

# **CUTTING THROUGH COMPLEXITY**

Using Behavioral Science to  
Improve Indiana's Child Care  
Subsidy Program

OPRE Report 2016-03  
September 2016

## *Executive Summary*

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## **Using Behavioral Science to Improve Indiana's Child Care Subsidy Program**

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**Authors: Nadine Dechausay, Caitlin Anzelone**

**Submitted to:**

**Emily Schmitt, Project Officer**

Office of Planning, Research and Evaluation  
Administration for Children and Families  
U.S. Department of Health and Human Services

**Project Director: Lashawn Richburg-Hayes, MDRC**

16 East 34th Street  
New York, NY 10016

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## OVERVIEW

The Behavioral Interventions to Advance Self-Sufficiency (BIAS) project is sponsored by the Office of Planning, Research and Evaluation of the Administration for Children and Families (ACF) in the U.S. Department of Health and Human Services. The project, led by MDRC, aims to apply behavioral insights to issues related to the operations, implementation, and efficacy of selected programs and policies.

This report describes a collaboration between the Indiana Office of Early Childhood and Out-of-School Learning (OECOSL) and the BIAS team. The OECOSL is the lead agency responsible for administering the state's Child Care and Development Fund (CCDF), which provides child care subsidies to low-income parents who are working or in school. The BIAS team tested three behavioral interventions related to the CCDF program using random assignment.

The first intervention focused on child care decision making among low-income parents. It aimed to increase the percentage of parents who used their CCDF subsidies to pay for providers in the state's quality rating and improvement system, called Paths to QUALITY (PTQ). The BIAS team replaced the letter and brochure typically sent to parents on the CCDF waitlist with a redesigned packet, which included individualized child care referrals. Some parents also received a personal phone call.

The intervention ran for four months. Findings showed that it did not increase the overall percentage of CCDF families who chose any PTQ provider; however, being sent a referral list combined with a phone call increased the percentage of parents who chose a highly rated provider by 2.1 percentage points (a 17 percent change).

Two additional tests focused on the CCDF redetermination process. Parents in Indiana had to verify their eligibility at least every six months. The interventions aimed to encourage parents to attend their first scheduled appointment and to help parents complete the process in one appointment. If successful, the intervention would reduce the hassles of redetermination, which may affect the continuity of care. The BIAS team replaced the notification materials normally sent to parents with a redesigned appointment letter, checklist, and reminder postcard.

The first test ran for five months in Marion County. Findings showed that the behavioral intervention increased the percentage of parents who attended their first scheduled redetermination appointment by 2.6 percentage points (a 5 percent change) and the percentage of parents who completed redetermination in one appointment by 3.2 percentage points (a 5 percent change). It did not change the likelihood that parents would renew on time.

Using a rapid-cycle evaluation approach, the team designed a second intervention using lessons from the first. This test ran for four months. The second intervention increased the percentage of parents who attended their first scheduled redetermination appointment by 10.6 percentage points (a 24 percent change). It did not change the likelihood that parents completed redetermination in one appointment, but it did increase the percentage of parents who renewed on time by 2.7 percentage points (a 4 percent change).

# ACKNOWLEDGMENTS

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We also recognize Philip Oreopoulos at the University of Toronto for contributing his considerable behavioral economics and evaluation expertise to the intervention and research design. Crystal Hall at the University of Washington, Dilip Soman at the University of Toronto, and members of the BIAS research team at MDRC and MEF Associates also provided feedback on the intervention materials and study design. Farhana Hossain at MDRC and graphic designer Pete Novello helped design some of the intervention materials used in this study. At MDRC, Jared Smith served as data manager; Dan Cullinan assisted with the analysis planning; Mark Kaplan, Nikki Gurley, and Sara LaPlante helped program data; and Donna Chan and Drew McDermott contributed to the study's operations.

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The Authors

# EXECUTIVE SUMMARY

The Behavioral Interventions to Advance Self-Sufficiency (BIAS) project is the first major opportunity to use a behavioral economics lens to examine programs that serve poor and vulnerable families in the United States. Sponsored by the Office of Planning, Research and Evaluation (OPRE) of the Administration for Children and Families (ACF) in the U.S. Department of Health and Human Services and led by MDRC, the project applies behavioral insights to issues related to the operations, implementation, and efficacy of social service programs and policies. The goal is to learn how tools from behavioral science can be used to deliver programs more effectively and, ultimately, improve the well-being of low-income children, adults, and families.

This report describes a collaboration between the Indiana Office of Early Childhood and Out-of-School Learning (OECOSL) and the BIAS team. The OECOSL is the lead agency responsible for administering the state's Child Care and Development Fund (CCDF), which provides child care subsidies to low-income parents who are working or in school. The CCDF has the dual goals of supporting parental employment and furthering children's development. Over a period of 19 months, the BIAS team designed and evaluated three behavioral interventions that aimed to improve outcomes at two important points in the child care program — when parents enroll in the CCDF program and must select a child care provider, and when they renew their subsidies.

The first intervention, which was launched statewide in June 2014 and ran through October 2014, focused on child care decision making among low-income parents. It aimed to increase the percentage of parents who used their CCDF subsidies to pay for highly rated providers in the state's quality rating and improvement system — Paths to QUALITY (PTQ). The PTQ program ranks child care providers on a four-point scale based on standards related to health and safety, staff qualifications, parental engagement, and curriculum development. The OECOSL sought to increase the percentage of CCDF parents who selected PTQ providers, and to increase the number who chose highly rated providers (Levels 3 or 4).

Two additional interventions, which ran from January through November 2014, focused on CCDF redetermination in Marion County, a large urban county that includes the city of Indianapolis. Parents had to verify their continued eligibility for child care subsidies at least every six months by submitting required documentation. The OECOSL aimed to use behavioral insights to encourage parents to attend their first scheduled appointment and to complete the process in one visit.

## BIAS Diagnosis and Design Process

The BIAS team used a method called “behavioral diagnosis and design” to identify potential behavioral “bottlenecks” and test low-cost, behaviorally informed interventions to address them. The behavioral diagnosis and design process consists of four phases.

- **Define:** The BIAS team defines the problem in a way that is precise enough to test.
- **Diagnose:** The team collects both qualitative and quantitative data to identify factors (“bottlenecks”) that may be causing the problem, and uses the data to develop theories based on behavioral research about why bottlenecks are occurring.

- **Design:** The team uses theories about why bottlenecks are occurring and other behavioral insights to develop an intervention.
- **Test:** The team evaluates the behavioral intervention using rigorous scientific methods.

The process is ideally iterative, allowing for multiple rounds of hypothesis development and testing, and aims to connect the problem, behavioral bottleneck, and design solution together in a coherent way.

The rest of this section describes how the BIAS team applied this process to Indiana’s child care programs.

## Use of Quality-Rated Care by Recipients of CCDF Subsidies

Research has shown that high-quality early childhood and out-of-school-time experiences can have a positive impact on the lives of children, particularly those from economically distressed households.<sup>1</sup> The CCDF program expands parents’ access to child care by subsidizing the cost, but, with an emphasis on parental choice, there is no requirement that parents select a high-quality provider.

To address this issue, the OECOSL has tried to encourage CCDF parents to use providers that participate in the PTQ system.

### Define

About 65 percent of CCDF families in Indiana were enrolled with PTQ providers as of March 2013. The OECOSL was interested in increasing the percentage of parents who selected a PTQ provider at the time of enrollment and the percentage of parents who selected the highest-rated providers (Levels 3 or 4).

### Diagnose

Indiana traditionally has more demand for its CCDF subsidies than available funds, and administrators place families they cannot serve immediately on a waitlist. Before engaging with the BIAS team, the OECOSL marketed the PTQ program to parents on the waitlist by mailing them a letter and brochure about PTQ. The theory was that parents would use this time to research and select a PTQ provider. Parents on the waitlist might not have a stable form of child care, or might be using a provider that is not eligible to accept the CCDF subsidy. The subsidy provides parents with additional resources to pay for previously unaffordable child care options.

The BIAS team investigated why some parents who enroll in CCDF do not choose quality-rated providers. The team analyzed OECOSL data on parents’ child care choices; conducted interviews with agency staff and clients to better understand their experiences; and reviewed a variety of forms, letters, and flowcharts relevant to the CCDF and PTQ programs. The diagnosis pointed to two factors that generally constrain parents’ child care choices that were outside the scope of the BIAS project, which focuses on relatively quick and inexpensive changes. The first is access to PTQ providers, especially those with high ratings. Only about a third of PTQ providers are highly rated (Level 3 or 4), and it is difficult to know how many of these have vacancies and impracticable to determine whether they are located in places that are convenient to CCDF parents. The second factor is cost. Many parents face out-of-pocket expenses for child care, even when the provider accepts a CCDF subsidy; the exact amount is determined by the provider and generally increases with the quality of care.

As a result, the behavioral diagnosis focused on parents’ awareness of quality-rated providers, criteria for selecting child care, and opportunity to choose a quality-rated provider. The team identified bottlenecks related to selecting a child care provider and theorized behavioral reasons for the bottlenecks.

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1 James J. Heckman, “Skill Formation and the Economics of Investing in Disadvantaged Children,” *Science* 312, 5782: 1900-1902 (2006); Lynn A. Karoly, “Investing in the Future: Reducing Poverty Through Human Capital Investments,” *Focus* 21, 2: 38-43 (2000); Janet Currie, “Early Childhood Education Programs,” *Journal of Economic Perspectives* 15, 2: 213-238 (2001).

## Design

Based on the findings from the behavioral diagnosis, the BIAS team replaced the letter and brochure typically sent to parents with a redesigned packet that included individualized child care referrals. Some parents also received a phone call. The Indiana Association for Child Care Resource and Referral (IACCRR), the statewide child care resource and referral agency, had the existing capacity and resources to create the referrals and reach out to a subset of parents by phone. The BIAS packet contained the behavioral elements of personalization, simplification, implementation prompts, and visual cues. The materials included:

- A redesigned letter, personalized with the parent's name and a note, both handwritten. The letter also contained an implementation prompt to guide the parent in the search for child care.<sup>2</sup>
- A graphic depicting the four levels of quality and explaining the benefits of choosing a PTQ provider and a simplified checklist outlining reasons to select a PTQ provider.
- A customized map and three individualized child care referrals created using software that IACCRR developed for the BIAS intervention. The map presented a snapshot of three providers near the parent's home with key information about each provider, including PTQ ratings. The three newly designed, personalized referrals were for the same providers listed on the map and arranged from the highest PTQ rated to the unrated.
- A checklist of questions to ask when visiting a potential child care provider.

## Test

Intervention materials were sent from June 2014 to October 2014 and the BIAS team evaluated it using a random assignment design, whereby the team randomly divided the sample into three study groups:

1. Control group — was sent the standard OECOSL letter and brochure
2. Referrals-only group — was sent the BIAS packet with referrals
3. Referrals-phone group — was sent the BIAS packet with referrals and received a phone call from IACCRR

In the first week, the BIAS team randomly assigned parents whose children were currently on the CCDF waitlist and forwarded the assignments to IACCRR. These families make up Cohort 1 and include 5,949 children, many of whom had likely been on the waitlist for months. Beginning in the second week, the team randomly assigned parents on a rolling basis within about a week of them signing up for the waitlist. These families make up Cohort 2 and include 6,703 children. Thus, parents in Cohort 2 were sent materials close to when they signed up for the waitlist, whereas many parents in Cohort 1 received the materials after a substantial delay from when they signed up. The study found:

- Less than half of the children were enrolled in CCDF during the 12 months of study and follow-up. There was no difference in the enrollment rate between study groups.
- For both cohorts pooled, the BIAS interventions did not increase the percentage of families who selected PTQ providers. However, the referrals-phone intervention increased the use of highly rated providers (Level 3 or 4) by 2.1 percentage points. The increase was almost entirely due to a 2.0 percentage point, or 33 percent, increase in the use of Level 4 providers.

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2 Implementation prompt is a common term for a strategy designed to encourage individuals to make detailed plans to fulfill goals. Katherine L. Milkman, John Beshears, James Choi, David Laibson, and Brigitte Madrian, "Following Through on Good Intentions: The Power of Planning Prompts," NBER Working Paper No. 17995, (Cambridge, MA: National Bureau of Economic Research, 2012); Katherine L. Milkman, John Beshears, James Choi, David Laibson, and Brigitte Madrian, "Using Implementation Intentions Prompts to Enhance Influenza Vaccination Rates," *Proceedings of the National Academy of Sciences* 108, 26: 10415-10420 (2012).

**TABLE ES.1**  
**PROVIDER SELECTION OUTCOMES, PTQ TEST**  
**INDIANA OFFICE OF EARLY CHILDHOOD AND OUT-OF-SCHOOL LEARNING**

OUTCOME	CONTROL GROUP	REFERRALS-ONLY GROUP	DIFFERENCE	REFERRALS-PHONE GROUP	DIFFERENCE
<b>Enrollment</b>					
Enrolled in the CCDF program (%)	42.0	42.3	0.2	44.7	2.6
<b>Provider quality rating selection</b>					
Selected an unrated provider (%)	13.4	14.4	1.0	14.2	0.8
Selected a PTQ provider (%)	28.7	27.9	-0.7	30.4	1.8
Level 3 or 4 provider	12.6	13.2	0.6	14.7	2.1*
Level 4 provider	6.0	6.7	0.8	8.0	2.0**
Level 3 provider	6.6	6.4	-0.2	6.8	0.2
Level 2 provider	2.9	3.3	0.4	2.5	-0.5
Level 1 provider	13.2	11.5	-1.7*	13.3	0.1
Sample size (total = 12,652)	6,657	3,580		2,415	

SOURCE: MDRC calculations based on data from the Office of Early Childhood and Out-of-School Learning.

NOTES: Estimates were regression-adjusted using ordinary least squares, controlling for pre-random assignment characteristics of sample members.

Statistical significance levels are indicated as follows: \*\*\* = 1 percent; \*\* = 5 percent; \* = 10 percent.

Rounding may cause slight discrepancies in sums and differences.

(See Table ES.1.) The referrals-only intervention decreased the percentage that chose a Level 1 provider by 1.7 percentage points, a 13 percent change.

- The effectiveness of the BIAS interventions differed by cohort.<sup>3</sup> In Cohort 2, the referrals-phone group was more likely to select a highly rated (Level 3 or 4) provider by 4 percentage points, or 31 percent. (See Figure ES.1.) The referrals-phone group in Cohort 2 was also more likely to choose a Level 4 provider by 2.7 percentage points, or 45 percent.

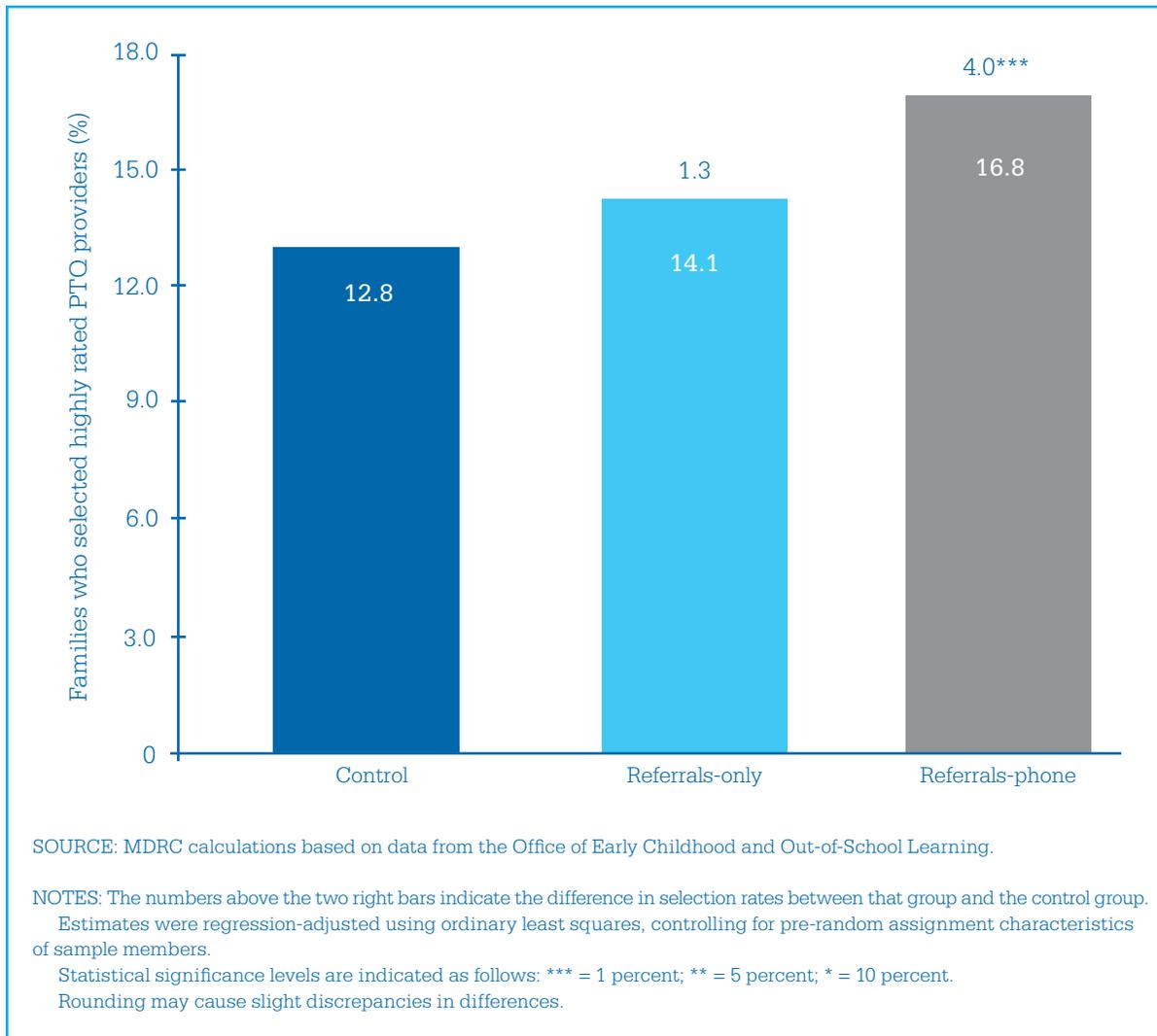
Thus, the behavioral interventions tested in this study did not change the likelihood that parents would choose a PTQ provider, but they did shift preferences among those who chose a quality-rated provider to the higher end of the quality spectrum. This finding was only clearly seen for parents who received the phone call in addition to the individualized referrals in the full sample, although the subgroup analysis shows that the increase in choosing a Level 4 provider was also present among parents who received only referrals shortly after they signed up for the waitlist (the Cohort 2 referrals-only group). These effects are meaningful given the challenges many parents face finding suitable child care.

## Renewing CCDF Subsidies

While the PTQ intervention focused on parents who were waiting to receive a CCDF voucher, the second set of interventions focused on parents who were already receiving a CCDF subsidy. In order to continue receiving a subsidy in Indiana, parents had to prove they were still eligible about every six months by providing documentation. While periodic redetermination is necessary to maintain the integrity of the program, parents often struggle to comply with this requirement. Difficulties during the redetermination process can threaten the continuity of care, which, in turn, can negatively affect children's development, parents' employment, and the efficient administration of the CCDF program.

<sup>3</sup> These effects were not statistically significantly different from the lack of effects in Cohort 1 and thus should be treated with caution.

**FIGURE ES.1**  
**HIGHLY RATED PROVIDER SELECTION IN COHORT 2, PTQ TEST**  
**INDIANA OFFICE OF EARLY CHILDHOOD AND OUT-OF-SCHOOL LEARNING**



## Define

The OECOSL wanted to use behavioral insights to increase the percentage of parents who attend their first scheduled appointment, complete the redetermination process in one appointment, and complete the process on time. Data reported by the OECOSL and its contractor Children's Bureau, Inc. (CBI), suggested that about 40 percent of parents missed their scheduled appointment date, about a third who attended any appointment had to attend multiple appointments to complete the process, and about 17 percent did not renew their subsidies.

## Diagnose

During the diagnosis phase, the BIAS team collected data from the OECOSL and CBI about the redetermination process and spoke to frontline and supervisory staff at the intake office, the regional OECOSL manager of the intake offices, and some parents who had just attended their redetermination appointments. The team identified two contextual factors that made redetermination challenging. First, parents must visit the intake office to complete redetermination, rather than sending forms electronically or by mail as some other benefits programs allow. The second factor relates to specific redetermination requirements, all of which are determined by policy or statute. Parents often find fulfilling some requirements difficult, particularly those related to employment verification that require dated pay stubs or

other documents that may not cover the 30-day period before the appointment. Addressing these barriers was beyond the scope of the BIAS project.

The BIAS team instead identified a number of bottlenecks related to renewing child care benefits. The team then launched two rounds of redetermination tests in Indiana, an example of rapid-cycle evaluation. The first test was launched in January 2014 and the second in June 2014, based on findings from Round 1. The design and the test of each round are discussed below.

## Design — Round 1

In Round 1, the BIAS team redesigned the appointment materials and created a new reminder postcard. The redesigned materials incorporated the behavioral elements of simplification, personalization, loss aversion, and reminders.

- The redesigned appointment letter excluded unnecessary content and presented only the essential information that parents needed to remember. It began with a handwritten greeting, which aimed to personalize the interaction, and prominently displayed the subsidy expiration date to elicit a sense of urgency.<sup>4</sup>
- A simplified checklist served as a plan-making device. It contained guiding questions to help parents decide which documents to bring within each of the four required categories (identification, service need and other forms of income, address, and provider information).
- The provider information form was printed on yellow paper to make it more salient.
- A reminder postcard, similar to those sent out for doctors' appointments, was mailed about one to two weeks before the appointment. It was not personalized but included a box where parents could write in their appointment time.

## Test — Round 1

In each round, the BIAS team evaluated the intervention using a random assignment design. It divided sample members equally between an intervention group and a control group. (Figure ES.2 displays the findings from both redetermination rounds.)

The Round 1 test, in which the team sent intervention materials from January to June 2014, found that the BIAS materials:

- Increased the percentage of parents who attended their first scheduled redetermination appointment by 2.6 percentage points, a 5 percent change
- Increased the percentage of parents who completed the redetermination process in one appointment by 3.2 percentage points, a 5 percent change<sup>5</sup>
- Did not change the likelihood that parents would renew their subsidies on time

## Design — Round 2

Given that the effects were not as large as desired, the BIAS team conducted a rapid-cycle evaluation and designed a second intervention based on findings from Round 1. In Round 2, the BIAS team retained the simplified checklist tested in Round 1, but otherwise revised the intervention materials in three critical ways:

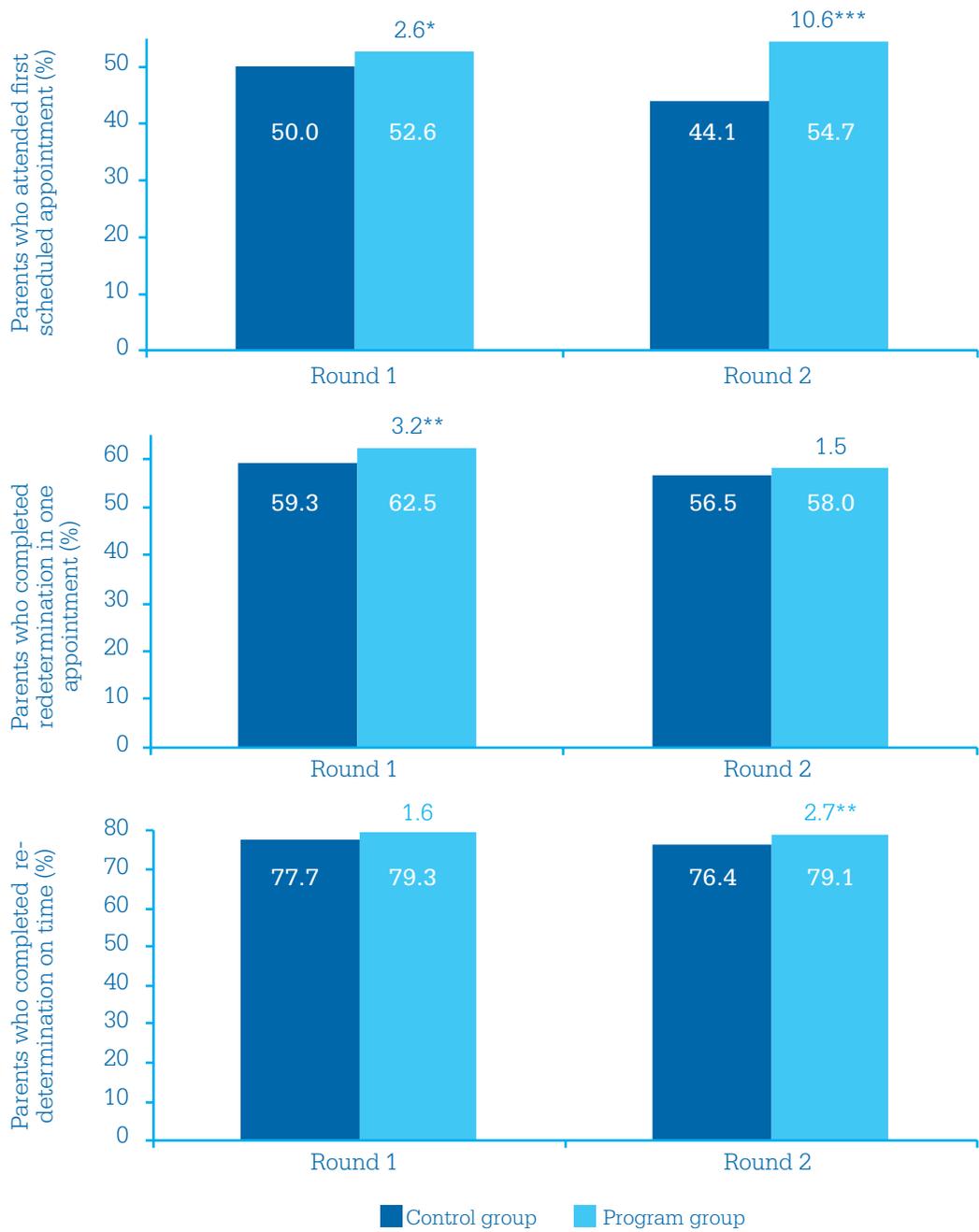
- The appointment letter was again redesigned to resemble a vertical roadmap, with the appointment date and time as the midpoint. This design sought to counteract the possibility

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4 The BIAS team slightly modified this letter during the test period after receiving feedback from CCDF staff that some parents mistook the expiration date for the appointment date.

5 Data on whether or not parents renewed after the deadline were not available, so this analysis reported on the number of appointments parents needed to renew only for parents who renewed on time.

**FIGURE ES.2**  
**REDETERMINATION OUTCOMES BY ROUND**  
**INDIANA OFFICE OF EARLY CHILDHOOD AND OUT-OF-SCHOOL LEARNING**



SOURCE: MDRC calculations based on data from the Office of Early Childhood and Out-of-School Learning.

NOTES: Estimates were regression-adjusted using ordinary least squares, controlling for pre-random assignment characteristics of sample members.

Statistical significance levels are indicated as follows: \*\*\* = 1 percent; \*\* = 5 percent; \* = 10 percent.

Rounding may cause slight discrepancies in differences.

that parents would only scan the top of the page for the appointment date and time and disregard the rest of the text.

- The packet provided more information (including additional forms for parents who were self-employed or who changed jobs) in an effort to further clarify the employment verification requirements.
- The team created a reminder postcard that was personalized with the client's appointment time and date.

## Test — Round 2

The Round 2 test, in which the team sent intervention materials from July to November 2014, found that the BIAS materials:

- Increased the percentage of parents who attended their first scheduled redetermination appointment by 10.6 percentage points, a 24 percent change
- Did not increase the percentage of parents who completed the redetermination process in one appointment, and did not have an effect on the reasons why parents failed to renew in a given appointment
- Increased the percentage of parents who renewed on time by 2.7 percentage points, a 4 percent change

The interventions in the two rounds achieved different effects. The main success of the BIAS outreach in Round 1 was that it increased the percentage of parents who renewed their subsidies in one appointment, making the process more efficient for this group. It did not, however, change the likelihood that parents would renew on time because about the same proportion of parents in the control group renewed their subsidies, albeit by attending more appointments. In Round 2, the intervention significantly increased the percentage of parents who attended their first scheduled appointment and the percentage of those who completed redetermination on time, compared with those in the control group. The difference here is that there was no effect on completing the redetermination process in one appointment. This lack of effect may be because the intervention was able to increase the number of parents who participated in the redetermination process. The analysis found that the BIAS intervention decreased the percentage of parents who did not attend any redetermination appointments by 3.4 percentage points, or 19 percent. Not attending any appointments results in a loss of benefits, unless the parent appeals. Parents who would not otherwise attend any appointments may have more challenging life circumstances. For them, the goal of renewing in one appointment may be less important than starting the process by attending an appointment and thereby improving their chances of keeping their subsidies.

## Next Steps

These BIAS interventions focused on two steps in the CCDF child care process: choosing a child care provider and renewing benefits. In both cases, the BIAS interventions altered existing communications and organizational resources to design interventions that could be implemented quickly and inexpensively. The interventions' effects demonstrate that changes in existing practices informed by behavioral science can improve outcomes. Future research should build on these efforts by focusing on interventions that are more intensive, such as changing the supply of quality-rated child care providers or streamlining administrative processes for large groups of parents.

Behavioral economics provides a new way of thinking about the design of human services programs and a potentially powerful set of tools for improving program outcomes. The BIAS project offers the opportunity for continued hypothesis testing grounded in behavioral economics and takes advantage of the low-cost, iterative nature of rapid-cycle experimentation. In addition to work covered in previously published reports (see the list of previously published research at the back of this report), the BIAS project has forthcoming reports on an evaluation with the Washington State Division of Child Support and a synthesis of the project's entire body of work.

# EARLIER PUBLICATIONS

## from the Behavioral Interventions to Advance Self-Sufficiency (BIAS) Project

*Framing the Message: Using Behavioral Economics to Engage TANF Recipients*

2016. Mary Farrell, Jared Smith, Leigh Reardon, and Emmi Obara. OPRE Report 2016-02. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services

*Nudges for Child Support: Applying Behavioral Insights to Increase Collections*

2016. Baird, Peter, Dan Cullinan, Patrick Landers, Leigh Reardon. OPRE Report 2016-01. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services

*Engaging Providers and Clients: Using Behavioral Economics to Increase On-Time Child Care Subsidy Renewals*

2015. Mayer, Alex, Dan Cullinan, Elizabeth Calmeyer, Kelsey Patterson. OPRE Report 2015-73. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services

*The Power of Prompts: Using Behavioral Insights to Encourage People to Participate*

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*Reminders to Pay: Using Behavioral Economics to Increase Child Support Payments*

2015. Baird, Peter, Leigh Reardon, Dan Cullinan, Drew McDermott, and Patrick Landers. OPRE Report 2015-20. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services

*Taking the First Step: Using Behavioral Economics to Help Incarcerated Parents Apply for Child Support Order Modifications*

2014. Farrell, Mary, Caitlin Anzelone, Dan Cullinan, and Jessica Wille. OPRE Report 2014-37. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services

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2014. Richburg-Hayes, Lashawn, Caitlin Anzelone, Nadine Dechausay, Saugato Datta, Alexandra Fiorillo, Louis Potok, Matthew Darling, and John Balz. OPRE Report 2014-16a. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services

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