for the Study of Child Care Employment, University of California, Berkeley, and New Brunswick, NJ: National Institute for Early Education Research.
- Whitebook, M., and Sakai, L. (2004). *By a Thread: How Child Care Centers Hold on to Teachers, How Teachers Build Lasting Careers*. Kalamazoo, MI: Upjohn Institute Press.

- Whitebook, M., Howes, C., and Phillips, D. (1989). *Who Cares? Child Care Teaching and the Quality of Care in America*. Final Report, National Child Care Staffing Study. Berkeley, CA: Child Care Employee Project. Available: <http://files.eric.ed.gov/fulltext/ED323031.pdf> [September 2017].
- Whitebook, M., Sakai, L., Kipnis, F., Almaraz, M., Suarez, M., E., and Bellm, D. (2008). *Learning Together: A Study of Six B.A. Completion Cohort Programs in Early Care and Education. Year I Report*. Berkeley, CA: Center for the Study of Child Care Employment, University of California at Berkeley. Available: [http://cscce.berkeley.edu/files/2008/learning\\_together08.pdf](http://cscce.berkeley.edu/files/2008/learning_together08.pdf) [September 2017].
- Whitebook, M., Schaack, D., Kipnis, F., Austin, L.J.E., and Sakai, L. (2013). *From Aspiration to Attainment: Practices That Support Educational Success, Los Angeles Universal Preschool's Child Development Workforce Initiative*. Berkeley, CA: Center for the Study of Child Care Employment. Available: [http://cscce.berkeley.edu/files/2013/FromAspirationtoAttainment\\_CSCCE2013-Full-Report1.pdf](http://cscce.berkeley.edu/files/2013/FromAspirationtoAttainment_CSCCE2013-Full-Report1.pdf) [January 2018].
- Whitebook, M., Phillips, D., and Howes, C. (2014). *Worthy Work But STILL Unlivable Wages: The Early Education Workforce 25 Years After the National Child Care Staffing Survey*. Berkeley, CA: Center for the Study of Child Care Employment. Available: <http://cscce.berkeley.edu/files/2014/ReportFINAL.pdf> [April 2017].
- Whitebook, M., McLean, C., and Austin, L.J.E. (2016). *Early Childhood Workforce Index*. Berkeley, CA: Center for the Study of Child Care Employment, University of California, Berkeley. Available: <http://cscce.berkeley.edu/files/2016/Early-Childhood-Workforce-Index-2016.pdf> [September 2017].
- Wolfman, B. (1984). Child care, work, and the federal income tax. *Georgetown Public Law and Legal Theory Research Paper No. 12-132. American Journal of Tax Policy*, 3, 153–193. Available: <http://scholarship.law.georgetown.edu/cgi/viewcontent.cgi?article=2075&context=facpub> [October 2017].
- Women's Bureau. (2016). *Working Mothers Issue Brief*. Washington, DC: U.S. Department of Labor. Available: [https://www.dol.gov/wb/resources/WB\\_WorkingMothers\\_508\\_FinalJune13.pdf](https://www.dol.gov/wb/resources/WB_WorkingMothers_508_FinalJune13.pdf) [February 2017].
- Workgroup on the Early Childhood Workforce and Professional Development. (2016). *Proposed Revisions to the Definitions for the Early Childhood Workforce in the Standard Occupational Classification*. OPRE Report 2016-45. Washington, DC: U.S. Department of Health and Human Services; Office of Planning, Research and Evaluation; Administration for Children and Families. Available: [https://www.acf.hhs.gov/sites/default/files/opre/soc\\_white\\_paper\\_june\\_2014\\_518\\_508.pdf](https://www.acf.hhs.gov/sites/default/files/opre/soc_white_paper_june_2014_518_508.pdf) [October 2017].
- Workman, S., and Ullrich, R. (2017). *Quality 101: Identifying the Core Components of a High-Quality Early Childhood Program*. Washington, DC: Center for American Progress. Available: <https://www.americanprogress.org/issues/early-childhood/reports/2017/02/13/414939/quality-101-identifying-the-core-components-of-a-high-quality-early-childhood-program> [April 2017].
- World Bank. (2017). *GDP (Current US\$)*. Available: <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD> [September 2017].
- Yazejian, N., Bryant, D., Freel, K., and Burchinal, M. (2015). High-quality early education: Age of entry and time in care differences in student outcomes for English-only and dual language learners. *Early Childhood Research Quarterly*, 32, 23–39.
- Yazejian, N., Bryant, D., Hans, S., Horm, D., St. Clair, L., File, N., and Burchinal, M. (2017). Child and parenting outcomes after one year of Educare. *Child Development*, 88(5), 1671–1688.

- Yoon, K.S., Duncan, T., Lee, S.W.-Y., Scarloss, B., and Shapley, K. (2007). *Reviewing the Evidence on How Teacher Professional Development Affects Student Achievement*. Issues & Answers Report, REL 2007–No. 033. Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Southwest. Available: <http://files.eric.ed.gov/fulltext/ED498548.pdf> [September 2017].
- Yoshikawa, H., Weiland, C., Brooks-Gunn, J., Burchinal, M.R., Espinosa, L.M., Gormley, W.T., Ludwig, J., Magnuson, K.A., Phillips, D., and Zaslow, M.J. (2013). *Investing in Our Future: The Evidence Base on Preschool Education*. New York: Society for Research in Child Development and Foundation for Child Development.
- Zellman, G.L., and Gates, S.M. (2002). *Examining the Cost of Military Child Care*. MR-1415-OSD. Santa Monica, CA: RAND Corporation.
- Zeidman, B., and Scherer, J. (2009). *Innovative Financing Strategies for Early Childhood Care*. (Issue Paper #13). Washington, DC: Partnership for America's Economic Success and The Pew Center on the States. Available: [http://assets1c.milkeninstitute.org/assets/Publication/ResearchReport/PDF/200912\\_InnovativeFinancing.pdf](http://assets1c.milkeninstitute.org/assets/Publication/ResearchReport/PDF/200912_InnovativeFinancing.pdf) [November 2011].

# Appendix A

## Methodology and Policy Choices and Assumptions for Cost Estimation

**T**his appendix describes the methodology and logic used for the illustrative cost estimate that appears in Chapter 6, as well as details of the particular policy specifications applied in the illustrative example to estimate the total systemwide cost of attaining high-quality early care and education.

### METHODOLOGY

The illustrative cost estimate that appears in Chapter 6 was conducted in two parts. First, a center-based early care and education (ECE) cost calculator used by Brandon (2011) and Elicker, Brandon, and MacDermid (2016) was adapted and applied to estimate ECE costs per child-hour separately for each child-age group (infant, toddler, prekindergartner) and for multiple sets of policy specifications representing the four phases of implementation, which are characterized by increasing staffing quality standards. Home-based costs were estimated by applying the ratio of home-based to center-based prices by child-age groups derived from the National Survey of Early Care and Education (NSECE) (National Survey of Early Care and Education Project Team, 2016a), under the broad assumption that the ratio of prices to costs is a constant. These calculations correspond to the left-hand box in each of the two rows of Figure 6-1.

Second, to obtain the national (aggregate) cost estimates (right-hand boxes in Figure 6-1), the hourly costs derived in the first step were applied

to the estimated number of hours of ECE care used by U.S. children in each child-age group and family income category (the middle boxes in Figure 6-1). Two versions of this aggregate cost calculation were run: one applied current hours of ECE utilization (static estimate, corresponding to the top row in Figure 6-1); the other applied estimated changes in utilization patterns due to increased use of high-quality ECE services. Changes in usage patterns were defined by child-age group and family income category (dynamic estimate, corresponding to bottom row in Figure 6-1). For both static and dynamic estimates, affordable shares of income were specified for each family income category and applied to the estimated costs to estimate the potential family contributions (“family payments” in Figure 6-1, right-hand boxes) and the remaining subsidy costs (“net subsidy cost” in Figure 6-1). Details of these two parts—the hourly cost calculation and the aggregate cost calculation—are discussed next.

### Components of the Cost Calculation

#### *Hourly Cost Calculation*

The overall logic of the hourly cost calculation is to apply a set of quality-related policy specifications to derive the number of full-time equivalent (FTE) staff for various positions and related qualification-compensation levels. A constant factor of 8 percent, as well as an adjustment factor, was also applied to generate a nonpersonnel increment for phase 1 (see discussion below of basis for these factors). The number of FTEs required was calculated using specified child-to-staff ratios, ECE hours per day, and days per year of ECE service operation. An increasing share of lead educators with bachelor’s-level degrees was specified at each of the four phases, and the specified mix of qualifications was applied to differentiate the number of FTEs required, by position. The mix of staff with bachelor’s-level degrees versus lower educational qualifications was varied by child-age group as shown in Table A-1. The estimated numbers of FTEs were also adjusted upward to account for nonchild-contact hours for staff to prepare, plan, and engage in other professional responsibilities, as well as release time for participation in professional development.<sup>1</sup> Additional FTEs were included to account for noninstructional staffing categories: program direction and administration, coaches and mentors, reading and language specialists, and

---

<sup>1</sup> Nonchild-contact time refers to activities essential to ECE professional activity performed without simultaneous responsibility for child supervision. It includes preparation and planning time, collegial sharing, educator team meetings, and time for completing child assessment reports and holding parent conferences.

TABLE A-1 Distribution of Child Contact Hours by Role and by Child-Age Group, Across Four Phases of ECE System Transformation

	Current Mix (NSECE data)	Phase 1	Phase 2	Phase 3	Phase 4
Infants (less than 12 months) <sup>a</sup>					
Child:adult ratio		5:1	4:1	4:1	3:1
Share of ECE Staff Hours by Role					
Role and Qualifications					
Lead	BA+ (%)	19	25	30	40
Assistant	AA/CDA (%)	17	20	25	25
Assistant	Some college (%)	36	40	30	30
Aide	HS (%)	28	15	15	5
50					
25					
15					
10					
4:1					
Share of ECE Staff Hours by Role					
Role and Qualifications					
Lead	BA+ (%)	19	25	35	50
Assistant	AA/CDA (%)	17	35	35	25
Assistant	Some college (%)	36	30	20	20
Aide	HS (%)	28	10	10	5
65					
25					
10					
0					



TABLE A-1 Continued

	Current Mix (NSECE data)	Phase 1		Phase 2		Phase 3		Phase 4	
Prekindergartners (36–60 months) <sup>b</sup>									
Child:adult ratio	11:1	11:1		10:1		10:1			
Role and Qualifications									
Lead	BA+ (%)	50		50		60		75	
Assistant	AA/CDA (%)	25		25		25		20	
Assistant	Some college (%)	20		25		15		5	
Aide	HS (%)	5		0		0		0	

NOTES: BA+ = bachelor's degree or higher; AA = associate's degree; CDA = Child Development Associate certification; HS = high school diploma.

<sup>a</sup> Current mix uses data from the NSECE for children ages 0–3 years.

<sup>b</sup> Current mix uses data from the NSECE for children ages 3–5 years.

other nonprofessional supports.<sup>2</sup> The matrix of all staff salaries by position (see discussion below) was then multiplied by the estimated FTEs to obtain total staff salary costs. A constant factor of 31.5 percent was added to salaries to cover benefits, including health care, retirement, payroll tax contributions, and paid leave (see discussion below).

Thus, the estimate for total onsite costs is the sum of salaries and benefits for FTEs and nonpersonnel costs, plus the 10 percent adjustment factor (see detailed descriptions below). These totals were then divided by the number of hours of operation and number of children served to derive costs per child-hour. Costs per child-hour were then multiplied by 2,080 hours per year (40 hours per week, 52 weeks per year) to derive an illustrative full-time, full-year cost per child.

### *Aggregate Cost Calculation*

The aggregate cost calculation converts the unit costs per child-hour into (national) aggregate system costs. As noted above, the overall logic of the calculation is to multiply the estimated hourly costs of onsite direct service provision, for each phase separately, by the number of hours of center-based and home-based ECE used by each child-age group and family income category. This calculation yields an estimated provider cost of onsite service delivery. Two versions were run: one assumed the current pattern of service utilization;<sup>3</sup> the second projected shifts in utilization across the four phases resulting from increased accessibility and quality, varied by child-age group and family income category.<sup>4</sup> To estimate

<sup>2</sup> Ratios applied for directors/administrators were derived from NSECE data on the distribution of center programs by size, with a specification of one director/administrator for every facility. Coach/mentor ratios were based on caseloads reflected in the literature (see discussion of onsite professional development below). Ratios for specialists were based on desirable caseloads, adjusted for the estimated percentage of children in the population with special needs. See Box 6-1 in Chapter 6 on estimating the share of children with special needs.

<sup>3</sup> The aggregate current hours of ECE utilization by child age, family income, and ECE type are household-based and were derived from Latham (2017) using 2012 data from the NSECE Public Data Set. Thus, aggregate hours of utilized early care and education equal the number of households times the mean number of hours per week utilized (times 52), reduced by 5 percent to reflect summer decline in utilization; this result is calculated separately for each family income category, and within income category, for each child-age group and utilization rate for ECE type (center-based or home-based care).

<sup>4</sup> For the dynamic estimate, total hours utilized were adjusted by three factors: an accelerating shift from home-based to center-based ECE utilization; increased share of families/children using paid ECE services; and increased use of ECE hours per day and per week. We based our estimates for these three factors on elasticities reported in past econometric studies, adjusted for more recent changes in utilization patterns and an expectation (assumption) that low- and middle-income families are more price-sensitive than higher-income families (see discussion in Chapter 6).

system-level costs, a constant factor of 8 percent was added to the aggregate service delivery costs at each phase, based on prior research by Brandon and colleagues (2004b) as discussed in Chapter 6. The aggregate service delivery cost was thus calculated as the aggregate hours of ECE services utilized (static or adjusted dynamic) multiplied by the cost per child-hour, as estimated by the hourly cost calculation. This yields an aggregate annual service delivery cost per child-age group and ECE type (center-based or home-based care) for each family income category.

In addition, the affordable family payment schedule described in Chapter 6 was applied to estimate the potential family contribution to the total ECE costs for each income category and the remaining share of total costs (total costs less family contribution) that would require financial assistance (i.e., the public/private subsidy). Family income category was the primary categorization, with child-age group and ECE type used to calculate the estimated family-level fee. This computation must be done by family income category because almost a third of children ages 0 to 5 years have a sibling in that age group. Therefore, family payments as a share of income cannot be counted separately for each child-age group because there would then be substantial double-counting. Within the service delivery cost, the percentage of income considered affordable by the analysis discussed in Chapter 6 was then multiplied by the aggregate income of families in that income category to estimate the total potential family contribution toward the cost of early care and education. The family contribution was limited to the cost of early care and education. Affordable-fee estimates were based on total utilization per families in each income category, aggregated across child-age groups and ECE type. This approach ensured that families with more than one child under age 5 years using early care and education were not assumed to be paying the calculated “affordable share” of income for each child but were instead paying one affordable share across all their children. The potential family contribution was then subtracted from the total cost to yield the estimated subsidy cost required to make high-quality early care and education accessible to families of all incomes. (See the section in Chapter 6 titled “Example Part II: Family Payments in a High-Quality System.”)

## POLICY CHOICES AND ASSUMPTIONS

As discussed in Chapter 6, the *Transforming* report outlined a number of quality standards for ensuring the provision of high-quality early care and education for all children. These quality standards, or elements of quality, each affect the cost. For the illustrative example in this report, the committee has specified an array of quality-related elements, as well as other onsite costs—including operating hours and days, staff qualification mix

and compensation, child-to-adult ratio, complements of nonclassroom staff, staff supports for effective practice, and nonpersonnel costs—to estimate the total direct operating costs for providing high-quality early care and education. In addition, estimates of system-level professional development and quality assurance costs have been included in the total estimate of the cost of a high-quality ECE system (see Chapter 6). All costs were estimated in constant 2016 dollars (i.e., with no inflation adjustments), with estimates derived from pre-2016 data inflated to 2016 values using the National Average Wage Index.<sup>5</sup> All specifications reflect an average across a wide range of programs, and specific values may vary due to particular program attributes or local circumstances.

As emphasized in Chapter 6, the specifications for this estimation exercise were chosen as part of the committee’s illustrative (and hypothetical) cost estimate. They do not represent recommendations, explicit or implied, of the committee.

### Staff Qualifications and Compensation

The cost estimate reflects a steady increase from current levels, across the transition phases, of the share of staff with desired qualifications and a steady increase in wage rate linked to each level of education at each phase. Wages are assumed to reflect education level and are not varied by child-age group. The key salary levels are defined as paying ECE educators with a bachelor’s degree wages equivalent to child-family social workers with a bachelor’s degree by phase 2 and equivalent to kindergarten educators by phase 4, though not annualized for a full year (12 months) of ECE service.<sup>6</sup> The intermediate steps (i.e., phases 1 and 3) were specified to be 90 percent of these phase 2 and 4 values, respectively.<sup>7</sup> For staff with less than a bachelor’s degree, each level of education is specified to be a percentage of the next higher level, derived from center educator/caregiver salary data in the NSECE. Thus, an educator with an associate’s degree would be paid 75 percent as much as one with a bachelor’s degree; an educator with a Child Development Associate (CDA) certification or some college would earn 81 percent as much as one with an associate’s degree; an educator with a high school degree or less would earn 91 percent as much as one with a CDA certification or some college. The 2016 dollar values of educator salaries are shown in Table A-2.

<sup>5</sup> See <https://www.ssa.gov/oact/cola/AWI.html> [June 2018].

<sup>6</sup> See Chapter 6 discussion regarding staff qualifications and compensation and the issue of determining appropriate occupational benchmarks.

<sup>7</sup> Salary levels are derived from the 2016 U.S. Department of Labor’s Occupational Employment Statistics report. (See <https://www.bls.gov/oes/> [December 2017]). Comparative data collected by the National Survey of Early Care and Education (NSECE) in 2012 have been adjusted upward to reflect 2016 levels, using the Social Security Administration’s wage index.

**TABLE A-2** Example Average Lead Educator Salaries, Current and Estimated, Across Four Phases of ECE System Transformation (in 2016 dollars)

Educator Position	Degree	Current Average <sup>a</sup>	Phase 1 (year 3)	Phase 2 (year 6)	Phase 3 (year 9)	Phase 4 (year 12)
Lead/Full	BA+	\$39,050	\$42,759	\$47,510	\$49,914	\$55,460
Assistant-1	AA	\$29,119	\$32,069	\$35,633	\$37,436	\$41,595
Assistant-2	CDA/some college	\$22,700	\$25,976	\$28,862	\$30,323	\$33,692
Aide	High school or less	\$22,700	\$23,638	\$26,265	\$27,594	\$30,660

NOTES: BA+ = bachelor's degree or higher; AA = associate's degree; CDA = Child Development Associate certification.

<sup>a</sup> Current average salaries are adjusted to 2016 dollars from the 2012 dollar amounts reported in the NSECE.

SOURCE: Current average salaries are from the NSECE. Current bachelor's-degree salary levels for phase 2 are for child-family social workers and bachelor's-degree salaries for phase 4 are equivalent to elementary school teachers (as reported in 2016 U.S. Department of Labor's Occupational Employment Statistics report). Other salary levels were calculated by the committee following specifications based on NSECE data as explained in the text accompanying the table.

These salary levels are assumed to be applied consistently for all center-based care, eliminating the current disparity of wages by sponsoring organization (National Survey of Early Care and Education Project Team, 2013).

In the phase 4 specifications, lead educators' salaries are equivalent to a kindergarten educators' salaries for a 9-month contract as reported in the U.S. Department of Labor's Occupational Employment Statistics report.<sup>8</sup> If phase 4 bachelor's degree-level salaries were set equivalent to 12 months at the monthly rate of the contract amount for kindergarten educators' salaries, they would be about \$74,000 rather than \$55,460. In order for educators' salaries to reach true parity with salaries for kindergarten-to-3rd-grade educators, as discussed in Chapter 6, ECE educators working a full year would need to have their salaries set equivalent to 12 months at the monthly rate of the contract amount, and the cost per child and total costs to the entire ECE system would be adjusted to account for this increase. If lead educator salaries were pegged to an annualized equivalent of the normal 9-month kindergarten educator salary, and if all other leadership and instructional salaries were adjusted in a similar fashion, it would add about 11 percent to direct service costs and about 10 percent to total system costs.<sup>9</sup>

<sup>8</sup> See <https://www.bls.gov/oes/> [December 2017].

<sup>9</sup> This estimate assumes that the costs of benefits increase commensurate to salary amounts, and there is no increase in nonpersonnel costs as salaries increase.

Salaries for directors, coaches/mentors, specialists, and other staff would also be increased commensurately to maintain the salary relationships among levels of qualification and responsibility.

According to the 2017 Bureau of Labor Statistics National Compensation Survey, employee benefits as a share of salaries do not vary substantially by occupation, but they do vary substantially by the sponsoring organization, especially public school-based versus community-based centers (Bureau of Labor Statistics, 2017). Given this differentiation, the committee's estimate assumes there will be a distribution across different types of organization. Therefore, a slight increase from the 29 percent for service employees (the category including child care workers) to the 31.5 percent for kindergarten through grade 12 (K–12) educators was applied to all staff across all four phases. Even with this small increase in benefits as a share of wages, the value of benefits would increase substantially, since substantial increases in wage levels are projected. The level of benefits as a share of salary is applied equally for all staff positions. This treatment assumes elimination of the current large disparity of benefit levels among ECE educators, depending on the organization sponsoring their ECE program (reported in Maroto and Brandon, 2012).

## STAFF LEVELS AND STRUCTURE

ECE staffing levels and structures differ from those typically used in K–12 classrooms. Whereas a K–12 educator typically works alone (although some educators of younger children have the assistance of an aide or paraprofessional), teaching in early care and education is a collective effort because of the needs of very young children. As noted in Chapter 6, it is common for more than one educator to be in an ECE classroom or group, often one lead and one assistant educator, and some time will be allocated to non-child-contact time (for educators at each level), in order for the educators to complete other professional responsibilities and participate in professional learning. Therefore, the phase 4 estimate reflects the costs for a lead educator interacting with children for 75 percent of the day, with assistant educators or aides accounting for the remaining contact time. Table A-1 (above) shows the increasing mix, across the four phases, of contact time by staff of different qualifications for the roles we assumed for each age group.

The specified values in the cost estimation reflect phasing in, from current levels, the child-to-staff ratios for each child-age group recommended by the National Association for the Education of Young Children and taking into account current state requirements (see Chapter 4). Intermediate group-size levels were applied.

In addition to the mix of staff qualifications, the child-to-adult ratio is a critical factor in determining the number and cost of staff required

to serve a given number of children. Considering the standards discussed in Chapter 6, the committee's cost estimates are based on the following average child-to-adult ratios: for infants, phasing down from 5:1 to 3:1; for toddlers, phasing from 5:1 to 4:1; for prekindergartners, phasing from 11:1 to 10:1. It should be noted that for prekindergartners, these ratios are higher than current average ratios as reported in the NSECE and are based on practice in some European countries, assuming that better-qualified and -supported staff will be able to practice effectively with more children (Kagan et al., 2002).<sup>10</sup> If child-to-adult ratios are lower for prekindergartners, total direct service costs could be 10–20 percent higher than the estimates presented here.

### OPERATING HOURS AND DAYS

For the hourly cost calculation, costs were computed on the basis of full-time (40 hours per week), full-year operation (52 weeks per year). For the aggregate cost calculation, two different measures of duration were applied. For the static analysis, the current average hours per week in each type of ECE setting by child-age group was applied. The weekly hours were multiplied by 52 weeks, then decreased by 5 percent to account for an anticipated decrease during the summer in children using ECE services.

The dynamic analysis assumes that as affordability improves, average hours would increase by 8 percent for low-income families, 6 percent for middle-income families, and 2 percent for upper-income families.<sup>11</sup> Hours per week in paid ECE services average about 35 hours per week for infants and toddlers, so that the static cost estimates mostly reflect full-time ECE use. For prekindergartners, the average is about 27 hours per week, reflecting a mix of full-time and part-time prekindergarten programs. Whereas prekindergartners currently spend more time in unpaid ECE settings than younger children, the dynamic estimates assumed a higher participation in full-time programs for prekindergartners.

<sup>10</sup> Comparability of child-to-adult ratios used in some European countries to ratios in the United States is unclear, especially given the higher percentage of children living in poverty and dealing with chronic stress in this country.

<sup>11</sup> Low-income refers to families with a household income zero to 200 percent of the federal poverty level; middle-income refers to families with household income between 200 percent and 300 percent of the federal poverty level; and affluent refers to families with a household income above 400 percent of the federal poverty level.

## SUPPORTS FOR PROFESSIONAL RESPONSIBILITIES AND LEARNING

Staff supports are those ongoing costs that would be reflected in a center's operating budget. They include paid nonchild-contact time, including time for professional responsibilities such as preparation and planning, professional learning and development, and coaching and mentoring.<sup>12</sup> The costs for these supports in the committee's estimate are allocated by adding to the number of FTE staff at different positions and salaries beyond the FTE staff required to meet child-to-adult ratios in classrooms or groups.

Paid time for additional professional responsibilities conducted without children present is accounted for in the estimate to reflect the fact that staffing costs encompass more than just direct teaching time. This factor includes paid time for preparation and planning, assessment, professional sharing and reflection, and engagement with families. The cost estimate applies additional time for these professional responsibilities to lead educators.<sup>13</sup> As described in the *Transforming* report, lead educators are primarily responsible "for planning and implementing activities and instruction and overseeing the work of assistant teachers and paraprofessionals" (Institute of Medicine and National Research Council, 2015, p. 6).

Costs for ongoing professional learning include paid release time for professional development (onsite and offsite) and ongoing professional learning activities such as coaching and mentoring. Drawing on Isner and colleagues (2011), the committee estimated that the resources devoted to coaching and mentoring for lead educators, assistants, and aides would increase across phases, from 1 mentor per 35 FTE educators in phase 1 to 1 per 25 educators in phase 4. In addition, the share of staff participating in offsite professional development each year, requiring backfill with substitute educators, was assumed to be high during the transition but declines slightly over the phases (as educational qualifications are increased)—from 25 percent in phase 1 to 15 percent in phase 4. The hours per week of offsite professional development time for each participating staff member increases across the phases from 3 to 4 hours (see, e.g., National Council on Teacher Quality, 2012; U.S. Department of Defense, 2009).

---

<sup>12</sup> Coaching and mentoring includes both the additional staff costs of hiring the coaches and mentors who perform the coaching or mentoring activity and the additional nonchild-contact hours for teachers to participate as recipients of the coaching or mentoring activity.

<sup>13</sup> Costs would increase if assistant educators or aides were provided with paid time for additional professional responsibilities such as planning and preparation.



### NONCLASSROOM STAFF

Nonclassroom staff includes administrative staff and instructional support staff, such as coaches, mentors, and trainers, reading and language specialists, special education consultants, and assessment specialists. The committee's estimate includes increasing complements of such staff across each of the four phases because they will be instrumental in supporting the development of the ECE workforce, as well as in contributing to the educational attainment of children (see, e.g., Elicker, Brandon, and MacDermid, 2016). Support or consulting staff that can be paid from health or nutrition programs are not included here. Transportation, food service, and custodial staff are included. Staffing complements reflect an average across all centers of varying size and sponsorship. Thus, an average of one director/administrator per facility is specified, even though small centers are likely to have a part-time director and large centers are likely to have a full-time director plus an additional assistant director. No changes in the distribution of center size or structure are assumed because there is no available literature relating center size to various aspects of quality. Similarly, no overall changes in efficiency were assumed. Some changes, such as purchasing of goods and services by groups of centers, may increase efficiency if adopted on a large scale. Others, such as a shift to more school-based programs, may increase costs due to special features of those operations.

### NONPERSONNEL COSTS

Nonpersonnel costs include facilities occupancy costs, such as rent and utilities; education equipment and supplies, including technology; office supplies; and food and kitchen supplies (Augenblick, Palaich and Associates, 2017). A constant amount of 8 percent (roughly \$3,200 per year for infants and toddlers and \$1,800 per year for prekindergartners) is added for nonpersonnel costs in phase 1 (Augenblick, Palaich and Associates, 2017; Brandon et al., 2004b; Elicker, Brandon, and MacDermid, 2016). Nonpersonnel costs are not expected to increase as a constant percentage as personnel costs increase and are held constant across the four phases; these costs therefore decline as a share of total costs over the four phases as personnel costs increase.

### ADJUSTMENT FACTOR

A constant 10 percent is added to staffing and nonpersonnel costs to reflect the need for providers to maintain a reserve to cover such inefficiencies as temporary drops in enrollment, delays in state reimbursement, or nonpayment by families.

## Appendix B

### Cost Estimation Models

Cost estimation models are tools that can assist policy makers and stakeholders to explore the costs and distributional effects of potential policy changes. In this report, the policies examined are those intended to improve access to high-quality early care and education (ECE) opportunities. Cost estimation models address two types of costs: the costs to providers of offering early care and education and the subsidy costs to public and private entities supporting early care and education. Both types of cost are relevant to understanding the impact of policy options.

Different approaches may be appropriate for various categories of audience or user, such as professional policy or budget analysts as opposed to stakeholders, program developers, or administrators. In some cases, it is necessary to have a “general purpose” model that considers all age groups (e.g., infants, toddlers, prekindergartners) and all types of early care and education (center based, prekindergarten, or home based). In other cases, a pressing policy issue may be best addressed by a model specifically designed for a single age group or ECE type (such as promoting access of all 4-year-olds to prekindergarten). An important constraint on cost estimation modeling is the availability of reliable and generalizable data on the costs of certain elements. For example, although facilities are necessary, few data are available on the status of physical facilities and the costs required to rehabilitate or replace them.

This appendix first discusses the key attributes of cost estimation models and considerations for desirable outputs of models. It then briefly describes some of the currently available cost estimation models.

### ATTRIBUTES OF COST ESTIMATION MODELS

Cost estimation models vary in their scope and attributes. For example, models may be limited in their geographic area or the range of services included in the estimate; they may also differ in presenting dynamic or static estimates. A static model is likely to underestimate costs as families shift their patterns of utilization when the policies being modeled enhance quality and financial accessibility of ECE options. In other words, families may use more hours and more expensive types of ECE in response to those policies. A dynamic model can reflect the changes in utilization likely to result from the specified quality improvements or changes in prices, facilities, and locations and factor these changes into the estimated costs.

The target geographic areas specified are an important and variable feature of estimation models. Some models refer to a large area, such as a nation or a state; others specify local jurisdictions, such as a city, county, or school district. The focus may even be further narrowed to individual program sites. Consideration of larger areas allows more averaging of data and findings, while assessing smaller areas or individual programs may require more detailed data and analysis. It may also be useful to nest smaller areas within larger ones, such as showing costs for a state, along with costs for each county or school district within the state.

The range of services included is another distinction among models. Some programs or policies require inclusion of ancillary or comprehensive services such as physical health and developmental screening, family supports, and referral to housing or employment services. These services can be covered either by augmenting the staffing specified for ECE programs or treating them as a system-level cost in the ECE estimates.

Finally, an important attribute of cost estimation models is the user-friendliness of the model. Cost estimation model developers balance developing a tool with sufficient complexity to produce accurate results that reflect the realities of service delivery systems against the objective of ensuring the model is accessible to its user-audience. Models may also be developed to allow easy cross-checking and updating of data or key cost inputs (e.g., number of children in a geographic area or salary and benefits levels for specified staffing positions).

### OUTPUTS OF COST ESTIMATION MODELS

Outputs can be designed to answer questions such as: what does a program or intervention cost, who benefits from it, and who pays for it? Cost estimation models may also provide direct comparisons of the options being considered—compared both to current costs and to each other.

Two general output-related considerations affect the utility of models: First, can the user of the model vary the outputs to suit the particular policy context? Second, can projected costs be broken down into components that help inform the policy discussion? For example, public agencies may desire models that estimate the numbers of staff who will have to be trained, recruited, retained, and supported to achieve a high-quality ECE delivery system. The relevant measure of workforce numbers may be full-time equivalents (FTEs) or staff slots, or the desired output may be the required number of individuals, depending upon the purpose of the estimate. Furthermore, allowing the user to specify the time unit can increase the value of the model, since some states reimburse providers on the basis of hourly costs and some on weekly or monthly costs, while others write annual service contracts.

A major challenge for model outputs relates to the many possible ways to divide up cost estimates. For some purposes, such as considering fiscal feasibility, the total cost of a combination of quality standards and financial assistance policies is sufficient. For other purposes, such as refining quality standards, partitioning costs into different categories is essential. Models should have the capacity to divide costs into major elements—such as personnel or nonpersonnel, wages and benefits, quality enhancement and workforce support including professional development, and facilities—in order to identify the contribution of each of these components to the cost of high quality. Additionally, providing the costs of offering higher-quality early care and education in a full range of settings is necessary to consider the standards for each setting and the potential implied incentives for families to select among types of ECE services. Similarly, understanding how cost varies among different child-age groups is useful for determining the implications of different staffing standards and the potential costs to different groups of families.

Public policy analysis requires that the model estimate the costs to public or private entities of assisting families to afford higher-quality ECE options by distinguishing between direct assistance to families through subsidies and indirect assistance through financial support of provider entities. In addition to estimating the likely fiscal feasibility of different standards, such cost estimates shed light on how different financing mechanisms and assistance policies affect ECE affordability for families. Further, to compare different financing mechanisms, it is desirable that the cost of subsidies provided to families or providers be partitioned into such policy-relevant categories as different family income categories, geographic areas, or family characteristics (e.g., family structure, employment status).

Different agencies within and across federal, state, and local jurisdictions use various budgeting categories. In general, models that derive costs from detailed components and allow aggregation into an array of

user-specified categories are most useful. Such models allow the greatest flexibility for components to be added in variable ways to match diverse budget structures and to provide outputs categorized by desired components.

This wide range of output requirements on cost estimates may overwhelm the user of the model with details. One approach is to “unfold” different levels of detail, depending upon the needs of the user. Thus, one tab in a worksheet may display total dollar costs and personnel requirements. A second tab might break these totals into components such as child-age groups, ECE types, and personnel versus nonpersonnel costs. A third tab might show detailed costs by staff category, salaries versus benefits, and different types of nonpersonnel costs.

### **COST ESTIMATOR MODELS**

This section briefly describes the following examples of currently available cost estimator models:

- Human Services Policy Center Cost Simulation
- Department of Defense Education Activity (DoDEA) Cost and Staffing Calculator
- Provider Cost of Quality Calculator (PCQC)
- Center for Benefit-Cost Studies in Education (CBCSE) Cost Tool Kit
- Center on Enhancing Early Learning Outcomes (CEELO) Cost of Preschool Quality (CPQ) Tool
- Quality Rating & Improvement System (QRIS) Cost Estimation Model
- The Standardized Early Childhood Development Costing Tool (SECT)
- Professional Development System Cost Analysis Tool

#### **Human Services Policy Center Cost Simulation**

The Human Services Policy Center Cost Simulation is a model that estimates the cost of making high-quality early care and education affordable for families of all children from birth to 5 years of age. A database developed from a representative household survey of ECE utilization is used for the calculations. The model allows the user to stipulate a range of parameters based on policy specifications for high-quality early care and education, such as staff qualifications and compensation, ECE type (center; home-based; or friends, family, neighbors), educator-to-child ratio, duration of programs (e.g., hours per day), utilization rates adjusted for

a defined geographical area, and infrastructure elements. The estimates provide hourly cost differentiated by child's age and ECE type. A cost of high-quality early care and education for each child is then calculated by applying the hourly cost to the number of hours of each ECE type used by that child. The tool also provides an estimate of the subsidy available for each child, based on specified policies and family characteristics (Brandon, 2004; Brandon, Kagan, and Joesch, 2000).

### DoDEA Cost and Staffing Calculator

The DoDEA Cost and Staffing Calculator is an Excel-based tool developed to enable comparisons among various policy components of early childhood education for 4-year-olds at different military installations or regions. The quality components used in the calculator are drawn from a comprehensive search of the scientific literature and include educator and child interactions, educator qualifications, educator professional development, class size and educator-to-child ratio, curriculum, child assessment, family engagement, and administrator qualifications and support. Policy parameters influencing access to prekindergarten, operating hours and days, and quality of service are entered into the calculator. Outcomes consist of staffing requirements and gross estimates of the costs associated with providing early care and education. These outcomes are reported both as total cost and cost per student for both DoDEA schools and Child Development Centers.<sup>1</sup> The tool enables the user to account for policy inputs and cost and staffing outputs at a broad level, or to study each of those in more detail. Personnel requirements are the main focus of the analysis (Elicker, Brandon, and MacDermid, 2016).

### PCQC

The PCQC is a tool that estimates the cost of high-quality ECE programs based on data supplied by providers. The PCQC can be accessed through the website of the National Center on Child Care Quality Improvement.<sup>2</sup> With this tool, the costs of delivering high-quality ECE services can be compared to the funding available for programs. This comparison can help to plan for the resources needed for the ECE system.

The tool allows flexibility in the quality of the program and the provider category (centers, schools, or family childcare homes) examined to estimate the costs of specific types of programs. The PCQC can be tied to components of a state's QRIS. Specific policy requirements, such as

<sup>1</sup> Child Development Centers are ECE centers on military installations.

<sup>2</sup> See <https://www.ecequalitycalculator.com> [October 2017].

staff-to-child ratios, class size, and subsidy and tuition rates, can be entered into the calculations. Information from the national and state levels is also incorporated in the tool; for example, Child and Adult Care Food Program rates and Bureau of Labor Statistics state wage estimates by occupation are included. Customizing the tool enables profiles to be developed for all provider types with varying combinations of child ages, family incomes, and other features.

### **CBCSE Cost Tool Kit**

The CBCSE Cost Tool Kit, known as CostOut, is a tool used to estimate the cost or cost-effectiveness of education or social programs. It is based on the “ingredients method” developed by CBCSE’s director, Henry Levin. Included in the tool kit is a worksheet that allows users to list the program ingredients required for an intervention and allocate costs to each ingredient. Prices of frequently used components can be found in the “Database of Educational Resource Prices,” which is provided with the kit. Adjustments for inflation, geographical location, and, for multiyear programs, the time of investment are provided by the tool when needed. CostOut estimates full costs (total costs) and per-participant costs of an intervention and can also provide cost-effectiveness comparisons if alternative interventions are being considered (Caronongan et al., 2016; Teachers College Newsroom, 2015).

### **CEELO CPQ Tool**

The CPQ tool, which is available through the CEELO website, uses an Excel platform and is designed for states or districts to project the cost of expanding high-quality prekindergarten specifically for 3- and 4-year olds.<sup>3</sup> The quality settings used in the tool are based on the 10 National Institute for Early Education Research quality standards<sup>4</sup> and the requirements of the Preschool Development Grant program. However, the CPQ tool provides the ability to modify these settings so that states can estimate the cost of different approaches to delivering services. It also has the flexibility to change information entered into the tool based on state and local data, including the population being served, program components (e.g., length of day, class size), and expenses (primarily educator salary). In addition, the tool can specify different combinations of providers among public school, private providers, and Head Start programs. With support from CEELO, the CPQ tool can inform states about the extent to which a current program

<sup>3</sup> See <http://ceelo.org/cost-of-preschool-quality-tool> [October 2017].

<sup>4</sup> See <http://nieer.org/wp-content/uploads/2017/05/Benchmarks.jpg> [October 2017].

could be expanded using existing standards, the amount of funding necessary to raise standards, and the estimated costs of proposed state policies (Rickus, Barnett, and Nores, 2016).

### QRIS Cost Estimation Model

The QRIS Cost Estimation Model is available on the National Center on Child Care Quality Improvement website.<sup>5</sup> The user enters as input available data, including the costs associated with quality assessment, monitoring, and administration; professional development; technical assistance; financial incentives; communication for public awareness; facility improvements; and system evaluation. The outcome of the calculations is a determination of the potential costs of implementing a QRIS (Caronongan et al., 2016).

### SECT

SECT is an Excel-based costing tool designed to provide methodological consistency when estimating costs associated with ECE programs. The Center for Universal Education at the Brookings Institution partnered with the Strategic Impact Evaluation Fund at the World Bank to develop SECT.

Cost data entered into the tool can be sorted into three main categories: overhead costs, direct costs, and imputed costs. Although SECT includes a list of common ECE components, it can be modified to incorporate interventions used in the ECE programs of the user. Key components to consider when doing the analysis include services provided, program frequency and duration, staff-to-student ratios and staff compensation, staff supervision and professional development, geography, delivery setting, and size of the program. The data can be analyzed for ECE-specified line items, giving the user the capability to track types of spending, such as staff, training, and equipment costs, across a variety of programs. The flexibility of SECT allows for input of data from multiple service providers and for inclusion of publicly and privately funded elements. Both scale-up costs and unit costs can be estimated using SECT (Gustafsson-Wright, Boggild-Jones, and Gardiner, 2017).

### Professional Development System Cost Analysis Tool

The Professional Development System Cost Analysis Tool was developed by the Office of Child Care and the Office of Head Start (both within the Administration for Children and Families) to assist states and territories

<sup>5</sup> See <https://cemocc.icfwebservices.com/index.cfm?do=viewlogin> [June 2018].



in comprehending the current costs and target resources associated with professional development systems and other initiatives that contribute to highly qualified ECE professionals.<sup>6</sup> It produces “data analyses related to workforce qualifications and professional development investments, defines and categorizes workforce investments, and estimates annual costs to advance the workforce” competence and skills (Office of Child Care, 2016c).

The user must gather and enter the number of ECE practitioners, by type, in the workforce, which is used to generate various estimates of public and private shares of annual costs of professional development. Further information on the sectors (e.g., childcare, Head Start, public prekindergarten), type of early care and education provided, roles of the practitioners in the workforce, ages of the children served, and educational credentials will produce more detailed results and additional reports. There are four steps involved in the use of the tool:

1. Enter demographics of the workforce, including baseline estimates of practitioners’ qualifications.
2. Identify the qualifications or educational milestones of the workforce desired by the states or territories.
3. Enter and categorize specifics of current professional development programs and investments.
4. Examine various estimates of public and private shares of annual costs that have been developed by the tool to move toward the educational milestones desired by the state or territory.

The Professional Development System Cost Analysis Tool can provide system leaders with information on the present status of their workforce and estimates of the resources required to increase the quality of the current professional development system (Reidt-Parker, 2015).

---

<sup>6</sup> See <https://earlyeducatorcentral.acf.hhs.gov/pdtool> [October 2017].

## Appendix C

### Determining a Reasonable Share of Costs for Families to Pay

**T**his appendix discusses the existing literature on approaches to determining what share of total early care and education (ECE) costs is reasonable for families at different income levels to pay. It describes the advantages and disadvantages of the four main approaches that the committee found in this literature: no-fee payments, share of income determined by families' current average ECE expenditures, share of family income after protecting for other necessities, and share of income that minimizes impact on family utilization decisions.

#### CRITERIA FOR DETERMINING A REASONABLE SHARE FOR FAMILIES TO PAY

The committee identified several important criteria to use to assess different approaches to determining a reasonable share of total ECE costs for families, or in other words, in defining what is *affordable* for families. These criteria reflect the committee's view that children's access to high-quality early care and education should not be constrained by a family's income, and the committee therefore agreed that an affordability standard should simultaneously promote access and equity. First, for an approach to be considered affordable, it must enable families at all income levels to access high-quality ECE services for their children of all ages from birth to 5 years old. Second, to be *equitable*, if an approach requires family payment of fees, then the share of income expected to be paid out of pocket for ECE services must increase progressively across income levels, reflecting the

fact that as family income increases, the share of income needed for other necessities decreases.<sup>1</sup>

The committee noted two additional desirable attributes for a method of determining a reasonable share for families to pay: clarity or transparency and ease or cost of implementation. The basis for determining family payments and assistance levels should be clear and understandable to policy makers and families. Minimizing the complexity of appropriate payment shares can improve the transparency and acceptability of the system and promote uniform application of rules across families and jurisdictions. To the extent practicable, minimizing the cost of implementing a payment share system is another desirable goal, as it uses public and private resources more efficiently. Moreover, an efficient payment share system may also allow administrators to focus on service provision rather than payment management.

As described in Chapter 6, within a given geographic market, the cost of high-quality early care and education on a per-child basis varies by type of care (home based or center based) and age of child as well as the particular service needs of the child (e.g., special needs). However, every child, regardless of family income, should have access to services of equally high quality. Therefore, regardless of the financing mechanism, the process for gaining access to high-quality ECE services must be evaluated based on the aforementioned criteria of affordability (to ensure access for all), equity, transparency, and efficiency.

### **APPROACHES TO SPECIFYING AN AFFORDABLE SHARE OF COSTS FOR FAMILIES**

There is no universally accepted definition of affordability for ECE services or agreement on how it should be measured. Definitions for affordability of housing, health care, and higher education face similar challenges (see, e.g., Harkness and Newman, 2005).<sup>2</sup> The committee reviewed four

---

<sup>1</sup> A progressive tax is one that imposes a heavier tax burden, as a percentage of income, on higher-income households than on lower-income households. In the tax literature, progressivity is often justified in terms of promoting equal sacrifice, on the ground that a dollar given up by a higher-income individual requires a smaller sacrifice than a dollar given up by a lower-income individual. This assumption of diminishing satisfaction (which economists call “utility”) as income rises is plausible and clearly implies that higher-income families should pay more taxes than lower-income families. However, unless one knows the specific form of the relationship between income and satisfaction, it is impossible to be specific about the appropriate degree of progressivity or indeed even if tax burdens should rise as a share of income, as income rises. Thus, legal and economic tax experts are careful to note that the degree of progressivity must ultimately be based on value judgements about what is fair (see, e.g., Slemrod, 1996).

<sup>2</sup> In presentations to the committee, representatives from the health care, housing, and higher-education fields discussed definitions of affordability in their sectors.

different approaches to determining a reasonable share for families to pay, or in other words, defining an affordability standard for families. These approaches include (1) no-fee approaches, (2) share of income based on equitable cost burden, (3) share of income after protecting for necessities (basic-needs budget approach), and (4) affordability as minimizing impact on utilization decisions (economic modeling approach).

Many complexities arise in defining an affordable share for families to pay, in terms of defining both family income and payments. The federal standard for family payments in the Child Care and Development Block Grant (CCDBG) program is based on gross income, not accounting for tax benefits currently available to middle-income families. Prices of ECE services and availability of tax preferences differ across states; thus a standard based on national averages is likely to be too high (with respect to affordability) in some states and too low in others. Accounting for multiple children of different ages in families also complicates the discussion; in other words, should the affordability standard refer only to payments for children age zero to 5 years (the focus of this report) or to all children in the family? As noted elsewhere in the report, expenditures for care of school-age children are substantial for many families who also have children younger than 5 years old. Dealing effectively with these complexities adds to the challenge of designing a system that is affordable, equitable, transparent, and not costly to administer.

### No-Fee Approaches

In a few states in the United States, courts have included early education for children of certain ages as part of the right to education protected by the state, as it is for older children in the birth to age 8 years range. Oklahoma and Georgia have established universal prekindergarten programs, some of which are offered at no out-of-pocket costs to parents. Other localities, such as Washington, D.C., and New York City, have also implemented universal prekindergarten programs that do not require parental payments. In some countries, for instance Portugal and the Nordic countries, access to ECE services is defined as a legal right; therefore, demand at both national and local levels must be met and relevant resources provided (Penn, 2017).<sup>3</sup>

As limited U.S. experiences demonstrate, no-fee approaches eliminate financial barriers to accessing certain ECE programs and ensure access

---

<sup>3</sup> However, most countries in the Organisation for Economic Cooperation and Development (OECD) charge fees for early care and education. According to the OECD Family Database, “On average across OECD countries, the net cost of childcare (for two children aged 2 and 3 in full-time centre-based care) for a two-earner couple family works out to just under 17.5 percent of average earnings, but there is substantial variation across countries (Chart PF3.4.B).” See [www.oecd.org/els/family/database.htm](http://www.oecd.org/els/family/database.htm) [June 2018].

to early care and education, regardless of family circumstances. No-fee approaches can also help to reduce economic insecurity and boost discretionary income of families with young children in areas or groups where poverty is highly concentrated. A no-fee approach may also promote economic integration of children if programs are designed and located to serve diverse groups of children without regard to family income. Such integration has been shown to benefit all children, but if the greater public cost of no-fee programs causes them to be limited to low-income children, the effect is to promote harmful economic segregation.

No-fee systems may also be more transparent and simpler to administer, as they avoid the need for complex fee and copayment schedules, for administrative structures to determine family income and eligibility, and for the ability to complete complex tax return documents.

No-fee approaches also have disadvantages. If a no-fee approach is structured so that no fees are charged to families only up to a certain income level, with a significant fee imposed above that level, a classic “cliff” with work disincentives will emerge (see Chapter 4). In addition, if a no-fee approach is structured so that families at all income levels do not pay for services, higher-income families will receive the same subsidization as lower-income families, yielding a regressive financing structure (unless the revenue sources supporting the spending are sufficiently progressive to offset the subsidies given to upper-income families).

### **Family Payment Based on Current Average ECE Expenditure as Share of Income**

A common approach across the housing, higher education, and health care sectors is to define affordability based on a share of family income. For example, a widely used criterion for affordability of housing costs is that housing should cost not more than 30 percent of income. With respect to health insurance, the Commonwealth Fund Affordability Index identifies “high” premium costs to be 10 percent or more of income (7% for low income), “high” deductibles to be 5 percent of income or more, and “high” out-of-pocket costs to be 10 percent or more of income (5% for low-income families, defined as household income below 200 percent of the federal poverty level) (Collins et al., 2015). Current federal childcare subsidy policy also uses this cost burden approach, indicating that family payments for CCDBG recipients should not exceed 7 percent of income.<sup>4</sup> Until recently, federal policy had specified 10 percent of income as a measure of affordable copays, and states may choose to exempt families below the federal poverty

---

<sup>4</sup> The data underlying this standard, and the policies to which it applies, include payments for school-age children as well as children from birth to 5 years.

level from copays.<sup>5</sup> Across sectors, however, there is no generally accepted rationale for determining what share of income is appropriate. Because of this uncertainty, the committee considered alternative ways to assess what share of income should be considered as affordable for a family to pay for ECE services.

Given differences in needs and preferences, two families with the same income level may choose to spend their resources differently. Thus, a share-of-income approach is not intended to determine (or assume) that every family will spend the designated percentage of their income on ECE services. Some will choose to spend more, others will want to spend less. To ascertain what an average family would consider affordable, one approach is to examine current levels of ECE expenditures as a basis for what is affordable. This is a market-concept approach, assuming that if families currently pay this amount, it is affordable to them.

One advantage of using current ECE expenditures as the basis for a share-of-family-income affordability standard is its grounding in the economic theory of “revealed preferences.” Asking families in a survey what is affordable is not likely to result in reliable numbers, whereas using data on actual expenditures reveals what families spend when taking into account their preferences for different goods and services. Current federal guidelines for ECE subsidy copays are based on national survey data indicating the share of income that is paid out of pocket by families (about 7%, on average).<sup>6</sup> The income share could be proportional (set at the same level for all families) or progressive (where the share of income increases as income level increases). A proportional share of income that is affordable for very-low-income groups will not generate substantial resources for the system and likely would benefit some affluent families who would pay less than they currently pay. In contrast, a progressive approach that increases the required family share for higher income families could promote greater equity because as family income increases, the share of income needed for other necessities decreases.

Setting an affordable share of income based on current expenditures by families provides one approach to defining what is affordable. However, families’ current expenditures on ECE are driven by a number of factors including cost of programs (see Chapter 2), and some families may currently be spending large shares of their income on ECE at the expense of other necessities. Determining how to set a benchmark or affordability standard for a typical family presents a number of challenges. Families differ in both

<sup>5</sup> *Federal Register*, vo. 81, no. 190, p. 67440. CCDBG Final Rule. Published September 30, 2016.

<sup>6</sup> The 7 percent average is based on all families’ current payments, which includes families who are currently paying zero and includes payments for school-age children.

their needs and their resources, and so even families with the same income level will not necessarily find the same income share to be “affordable.” Taking into account differences in family needs as well as resources could be done but could result in a complicated formula or determination process. A related approach that determines affordability by protecting a share of income for other necessities is described in the next section.

### **Protecting a Share of Income for Other Necessities (basic-needs budget approach)**

The basic notion of affordability of a good or service is measured by its cost relative to what a family can pay, or whether the cost is within the family’s financial means. But the criterion of being “within the family’s financial means” is not sufficiently specific (e.g., the income share could be any number below 100%). A related approach is to establish an affordability standard that accounts for the share of income needed for other basic necessities. Like the cost burden approach, this approach is based on affordability as a share of family income, but in this case, the family contribution is based on income above the amount for necessities. By setting aside a certain amount of income for necessities, this standard ensures ECE access for low- and moderate-income families. A share of the remaining “discretionary” income is charged as family payment for early care and education, with the remainder of ECE cost covered by public subsidy. For example, Helburn and Bergmann (2002) proposed setting aside income equivalent to twice the federal poverty level, which has been shown by a number of analyses to be the amount required for a basic standard of living with assistance. However, determination of a basic-needs budget typically includes ECE costs, so in developing this approach one would want to adjust to avoid double counting.

As noted above, one critique of basing an affordability standard on a share of family income is that families differ in their need for other necessities. By setting aside a basic income level for necessities, affordability is implicitly defined as a level of expenditures that does not impinge on the family’s ability to purchase other necessities. Family contribution to higher-education costs are based on a similar concept, accounting for both family income and family needs (such as having more than one student attending higher education at the same time).

One key advantage of this method is the clear conceptual basis for the set-aside and the potential for accounting for some differences across families in terms of needs. For instance, the federal poverty level varies by number of children in the household, although neither their ages nor disability status are factors.

One critique of this approach is that setting aside the full cost of meeting other basic needs effectively exempts families from having to make

tradeoffs among different goods and services. Within their budgets, families may spend more on other goods or services that may benefit children, such as health or housing, or activities that families value and can be enriching for children and contribute to family well-being, such as travel. The first method of setting an affordability standard, based on current income share spent on ECE, reflects the tradeoffs families make among different goods and services and the value they place on them. But it also results in a cliff at the set-aside amount, as discussed above.

The basic-needs set-aside approach does not necessarily provide equitable access, if the share of income above basic needs is fixed at the same level for all income groups. In addition, the federal poverty level is set nationally, yet costs of living vary considerably across locations. The National Center for Children in Poverty estimates a basic-needs budget (including ECE costs) ranging from 175 percent to 327 percent of the federal poverty level, depending on location and family structure.<sup>7</sup> However, this approach to an affordability standard could be modified to allow for differences in costs of living in different locations.

Implementation of this approach to an affordability requirement would require first, determining what is the level of basic income to set aside (which might vary by location and family structure), and then determining the share of the remaining income to designate as affordable for families (which likely would need to vary by income level to ensure access for moderate-income families). While there are estimates of basic-needs budgets, the determination of these numbers is fundamentally a policy decision. Keeping in mind the criteria identified by the committee in the introduction to this appendix, this approach adds complexity although it may improve access by taking into account variation in families' needs.

### **Minimizing Impact on Utilization Decisions (economic demand modeling approach)**

A fourth approach to defining an affordability standard is to use economic analysis and data on families' use of ECE services to extract information about what families would be willing to pay. The economists' concept of "willingness to pay" refers to the maximum amount someone is willing to pay for a good or service, given their income level. However, to most people, an "affordable" amount is less than the maximum amount one would pay. In economics, a *demand curve* indicates how much of a good or service consumers will purchase at different prices, given their incomes, prices of other goods and services, and other factors. An economic model of demand for high-quality ECE services could be used to estimate the degree

<sup>7</sup> See <http://www.nccp.org/tools/frs/budget.php> [January 2018].



to which the net current price charged to families at different income levels affects their decisions regarding the type and hours of ECE service utilized. Estimates of the degree of price responsiveness (called “elasticities” by economists) could be used to determine how changes in the amount families pay would affect their utilization decisions.

The economic demand modeling approach to setting an affordability standard would directly address the objective of making high-quality early care and education “affordable” by determining what families would pay for high-quality ECE services while continuing to use the same or greater level of those services. This approach could differentiate among different income groups (promoting the goal of equity) and adjust for costs of care for children of different ages. By estimating families’ responsiveness to prices, this approach reflects families’ preferences and tradeoffs, including their spending on early care and education and other goods and services.

If higher costs lead to higher prices for families, economic demand modeling can provide information about how families are likely to respond. If price is increased, families likely will reduce the number of hours of ECE services they use, or they may switch from higher- to lower-price (and potentially lower-quality) providers, such as from center-based to home-based ECE providers. The current pattern of lower use of center-based care by middle-income families than either higher-income families or lower-income families (who have more access to subsidies and free public programs) provides evidence of how families respond to prices (see Chapter 2 for details). Blau (2001) estimated that a 10 percent increase in the price of center-based care (holding other prices constant) would decrease the use of centers by 2.4 percent. If prices of all types of care increased 10 percent, he estimated a drop of about 3 percent in use of paid child care. These estimates indicate that families will use more paid care and more center-based care than currently used if the amount they would pay out-of-pocket decreases.

Additional evidence of the response of parents to more affordable early care and education comes from studies that have demonstrated that families with ECE subsidies use more center-based care, and higher-quality care, than those without subsidies (Berger and Black, 1992; Davis, Krafft, and Forry, 2017; Johnson, Ryan, and Brooks-Gunn, 2012; Marshall et al., 2013; Ryan et al., 2011). Parents’ rate and hours of employment also respond to the price of ECE services; if price increases, some may remain outside the labor market entirely. In a review of the literature, Morrissey (2017) concluded that mothers’ employment would decline 0.5 to 2.5 percent if ECE costs (to families) increased by 10 percent.

Current estimates of families’ out-of-pocket expenditures on early care and education and their price responsiveness reflect current market conditions, in which the quality of early care and education is predominantly mediocre. It is possible that families would have higher rates of utilization

or would pay more for early care and education that was of higher quality than they currently find available. There is limited research measuring families' willingness (and ability) to pay for high-quality early care and education. Studies by Blau (2001) and Blau and Hagy (1998) concluded that families are not willing to pay (much) higher prices for higher-quality care. Blau (2001, p. 113) notes that "consumer willingness to pay for higher quality is . . . weak on average . . . and highly variable across markets." Both studies noted that the measures of quality used in the analysis are limited and may not be closely tied to quality of care valued by parents. In addition, a weak relationship between price and quality could be due to a lack of information about quality; that is, whether parents can determine the relative quality of ECE options (Cryer and Burchinal, 1997; Mocan, 2007). However, the relationships among price, quality, and ECE utilization estimated in these studies may be less relevant today and in the future, given the changes in the ECE landscape over the past two decades. In particular, the introduction of quality rating systems may give parents more information about quality. If higher-quality ECE services are available and identifiable, some families may be willing to spend more than they currently do, and they may use more ECE services.

The economic modeling approach would also face challenges because the required analysis is complex and could be difficult for policy makers and stakeholders to understand fully. There are multiple factors in addition to the price families pay that affect their utilization decisions (e.g., availability of family caregivers, work schedules, cultural preferences, urban/rural location, and number of nearby facilities). For the economic demand modeling approach to take these factors into account, the data requirements would be substantial. Whether family payments would vary by these factors would need to be determined, although federal and state policies do reflect some differences across families, such as differences in copay by family size. Similarly, if price responsiveness varies by state, that would open the question of whether family payments or the affordability standard ought to vary across states. As with any of the methods that use data to set an affordability standard, there would be a need to update over time, and the added complexity might increase the cost of updating.

To summarize, economic modeling of family demand for high-quality ECE would provide important information about families' preferences and responsiveness to prices and quality. This information could be helpful in determining a level (or levels) of family contribution that does not reduce utilization of high-quality early care and education. Further exploration of the economic demand modeling approach is beyond the scope of this study but may be warranted for its potential to inform the phases needed in the transition to the envisioned new ECE system.

## CONCLUSION

The financial burden on parents affects their decisions about using ECE services, including the amount, type, and quality of ECE service they use. While parents may contribute some portion to the costs of early care and education, relying solely on parents to shoulder the burden of higher costs of higher-quality early care and education would likely lead to reductions in the use of higher-quality ECE options and less support for children's early learning and development. Yet determining what level of expenditures is affordable to families is challenging for a number of reasons. First, there is no universally accepted measure or standard of ECE affordability. In addition, the share of income families spend on early care and education varies with their resources, needs, and preferences.

Declaring that a specific share of income is "affordable" does not imply or assume that every family will be willing to spend that percentage of their income on early care and education. Some will want to spend more; others will want to spend less. Changes in out-of-pocket costs to families will alter the size of the contributions from families and from the public sector, but such changes will also affect families' decisions with regards to how much and what kind of early care and education to use.

## Appendix D

### Biosketches of Committee Members and Staff

**LA RUE ALLEN** (*Chair*) is the Raymond and Rosalee Weiss professor of applied psychology and chair of the Department of Applied Psychology in the Steinhardt School of Culture, Education, and Human Development at New York University. She also directs the Child and Family Policy Center, which focuses on bringing social science knowledge to policy makers and practitioners concerned with young children and their families. In her work at the center, she has partnered with agencies that oversee the publicly funded early care and education (ECE) systems in New York City and New York State on research initiatives such as authentic assessment in prekindergarten settings and ECE workforce development. She was a visiting scholar at the Centre de Recherche de l'Éducation Spécialisée et de l'Adaptation Scolaire in Paris, France, where she conducted research on the role of parents and educators in the development of civic attitudes and behaviors among youth. She chaired the study committee that authored the *Transforming the Workforce for Children Birth Through Age 8* report, the foundation for this study. She received her Ph.D. in clinical/community/developmental psychology from Yale University.

**CELIA C. AYALA** is the senior advisor to the Los Angeles Universal Preschool (LAUP) Child360 and a recognized leader in early care and education (ECE) innovation and access to educational services. She has advocated successfully for ECE investments, quality improvements, policy, and workforce development. With her influence, LAUP has been recognized as a state and national model in ECE coaching, training and consulting, early language development, fiscal coaching, and family engagement. She is a

member of the Congressional Pre-K Caucus, a bipartisan forum intended to inform members of Congress about high-quality ECE programs and to develop bipartisan policy recommendations to improve and expand ECE opportunities. In 2008, she was appointed to the California Early Learning Improvement System Advisory Committee, where she helped develop and implement a statewide quality improvement system for early learning, which has become the foundation for quality rating and improvement systems across the state. Prior to joining LAUP, she served as assistant superintendent, Division of Children and Family Services, Riverside County Office of Education, where she managed all county ECE programs and activities, including the Head Start program. She has also served as the Pasadena Unified School District's director of curriculum, instruction and educational technologies; principal at James Madison Elementary School; and director of the Los Angeles County Department of Education's Division of Curriculum, Instruction, and Assessment. She received a doctorate in education from the University of Southern California.

**EMILY P. BACKES** is costudy director for this report and a program officer for the Board on Children, Youth, and Families in the Division of Behavioral and Social Sciences and Education at the National Academies of Sciences, Engineering, and Medicine. During her more than 5 years with the National Academies, she has provided analytical and editorial support for studies and contributed technical writings for many reports. Her projects have included the areas of law and justice; children's cognitive, affective, and behavioral health; education and literacy; science communication; and science and human rights. Recent National Academies reports include *Proactive Policing: Effects on Crime and Communities*; *Science Literacy: Concepts, Contexts, and Consequences*; *Reforming Juvenile Justice: The Federal Role*; *Understanding the U.S. Illicit Tobacco Market*; and *Support for Forensic Science Research*. She received an M.A. and B.A. in history from the University of Missouri and is currently pursuing a J.D. at the University of the District of Columbia.

**DAPHNA BASSOK** is an associate professor of education and public policy at the University of Virginia and is associate director of EdPolicyWorks, a joint collaboration of the Curry School of Education and the Frank Batten School of Leadership and Public Policy. Her research focuses on the impacts of large-scale early care and education (ECE) policies on the well-being of low-income children. She currently leads a project to examine Louisiana's efforts to overhaul its ECE system through a focus on educator-child interactions. In January 2017, she received a Presidential Early Career Award for Scientists and Engineers in recognition of the Louisiana project. Other

recent research includes an evaluation of medium-term impacts of full-day prekindergarten, a quasi-experimental study measuring the effects of North Carolina's quality rating and improvement systems, and studies tracking changes in early childhood achievement gaps over time. She holds a Ph.D. in the economics of education, an M.A. in economics, and an M.A. in policy analysis and evaluation, all from Stanford University.

**RICHARD N. BRANDON** retired as founding director of the Human Services Policy Center at the University of Washington's Evans School of Public Affairs. An expert in public finance, he led the center's research on financing of public education and child care and founded the Washington Kids Count project. He currently works on several national projects related to early care and education (ECE) services and planning and budgeting for children's services, and recent research includes the impact of recession on ECE practitioner employment. He was co-principal investigator for both a study of access to high-quality ECE options for overseas military personnel and the National Survey of Early Care and Education. For the latter, he had lead responsibility for ECE workforce issues and was lead author of the survey's workforce report. For UNICEF, he was principal investigator on a contract to develop financial analytic tools and training for government officials in Bosnia and Herzegovina. He previously served as staff director of the U.S. Senate Budget Committee. Prior to that position, he directed systems analysis and budgeting for the New York City Department of Mental Health and analyzed Social Security financing as a fellow of the Employee Benefit Research Institute. He has consulted on human services and financing and workforce issues with state and local governments; UNICEF; the American Association of Retired Persons; the Carnegie Commission on Science, Technology, and Government; and Fannie Mae. He received a Ph.D. in political science from the University of Pennsylvania.

**EMILY BYERS** is a Christine Mirzayan science and technology policy fellow who served during her fellowship as a research associate with the National Academies, assisted in the research for this study. She currently is an associate program officer, serving the National Academies' Health and Medicine Division, Health Care Services Board standing committee and the Committee on Improving Health Outcomes for Children with Disabilities. She is active in science communication, serving as editor for the *Journal on Science Policy and Governance* and managing editor/staff writer for *SciU: Conversations in Science*. She is a doctoral candidate in speech and hearing sciences at Indiana University and holds a master's degree in linguistics from Florida International University. Her research focuses on bilingual language acquisition, language policy, and speech perception.

**GERALD M. CUTTS** is the founding president and CEO of First Children's Finance, a multistate not-for-profit, established in 1991 that works to increase high-quality early care and education (ECE) access in lower-income communities by focusing on the business and financial aspects of strategies that increase the sustainability and supply of high-quality ECE services. Activities include providing business technical assistance to ECE business owners and to urban and rural communities, assisting state governments, developing strategies for public and private partnerships to fund and finance ECE options, and providing ECE facility financing for providers that serve lower-income families. As president and CEO, he is responsible for strategic direction, financial oversight, resource development, national and local policy, and strategic business development. Previously, he was co-director of an ECE center and worked in a community economic development corporation, where he applied economic development finance tools and strategies to finance home-based ECE services through use of bonding; tax increment financing; and packaging of federal, state, and local funds. He holds a master of city planning degree from the Massachusetts Institute of Technology and a J.D. from the Northeastern University School of Law.

**KIM DANCY** is a senior policy analyst with the Education Policy program at New America. She works with the Higher Education Initiative, where she conducts original research and data analysis on higher education issues, including federal funding for education programs, quality assurance and consumer protection, and general data and analytic support. Previously, she worked for the Georgetown University Center on Education and the Workforce, focusing on the use of competency-based education in career and technical fields, as well as the alignment of educational programs with labor market needs. She holds a bachelor's degree from the University of Michigan and a master's degree in public policy from Georgetown University.

**ELIZABETH E. DAVIS** is professor of applied economics at the University of Minnesota. Her research focuses on economics and public policy related to low-income families and early care and education in the United States. Her recent research examines the dynamics of participation in early care and education (ECE) subsidy programs, why parents stop using subsidies, ECE access and affordability, and the connection between parents' employment and ECE choices. Other research has focused on rural and low-wage labor markets and includes studies of the impact of local competition on wages and job turnover in the retail food industry and the relationship between local labor market conditions and employment outcomes for disadvantaged workers. She is a member of the American Economic Association, Association of Public Policy and Management, Society of Labor

Economists, and the Community and Regional Economics Network. She received an M.A and a Ph.D. in economics from the University of Michigan.

**HARRIET DICHTER** is a fellow at ICF, focusing on early education work in collaboration with the federal and state governments. She also provides policy and strategy consulting to foundations, policy nonprofits, local and state governments, and school districts. Her career has focused on innovation in early learning. She founded and led the Pennsylvania Office of Child Development and Early Learning, where she established the state's pre-kindergarten program, its business-led early learning investment commission, its early childhood mental health consultation program, and full-day kindergarten; reformed its approach to child care assistance, professional development, quality improvement and accountability; and led internal and external advocacy on behalf of the Governor's agenda, including cultivation of business leaders and mobilization of the early childhood community and other key stakeholders. In Pennsylvania, she also served as secretary of the Department of Public Welfare and as policy director, Department of Education. In Philadelphia she was deputy managing director for child policy, maternal and child health director, and special assistant to the Mayor. She also has worked in Delaware as the founding executive director of the Office of Early Learning, where she accelerated the pace, quality, and accountability of comprehensive early childhood work. In the nonprofit sector, she has held many leadership roles ranging from service nationally at the First Five Years Fund, the Ounce of Prevention Fund, and the Pew Charitable Trusts to local service at community-based nonprofits. She received a B.A. in psychology and in American studies from Yale University and a J.D. from the University of Pennsylvania Law School.

**KATHY GLAZER** joined the Virginia Early Childhood Foundation, a nonpartisan public-private venture, as president in January 2012. Under her leadership, the foundation promotes innovative initiatives and public-private partnerships to ensure that Virginia's children enter kindergarten healthy and ready to succeed in school, the workforce, and life. Previously she worked with the national Build Initiative as director of state services, providing strategic advice to states on advancing their early care and education (ECE) policies and agendas. From 2005 until 2009, she served in Virginia state government positions including executive director of the governor's office for early childhood policy and director of the Office of Early Childhood Development, an office created to span ECE programs, staff, and funding streams across state agencies. She has provided leadership for many of Virginia's key early childhood initiatives, leveraging public-private partnerships to create the statewide Smart Beginnings network and the Virginia Early Childhood Foundation and spearheading Virginia's ECE



standards alignment and at-risk prekindergarten initiatives. She received a B.A. from the University of Georgia and an M.P.A. from Virginia Commonwealth University.

**LYNN A. KAROLY** is a senior economist at the RAND Corporation and a professor at the Pardee RAND Graduate School. A labor economist, her recent research has focused on human capital investments, social welfare policy, child and family well-being, and U.S. labor markets. Her research on child-related policy has included studies on the use and quality of early care and education (ECE) programs, the system of publicly subsidized ECE programs, professional development for the ECE workforce, and ECE quality rating and improvement systems. In related work, she has examined the costs, benefits, and economic returns of early childhood interventions and youth development programs, and more generally she has assessed the use of benefit-cost analysis to evaluate social programs. Other research has examined issues pertaining to poverty, inequality, immigration, welfare reform, and U.S. labor markets. She served as the director of RAND's Office of Research Quality Assurance and as director of RAND Labor and Population. She is an editor for the *Journal of Benefit-Cost Analysis* and the *Journal of Human Resources* and was vice president and now president of the Society for Benefit-Cost Analysis. She received her Ph.D. in economics from Yale University.

**HELEN F. LADD** is Susan B. King professor emerita of public policy and economics at Duke University's Sanford School of Public Policy. She has written on charter schools and school choice in North Carolina, self-governing schools and parental choice in New Zealand, market-based reforms in urban school districts, voucher programs, school reform in post-Apartheid South Africa, and school finance in the Netherlands. With Duke University colleagues she has used longitudinal data from North Carolina to report on ECE programs and to write articles on school segregation, educator labor markets, and educator quality. She has co-edited or coauthored books on such topics as performance-based reform in education, educational finance and policy, and educational reform in other countries. Prior to joining the Duke University faculty, she taught at Dartmouth College and Wellesley College. At Harvard University, she taught first in the City and Regional Planning Program and then in the Kennedy School of Government. She is past president of the Association for Public Policy Analysis and Management and a member of the National Academy of Education. She holds a B.A. degree from Wellesley College, an M.A. degree from the London School of Economics, and a Ph.D. in economics from Harvard University.

**SHEILA MOATS** is a program officer with the Board on Children, Youth, and Families (BCYF) at the National Academies of Sciences, Engineering, and Medicine and co-study director for the consensus study on Financing Early Care and Education, which produced this report. Other projects she has contributed to within BCYF include the consensus reports *Transforming the Workforce for Children Birth Through Age 8: A Unifying Foundation* and *Promoting the Educational Success of Children and Youth Learning English: Promising Futures*. During her 16 years on the National Academies staff, she has also worked on projects with the Food and Nutrition Board and has been the director of several workshops, in addition to working on numerous consensus studies. Prior to joining the National Academies, she worked for the American Diabetes Association and the University of Colorado Health Sciences Center. She received a B.S. in nutrition science from The Pennsylvania State University.

**SHAYNE SPAULDING** is a senior research associate in the Income and Benefits Policy Center at the Urban Institute and codirector of Bridging the Gap, an initiative focused on the intersection between ECE services and services for low-income adults seeking skill improvement. She also directs an assessment of the New Skills at Work initiative, a \$250 million investment in national and global workforce development. She led the Urban Institute's work for the MacArthur Foundation on Cities of Learning, an initiative to improve educational and workforce outcomes for youth. She has spent nearly 20 years in the workforce development field as an evaluator, technical assistance provider, and program manager. Her research has focused on evaluations of workforce development and postsecondary education programs and strategies. Previously, she was the university director of workforce development for the City University of New York, where she oversaw continuing education and workforce programs across that university's 24 campuses. Before that, she was a senior program director for Public/Private Ventures. She serves on the board of the Workforce Professionals Training Institute. She holds a B.A. in American government from Wesleyan University and an M.A. in public policy from Johns Hopkins University.

**SARAH TRACEY** is a staff member on the Board on Children, Youth, and Families (BCYF). She provides support on the Forum on Promoting Children's Cognitive, Affective, and Behavioral Health (The Children's Forum) and leads the Collaboratives on Healthy Parenting in Primary Care; Preparing the Future Health Care Workforce, and Vital Signs for the Health and Wellbeing of Children and Families. She is also collaborating with members and sponsors on defining the Forum's strategic priorities and defining Forum impact on research, policy, and practice. In addition, Ms. Tracey is developing communication products for targeted audiences at the state and

local levels and has interest in mapping stakeholder relationships across the education and health sectors to effect systems-level change. Since 2013, Ms. Tracey has worked on a number of projects in BCYF related to early childhood education, workforce education and development, and health policy, including the consensus report *Transforming the Workforce for Children Birth Through Age 8: A Unifying Foundation*. She also led the subsequent expert meeting on the Funding Landscape for Preschool with a Highly Qualified Workforce and provided support at the outset of the study on Financing Early Care and Education with a Highly Qualified Workforce. Ms. Tracey received her M.A. in international education from New York University in 2011, and has experience as a teacher, collaborator, writer, designer, and student.

**MARCY WHITEBOOK** is founder and director of the Center for the Study of Child Care Employment in the Institute for Research on Labor and Employment, University of California, Berkeley. Her research focuses on compensation, work environments, and appropriate and accessible professional preparation for the early care and education (ECE) workforce, with specific attention to how these issues relate to children's development and learning. Her most recent reports document the current status of the ECE workforce and analyze how federal and state workforce policies serve to support or undermine effective teaching, contribute to inequitable services for children and families, and often pose risks to the personal and familial well-being of the ECE workforce. Previously she was the founding executive director of the Center for the Child Care Workforce, which she began in 1977 as the Child Care Employee Project. Dr. Whitebook has led several large-scale ECE research projects, including the 1989 National Child Care Staffing Study. She holds a B.A. in religious studies and an M.A. in early childhood education from the University of California, Berkeley; her Ph.D. in development studies in education is from the University of California, Los Angeles.