

JUMP START

Bringing High Quality Early Care and Education to Harrison County Families 2014-2019

Funded by The Harrison County Community Foundation

Building our future together.



Director: Dr. Melissa S. Fry

Research Assistants: Aimee Kelmel, Joshua Cassin, Holly Gavin, Jo Waiz, Mariah Benham 2022

Applied Research and Education Center

4201 Grant Line Road | New Albany, IN 47150 | 812.941.2323

The Applied Research and Education Center (AREC) is an outreach project of Indiana University (IU) Southeast. The AREC provides research, consulting, and technical assistance to nonprofit organizations, foundations, government agencies and local businesses. The student staff enhances classroom learning through applied research projects as it actively engages every stage of each community-based project. The AREC combines learning, teaching and doing to support and empower community organizations in the IU Southeast service region.

Special Thanks to all of the programs that have participated and contributed data:

CORYDON ELEMENTARY HAPPY DAYS CHILD CARE HETH-WASHINGTON ELEMENTARY MORGAN ELEMENTARY NEW MIDDLETOWN ELEMENTARY NOAH'S ARK PRESCHOOL NORTH HARRISON ELEMENTARY RAINBOW'S END CHILD CARE ST. JOHN'S LUTHERAN SCHOOL ST. JOSEPH CATHOLIC SCHOOL SOUTH CENTRAL ELEMENTARY With multiple sites administered by Blue River Services and South Harrison Community School Corporation.

Thanks also to the kindergarten teachers who spoke with Dr. Fry about the differences they see in their classrooms as the result of having more children attend high-quality pre-K.

Funded by the Harrison County Community Foundation





Introduction

Universal pre-K is at the forefront of today's policy discussions across the United States. The evidence base supporting the value of high-quality pre-K programs dates back to programs established in the late 1970's and early 1980's¹ and includes a large number of state demonstrations and community efforts, including the Harrison County Community Foundation's Jump Start program. These programs demonstrate the importance and effectiveness of high-quality early care and education programs in preparing children for success in school and in life.²

Research indicates investments in high-quality early care and education provide immediate benefits to local business and the region's economy.³ More neural connections are formed from birth to age five than at any other stage in the lifespan.⁴ Children of parents with higher levels of education have significantly larger vocabularies by 18 months of age, laying the groundwork for continued advantage.⁵ Developmentally appropriate activities in a language-rich environment can close the gap between children of parents with different levels of education, leveling the playing field for future success.⁶

With research on early childhood development and Harrison County demographics in mind (see Community Profile), the Harrison County Community Foundation (HCCF) began work on the Jump Start pre-K pilot program in 2013. Jump Start funds full-day pre-K for four-year-old lowincome children. In addition to fully funding Jump Start slots in high-quality pre-K programs, HCCF partnered with the Indiana Early Education Matching Grant and now provides a local supplement to the state's "On My Way Pre-K" (OMWPK) subsidy for four-year-old pre-K enrollment in high-quality programs.

To evaluate the effectiveness of participating programs, HCCF partnered with the IU Southeast Applied Research and Education Center (AREC) to conduct an evaluation of immediate impacts on kindergarten readiness. This report presents the cumulative data for five years of the pilot project. The cumulative sample of 435 children provides strong evidence of program effectiveness and impact.

Blue River Services, which includes services at North Harrison Elementary, Morgan Elementary, and Rainbow's End Child Care, and South Harrison Community School Corporation, Noah's Ark Preschool, St. John's Lutheran School, and St. Joseph Catholic School are all part of both the state of Indiana On My Way Pre-K (OMWPK) program and Jump Start.

Community Profile

Harrison County is home to an estimated 39,940 residents and 10,033 families. Roughly 688 family households are home to 2,281 related children under the age of five.² Among those children, 13.1 percent live in poverty.³ About eight percent of all families in Harrison County are below the poverty level, which is lower than Indiana's state rate of 9.3 percent.⁴

Harrison County is predominately white (96.6 percent) and Hispanics are the largest minority group (1.9 percent). An estimated 2.5 percent of the population identifies as two or more races, .4 percent as Black or African American, .4 percent as Asian, .1 percent as American Indian or Alaska Native, and .9 percent identify with a racial category not listed on the American Community Survey.⁵

Of an estimated 71 families with a single female householder and related children under the age of five, 74.6 percent are below federal poverty level, compared to 44.3% for the state of Indiana.⁶ Women comprise 58.1 percent of those in poverty in Harrison County, compared to 56.0 percent for the state of Indiana.⁷ Single mothers in Harrison County have a median income of \$27,292, compared to single fathers at \$62,333, and married couples with children at \$89,727.⁸

From 2015 to 2019, an estimated 283 people aged 16 and older were below poverty despite full-time, year-round employment.⁹ Families throughout the county struggle, from those that live well below the poverty line to those whose earnings rise above it but may not reach a level that makes life comfortable. American Community Survey sample data estimate the following for 2015-2019 in Harrison County¹⁰:

- 2,132 families were below 200 percent of the poverty level.
- 1,991 were below 185 percent of the poverty level.
- 1,461 were below 150 percent of the poverty level.
- 1,198 were below 125 percent poverty level.
- 245 families had incomes that fell below 50 percent of the poverty level.

The Harrison County Community Foundation Jump Start pre-school pilot provided full day high quality preschool to nearly 600 four-year-olds, 87.5% of whom came from households whose earnings fell below 200 percent of the federal poverty line.

Beginning in 2013, implementation of the Jump Start pilot occurred on a small scale with a handful of providers, a small pool of students, and two different kindergarten readiness assessments in use. In 2014, participating programs shifted to using the instrument used by the statewide pilot the ISTAR-Kindergarten Readiness (KR). The fiveyear pilot usable data set includes 435 students from the 2014-2015 school year through the 2018 -2019 school year. We have chosen not to include data from the 2019-2020 or 2020-2021 school years due to the impact of COVID-19 on our school systems. Data from those years simply are not comparable to data from the other years.

Findings confirm the significant, immediate impact pre-K programs have on kindergarten readiness. This report presents findings from the fall 2014 to spring 2019 that illustrate a statistically significant increase in skills across the board for those enrolled in the program. The program reduced the percent of students with three or more areas of delay in Reading and Language from 97.9 percent to 58.0 percent; Math and Quantitative Reasoning from 96.9 percent to 55.7 percent; and Social and Emotional Development from 97.6 percent to 90.2 percent (Figure 1).

More children qualified for than enrolled in Jump Start over the years. HCCF worked with area schools and early care and education providers to spread the word about the available subsidy.

All participating programs report that the struggle to reach additional families remains a barrier to fully realizing the potential impact of the program. Providers work closely with HCCF to be sure people know where the program is available, and they refer potential participants to other options when waitlisted at a facility that is already full.

Public education on the benefits of pre-K and the availability of this program are a priority for increasing enrollments. Many families do not fully understand the importance of high quality pre-K Figure 1: Percent of Students with Three or More Areas of Developmental Delay within Each of the Three Broad Categories of Assessment (Pre and Post) (n=434)



Reading and Language

Math and Quantitative Reasoning

Social and Emotional Development

programs to brain development and adult outcomes.

Transportation remains a persistent barrier to full participation in pre-K. In some school districts transportation services incorporate the pre-K children into their bus routes. Three of the programs have transportation through the school district bus system. However, other districts express concerns about preschool children riding the bus and do not offer this option. For private providers, transportation remains a persistent concern. Program and HCCF staff consistently seek opportunities to overcome these barriers and maximize program reach and impact.

After eight years of investment and with a consistent five-year data set, HCCF can report significant contributions to regional and state work on early care and education. The Jump Start program has contributed local data to the development of public education materials for use across the five-county Southern Indiana Louisville-Metro region (Clark, Floyd, Harrison, Scott, and Washington) and helped lay the foundation for Align Southern Indiana's kindergarten readiness assessment.

In addition to valuable contributions to regional efforts, the state of Indiana added

Harrison County to the statewide OMWPK program as a community that demonstrated "readiness" for success. Jump Start's accomplishments documented with consistent data provided clear indicators of the county's potential.

Methods

HCCF opted to use the ISTAR KR assessment to measure the impact of quality full-day pre-K. Researchers and providers developed the tool for assessing the statewide On My Way Pre-K Pilot, which meant the Harrison County data were comparable to the wider state data. The program was unable to obtain comparable data on similar children who did not attend pre-school or who did not attend a full-day program designated Paths to Quality level three or higher. Without these comparison groups, the evaluation team defines impact in terms of growth from pre to post and closing the gap between age and demonstrated developmental ability.

The ISTAR KR is a comprehensive observational record of a child's functional capacities across the following areas of development: Reading and Language, Math and Quantitative Reasoning, and Social and Emotional Development. Teachers observe students carefully Figure 2: Demographics of Pilot Population for Whom Data were Collected

Jump Start Program 2014-2019 570 Children 3.6% Hispanic 3.2% Black | 0.9% Asian 0.4% Native American or Pacific Islander | 4.1% Other Race 92.3% White 52.9% Male | 47.1% Female 87.5% Free or Reduced Meals 53.4% Two-Parent Households

to determine and rate function level then record their observations using the ISTAR KR tool via Qualtrics. IU Southeast AREC staff download the data from Qualtrics for analysis in SPSS.

Scores on the ISTAR KR assessments indicate where the child's behaviors and skills fall in terms of average months of development. For example, a child scoring 38 on a particular dimension behaves at a level commonly seen in a 38 month-old child. The definition of what is "normal" or "commonly seen" for a given age in the ISTAR KR is based on statewide observations of children with careful attention to each of the developmental areas assessed by the instrument.

Please note, however, children vary in their development and it is perfectly normal and expected for some kids to develop earlier and others later across dimensions. Our use of the term "delay" in reference to those whose development stage is below their age does not indicate a clinical delay – the evaluation team is not qualified to make that assessment, but is interested in whether participants narrow the gap between age and demonstrated development over the course of the school year in high quality pre-K.

During the five-year pilot, the Harrison County Jump Start program included 570 children across 11 organizations. One program's instructors interpreted the instrument in a noticeably different way from the others. The research team investigated and confirmed the program's interpretation was not consistent with the instructions or the interpretation of other programs, making the data from that program incomparable to those from other providers. To ensure the validity and reliability of the data set, those 70 cases were removed from the pilot analysis. Additional participants for whom we received only a pre-assessment or a postassessment were also excluded (n=65). The resulting data set includes 435 matched pairs of pre and post-assessments.

In addition to ISTAR KR assessments, the evaluation team uses a developmentally appropriate Classroom Assessment Scoring System[®] (CLASS[®]) observation tool to score providers on *Emotional Support*, *Classroom Organization*, and *Instructional Support*. The CLASS[®] tool is also used to evaluate the state OMWPK pilot. Observers complete training in use of the tool and worked at each of two staffing changes to ensure inter-coder reliability across the years that included CLASS[®] observations. The



team conducted CLASS® observations on a subset of participating programs each year.

Each site visit consists of four to six consecutive 30-minute cycles—a 20-minute observation period followed by a ten-minute period used to summarize the collected information into scores from one to seven. Low scores consist of ones and twos, moderate scores include threes, fours and fives, and high scores are comprised of sixes and sevens. Researchers average related scores within the general categories of *Emotional Support*, *Classroom Organization*, and *Instructional Support*.

This report presents quantitative measures of performance in Reading and Language, Math and Quantitative Reasoning, and Social and Emotional Support portions of the ISTAR KR assessment across the five years of consistent Jump Start data. We use these data in combination with scores from the CLASS® instrument to better understand the role of CLASS®room environment and other factors on participant progress and outcomes.

Finally, the report weaves in comments from kindergarten teachers to help illustrate the impact of improved kindergarten readiness for pilot participants and their kindergarten classmates.

Demographics

During the five-year pilot, the Harrison County Jump Start program included 570 children across 11 organizations (Figure 2). Of these children, 435 had usable pre and post data for statistical analysis of improvement.

Participating programs include public and parochial elementary schools with pre-K classes, private secular programs, and private faith-based organizations that provide pre-K outside the elementary school setting.

Of the students enrolled in the five-year pilot, 51.2 percent are male and 48.8 percent are female (Figure 3). Teachers provide data on race and ethnicity based on student records or other sources. They may indicate more than one race so the sum of percentages is greater than 100 percent. Hispanic origin is a separate ethnicity item not included in the race variable. Participating students for whom we have data are predominately White, reflecting the demographics of the area, and 3.7 percent are Hispanic (Figure 4). The program targets low-income four-year-olds and 85.0 percent of students reflected in these data qualified for free and reduced price meals. Some children completing the assessments do not qualify for free or reduced meals but have household incomes at or below 200 percent of the federal poverty line.

Of the 435 students with pre and post data, 55.5 percent came from two-parent households, 25.4 percent from single-parent households, and 9.0 percent from other household types (Figure 5). Teachers did not report a household type for 10.2 percent of participants.

The role of family and home environment is an area the statewide pilot carefully explored but is beyond the scope of this work. The OMWPK evaluation uses attendance as an indicator of family engagement and this evaluation includes attention to the role of attendance in shaping outcomes. The average attendance rate for the five-year Jump Start pilot is 91.9 percent. The median age on August 1 of the year in which the child participated is 54.0 months (4.5 years) and the median age on April 1 of the spring when they finished is 63 months (5.25 years).

Findings

On average, student development increased between 15 and 23 months from pre-test to posttest in each of the three main ISTAR KR categories. That means over the course of a 9month school year, children progressed, on average, 15-23 months in terms of child development. Across the three domains, mean scores upon arrival at the pre-K programs were between 37.0 and 38.2 months – closer to threeyear-old than four-year-old development. By the end of the school year, kids were close to 5-yearold development (60 months) and their median age for Reading and Language, and Math and Quantitative Reasoning.

While the Social Emotional post-assessment mean score is significantly lower than 60 months of development, the state does not have a Core Standard for Social and Emotional Support by the end of Kindergarten or any other grade. Children vary far more in their social and emotional scores than in the other two areas and only the top end of the Jump Start sample reach the level observed in the majority of children statewide by age five. These figures suggest that while high-quality pre-K at age four has an impact, efforts will also need to address the importance of interaction-rich nurturing environments from birth through age three to better foster Social and Emotional Support in the years when these foundational patterns are formed. As the teachers say, "we can teach math and literacy skills, it is much harder to teach children to socially or emotionally respond to others and to their circumstances in new ways."

Students who did not complete either a pre- or post-test will not be included in these summary figures because we use paired sample data. Paired samples tests allow us to assess the statistical significance of changes from pre- to post-test and ensure that group differences at each time point do not reflect a change in the student population of the group between August and April. Statistical significance means the observed changes from pre to post are not likely to have occurred by chance. The *p*-value of <.05 means there is less than five percent likelihood the kids in this study improved this much by chance.



Figure 5: Household Composition (n=402)



Figure 6: Mean Pre and Post Assessment Performance Compared to Median Age (n=434 for Reading and Language, 435 Math and Quantitative Reasoning, and Social Emotional Development)



The following sections report quantitative measures of performance across Reading and Language, Math and Quantitative Reasoning, and Social and Emotional Development portions of the ISTAR KR assessment. Following the initial data summary are breakdowns based on gender and household type.

Reading and Language

While children do not usually learn how to "read" until about first grade, they actually begin developing pre-literacy skills much earlier. Quality pre-K programming helps children develop these important pre-literacy skills before they walk into kindergarten so kindergarten teachers can move forward in developing reading and language skills. Pre-K progress can reduce class time on remedial efforts and decrease demand for special education.

The assessment includes eight English and Language Arts components. Kindergarten readiness is indicated by scores between one and seven, depending on the module, and these scores are transformed to match the age (in months) at which the average child demonstrates the corresponding skill or behavior. Teachers observe students over time and rate student ability based on specific tasks the student can complete independently.

Among students for whom we have both preand post-tests across the five-year period, performance on reading and language-related tasks improved from a mean score of 38.2 at the beginning of the school year to 61.6 at the end of the school year (Figure 6). Paired samples tests for statistical significance indicate the improvement in average score is statistically significant, meaning the average level of improvement across participants is not likely to happen by chance. Improvements on every item in the reading and language category are statistically significant.

Students enrolled in the program began the school year well below expected levels of reading and language development for their age. The median age as of August 1 was 55.0 months and their average stages of development in reading and language skills ranged from 32.6 months to 43.6 months, placing them 10.4 to 22.4 months behind expected development (Figure 7). Phonological awareness develops through verbal interaction: having someone read developmentally appropriate books and poems aloud, call and response Figure 7: Reading and Language Pre and Post Mean Developmental Level Compared to Median Age (n=434)



conversation from infancy forward, and recitation of songs and nursery rhymes.

By the end of the year, students enrolled in Jump Start had narrowed or overcome the gaps in development in all categories of reading and language development.

In May, students' median age was 63.0 months and their mean assessed level of development in reading and language ranged from 57.1 months in Comprehension and Collaboration to 65.2 months in presentation of knowledge and ideas (Figure 7). The maximum negative gap was less than 6 months and average student development exceeded expected development in four categories. Average stages of development in reading and language skills ranged from 32.6 months to 43.6 months, placing them 10.4 to 22.4 months behind expected development.

By the end of the year...The maximum negative gap was less than 6 months and average student development exceeded expected development in four categories.

population. Low-income students came to preschool with some deficits, as the research would predict, but nine months of full-day high-quality

pre-K brought them into the range of reading and language development expected for their age.

At the beginning of the school year, 97.9 percent of students demonstrated three or more areas of delay in reading and language development. That number was reduced to 58.0 percent by May (Figure 1). Comprehension and Collaboration is the weakest area in reading and language development. The greater struggle in collaboration may be related to persistent delays in Social and Emotional Development.

The change from August to May reflects a significant closing of the gap for the target student

Figure 8: Math and Quantitative Reasoning Pre and Post Mean Developmental Stage Compared to Median Age (n=435)



Math and Quantitative Reasoning

Children develop many quantitative and spatial skills before they start school. Shape-sorting infant and toddler toys are among the many ways even very young children explore these concepts.

Students exhibited significant improvement in the Math and Quantitative Reasoning category as a whole as well as in all six modules. Mean scores for the Math and Quantitative Reasoning category increased from 37.0 on the pre-test to 63.5 on the post-test. That means on average, students accomplished two years of development during the 9-month school year. The median age student was roughly 18 months behind in Math and Quantitative Reasoning development upon arrival to pre-K and caught up to five-year old level by the end of the school year.

Student developmental deficits in Math and Quantitative Reasoning at the beginning of the school year ranged from 9 to 23 months. By May, average development ranged from 3 months ahead of median age to 5 months behind median age (Figure 8), but within a reasonable range of statewide averages.

At the beginning of the school year, 96.9 percent of students exhibited delays in three or

more areas of Math and Quantitative Reasoning. By May, that number declined to 55.7 percent (Figure 1).

Social and Emotional Development

Schools provide important opportunities for Social and Emotional Development of students. School readiness includes demonstrating the ability to manage one's self in the presence of others, manage emotions, engage in social exchange with fellow students, take responsibility in the classroom community and for one's own schoolwork, and engage in problem solving and in learning more broadly. Pre-schools often pay close attention to how children interact with objects and with each other in order to target needed Social and Emotional Development in preparation for the kindergarten environment. However, the state of Indiana does not have a core standard for Social and Emotional Development at any grade level.

Students increased their total mean scores on indicators of Social and Emotional Development from 37.0 months to 51.9 months. The average student progressed about 15 months over a 9month school year. Figure 9: Social and Emotional Development Pre and Post Means Compared to Median Age (n=435)



Students went from an average score that was roughly 18 months behind appropriate development for their median age to an average score roughly 11 months behind their median age at post-assessment.

At the start of the school year, 97.6 percent of students demonstrated three or more areas of delay in Social and Emotional Development compared to 90.2 percent at the end of the school year (Figure 1).

These findings suggest targeting low-income kids is narrowing the gap between at-risk children and the average expected development for kindergarten readiness. These high-quality pre-K programs close the gap almost completely for Math and Reading, and achieve some success, albeit less dramatic, in Social and Emotional Development.

Differences by Sex

Gender differences in education have long been an important topic of inquiry. Historically, teachers neglected girls in the classroom. Boys received the lion's share of attention, resulting in better outcomes and higher levels of education for boys. However, today's girls stay in school and achieve higher levels of education at higher rates than today's boys. With this in mind, we examine gender differences in pre- and post-test performance across all categories of assessment. Consistent with current trends, girls demonstrate more advanced development than do boys in all major areas.

For Reading and Language assessments, the average girl post-test score was 63.6 (n=209), and the average boy score was 59.7 (n=220). Girls demonstrated more advanced development in all but two Reading and Language areas: Literature Texts and Comprehension and Collaboration.

On the Math and Quantitative Reasoning girls' development exceeded boys' in all categories except Length, Capacity, Weight and Temperature and Geometry.



While both girls and boys remained behind statewide averages for Social and Emotional Development at age five, the difference in scores by sex was statistically significant (p<.001), with an average girl score of 53.3 (n=209), and an average boy score of 50.6 (n=219). The difference between girls' and boys' scores is also statistically significant for all Social and Emotional Development post-test sub-categories (p<.05).

Household Composition

Household composition, particularly in lowincome households, receives a lot of attention as a causal factor shaping outcomes. The IU Southeast Applied Research and Education Center asks providers to indicate each student's household composition. Household types other than singleparent or two-parent comprised 9.0 percent of the sample (Figure 5). This likely reflects the recent rise in grandparents and other family members raising children whose parents are unable to do so.

Upon arrival at the Jump Start Pre-K program in August, children from single-parent households demonstrate more advanced development than children from two-parent households in Math and Quantitative Reasoning (38.5 compared to 36.3) and Social and Emotional Development (38.7 compared to 35.9).

By the end of the school-year, differences between the two groups in overall area scores were not statistically significant. Among sub-categories, differences at post were statistically significant in just three areas, and in those areas, children of two -parent families demonstrated more advanced development than those in single-parenthouseholds. At post, those in two-parent families outperformed those in single-parent families in the areas of Responsibility and Problem Solving.

At post, children from single-parent households (n=102) scored 45.2 months of development on average in the Responsibility category compared to children belonging to twoparent households (n=223) who scored an average of 46.5 months of development (p<.001). Singleparent children scored an average of 55.5 months of development in the Problem Solving category of the post-test, whereas two-parent children averaged at 57.3 months of development (p<.001).

In "Demonstrates Receptive Language," those from single-parent households outperformed those from two-parent families with a mean of 59.0 These findings likely point to the fact that young children in single-parent households may need to become more independent at an earlier age. The data also indicate with high-quality pre-K and two adults to support pre-K children at home, those in two-parent households catch up to their peers from single-parent households, and even exceed their performance in "Demonstrates Receptive Language."

Classroom Observations

In addition to the quantitative pre- and posttest data, the research team uses the Classroom Assessment Scoring System (CLASS®) (the same classroom assessment tool used for the state OMWPK pilot) to observe and evaluate teacherstudent interactions at every provider in the program over the grant period.

Researchers average related scores within the general categories of *Emotional Support, Classroom Organization,* and *Instructional Support.*

Emotional Support includes the subcategories:

- Positive climate.
- Regard for student perspectives.
- Teacher sensitivity.
- Negative climate.

Emotional Support dimensions focus on whether the program creates a welcoming atmosphere that allows students to grow at their own pace. Average scores in this domain range from 1.83-6.33, with a mean of 5.3.

The category *Classroom Organization* includes:

- Instructional learning formats.
- Productivity.
- Behavior management.

The *Classroom Organization* domain focuses on whether teachers make the most of their time with students. Average scores in this domain range from 1.75-5.73, with a mean of 4.6. The category Instructional Support includes:

- Concept development.
- Quality of feedback.
- Language modeling.

Average scores in this category range from 1.83-5.92, with a mean of 4.6. Teachers who score high in this category ask students to explain the logic of their answers and provide the appropriate amount of help to allow students to arrive at their own answers.

Examining the average of all providers' scores for each domain reveals as a whole, schools in the program scored mostly in the moderate range. Providers tend to be strongest in the *Emotional Support* domain, and the weakest in the *Instructional Support* domain, though the mean scores are within a little less than half a point of each other.

These findings are instructive, but also based on very limited observation. Observations indicate opportunities for growth but are not a definitive assessment of program quality.

Factors Predicting Outcomes

The descriptive analyses presented to this point allow us to understand some of the factors shaping the level of development four-year-old children bring to preschool and their level of development after nine months of full-day highquality pre-K. To better understand the portion of post-assessment outcomes that can be accounted for by the various factors documented (race, sex, household type, free and reduced meal status, attendance, and classroom factors), the research team constructed models that allow us to add these factors into one model to determine which ones hold up as important when the other variables are included.

Reading and Language

Based on the five-year data for those children in classrooms that were observed using the CLASS® tool and have Reading and Language preand post- data (N=327), a stepwise model (one that keeps only significant associations) for predicting end-of-year level of development includes the following significant predictors:



- Level of development in Reading and Language as measured at the start of the school-year. (+)
- Sex—whether the child is a girl. (+)
- *Instructional Support* in the classroom.(+)
- Attendance rate. (+)
- Whether the child qualifies for free or reduced meals. (-)
- Whether the child is Black. (+)

Development that occurs birth through age four, prior to assessment at the Jump Start program is the strongest predictor of level of development at the end of the program. The importance of developmentally nurturing and appropriate activities from birth through age four cannot be overstated. By itself, this explains an estimated 11 percent of variation in postassessment performance.

Adding *Instructional Support* explains another 4.6 percentage points of the variation, and girls' stronger performance adds nearly four points to the percent of variation explained by the model. An additional 3.6 points are explained when the model includes attendance rate (a proxy for parental involvement).

An additional point is attributable to whether the child qualifies for free or reduced meals (those who qualify tend to have lower scores and demonstrate lower stages of development than those who do not). The strong performance of Black children in this sample explains just over half a point to create a model that explains 24.8 percent of the variation in children's development at the time of the Reading and Language postassessment.

Because outcomes are so strongly dependent on inputs, and this pilot sought to explore the impact of high quality pre-K, the research team also ran models with improvement as the outcome of interest. In Reading and Language, the optimal model that keeps significant predictors of improvement explains 55.8 percent of the variation in improvement. The following factors are significantly associated with level of improvement:

• Level of development in Reading and Language as measured at the start of the school-year. (-)

- *Instructional Support* in the classroom.(+)
- Sex—whether the child is a girl. (+)
- Attendance rate. (+)
- Whether the child qualifies for free or reduced meals. (-)
- Whether the child is Black. (+)

In the improvement models, development at pre-assessment remains significant but is negative. This is simply because those who are already at a higher level of development are less likely to experience large leaps in their development during the school year so a higher pre score is associated with smaller improvement. Quality (*Instructional Support*), consistency, and parental engagement (attendance) are the key factors over which providers have control and in which communities can invest. Concept development, quality feedback, and language modeling strategies are important to Reading and Language improvement. Reducing poverty and increasing equity—in this case, equitable attention to the needs of boys—is

Just having kids know which way is right side up for a book and what direction the pages turn that makes a big difference.

—Harrison County Kindergarten Teacher

essential to supporting literacy in the early years.

Math and Quantitative Reasoning

Math and Quantitative Reasoning outcomes are the result of a combination of home, classroom, and demographic factors. The model that includes the following significant contributors explains 27.0 percent of the variation in post-assessment scores:

- Level of development in Mathematics and Quantitative Reasoning as measured at the start of the school-year. (+)
- Attendance rate. (+)
- Classroom Organization. (+)
- Sex—whether the child is a girl. (+)

• Whether the child qualifies for free or reduced meals. (-)

As with Reading and Language, child development at the start of the Jump Start pre-K program remains the best single predictor of development at the end of the year. Assessed level of development at the start of the school-year explains 13.9 percent of variation in end of program assessment. Attendance rate explains another 5.5 percentage points, attendance 4.3, *Classroom Organization* 2.0, and whether the child qualifies for free or reduced meals 1.3. Other variables are excluded from the model as not significant.

Improvement in Mathematics and Quantitative Reasoning is a function of the following:

- Level of development in Mathematics and Quantitative Reasoning as measured at the start of the school-year. (-)
- Attendance rate. (+)
- Classroom Organization. (+)
- Sex—whether the child is a girl. (+)
- Whether the child qualifies for free or reduced meals. (-)

Children who attend regularly and are in a classroom where the teachers use diverse instructional learning formats, use their time productively, and maintain strong behavior management experience stronger improvement in Math and Quantitative Reasoning skills from August to May.

Social and Emotional Development

Social and Emotional Development is more difficult to explain and harder to measure. The research team ran a similar stepwise analysis that discards non-significant variables and keeps only those shown to be significantly associated with the outcome variable. What remains is an optimal model for explaining the variance in outcomes. In the case of Social and Emotional Development, the following variables remain in the model:

 Level of Social and Emotional Development as measured at the start of the school-year.
 (+)



- *Instructional Support* in the classroom.(+)
- Attendance rate. (+)
- Sex—whether the child is a girl. (+)
- Whether the child qualifies for free or reduced meals. (-)
- Whether the child is Hispanic. (-)

The level of Social and Emotional Development at the start of the year explains eight percent of the variation in development at the end of the program year. *Instructional Support* adds another 6.9 points, attendance 3.8, whether the child is a girl or a boy accounts for 2.2 points, 1.2 points are explained by whether the child qualifies for free or reduced meals, and 1 point of the variance is explained by whether the child is of Hispanic origin. The full stepwise model explains 23.1% of the variation in Social and Emotional Development by the end of the school year.

As challenging as Social and Emotional Development is to measure, statistical models of improvement in this area have tremendous explanatory power—the model containing all variables shown to be significant explains 70.1 percent of variation in level of improvement.

- Level of Social and Emotional Development as measured at the start of the school-year. (-)
- *Instructional Support* in the classroom.(+)

- It's the school skills. Kids who do not go to pre-K come to kindergarten and don't know how to line up and can't sit in circle time for a story. When more kids are going to pre-K, we spend less time just getting kids in line or getting them to come to the carpet for circle time. —Kindergarten Teacher
- Attendance rate. (+)
- Sex—whether the child is a girl. (+)
- Whether the child qualifies for free or reduced meals. (-)
- Whether the child is Hispanic. (-)

The analysis confirms the importance of supportive, high quality instruction and parental support. In addition, the model pushes the community to keep equity at the center of their efforts. Low-income children are at a disadvantage. Jump Start helps close the gap between those enrolled and their same-age peers across the state. But high-quality programs for four-year-old children cannot make up for the first three to four years of brain development.

Moreover, support for English Language Learner (ELL) children is essential. Without appropriate supports in place, ELL's may slip into the cracks in the local education system. Language development is rapid in the early years, which makes pre-K a prime opportunity if used effectively. At the time these data were collected, however, children of Hispanic origin struggled to improve at the same rate as their peers.

Implications

The Jump Start pilot program of high quality full day pre-K targeting low-income four-yearolds in Harrison County was a success and has led to more permanent and widespread implementation of access to highquality pre-K for Harrison County's four-year-olds. The public-private partnership is an exemplary model for the role philanthropy can play in supporting innovation, testing ideas, and providing a solid foundation for broader policy and institutional shifts.

The data from the Jump Start pilot also point to broader needs to support families of young children.

- Families need access to affordable, developmentally appropriate care for children birth through age four to support cognitive, social, and emotional development.
- Families need access to safe, reliable transportation in order to participate in quality early care and education programs.
- Boys and girls need equitable support for healthy cognitive and social emotional development, and attention to the ways they may develop differently based on socialization and biochemistry.
- Early care and education programs need to include attention to the particular needs of ELL children to ensure cognitive, social, and emotional development.
- Centering equity from birth through age four is essential to ensuring children born into low-income families have the opportunity to reach their full potential.



With On My Way Pre-K in place, the Harrison County Community Foundation can move on to testing strategies for younger children and four and five year olds who may need additional support. School systems can learn from those who integrated four-year-olds into their transportation systems. Harrison County providers may benefit from exploring professional development and family support services for ELL families like those offered by Indiana University Southeast's New Neighbors Education Center. What teachers do in the classroom matters. Public and philanthropic dollars are well-spent on providing ongoing professional development for a quality early care and education labor force.

Public and private collaborations should continue to test strategies for supporting stability, health, wellness, and education of low-income families. By centering the needs of low-income families, the community is likely to improve quality of life for all families.

We can teach math and literacy skills. It is much harder for us to teach basic social and emotional skills. And these issues can disrupt the whole class.

-Kindergarten Teacher

COMMUNITY PROFILE REFERENCES

- Data come from the 2015-2019 American Community Survey 5-Year Estimates. Not all tables have been created for the 2016-2019 data at this writing. With a small population, many figures for Harrison county have relatively large margins of error. In some places, we will tell you the range indicated by the margin of error. For readability and use as a means of estimating needs, we will mostly just provide the estimates and not the range. But it's important to note that these are just estimates. We also use the present tense for readability, but the data are based on samples from 2015-2019. U.S. Census Bureau. 2021. "Table DP05: ACS Demographic and Housing Estimates." and American Community Survey 5 Year Estimates 2015-2019; https:// data.census.gov/.
- ² U.S. Census Bureau. 2021. "Table DP05: ACS Demographic and Housing Estimates." and American Community Survey 5 Year Estimates 2015-2019; <u>https://</u> <u>data.census.gov/:</u>U.S. Census Bureau. 2019. "Table S1702: ACS Poverty Status in the Past 12 Months of Families." American Community Survey 5 Year Estimates 2015-2019. <u>https://data.census.gov/</u>.
- ³ ------. "Table S1701: ACS Poverty Status in the Past 12 Months."
- ⁴ Note: the margin of error for this figure is 25.3, which means the number may be anywhere between about 50 and 100%.
- ⁵ U.S. Census Bureau. 2021. "Table S1701: ACS Poverty Status in the Past 12 Months."
- ⁶ ------. "Table S1903: ACS Median Income in the Past 12 Months (in 2019 inflation-adjusted dollars."
- 8 ------. "Table S1701: ACS Poverty Status in the Past 12 Months."
- ⁹ ------. "Table S1702: ACS Poverty Status in the Past 12 Months of Families."
- ¹⁰ Ibid.

REFERENCES

 Barnett, C.R. 1996. "Lives in the Balance: Age-27 Benefit-Cost Analysis of the High/Scope Perry Preschool Program." Monographs of the High/Scope Educational Research Foundation: Number 11. Ypsilanti, MI; Karoly, Lynn A. M. Rebecca Kilburn, and Jill S. Cannon. 2005. Early Childhood Interventions: Proven Results, Future Promise. Santa Monica, CA: RAND; Warner, Mildred et al. 2004. Economic Development Strategies to Promote Quality Child Care. Ithaca, NY: Department of City and Regional Planning Cornell Cooperative Extension; Chaudry, Ajay, Taryn Morrissey, Christina Weiland, and Hirokazu Yoshikawa. 2017. *Cradle to Kindergarten: A New Plan to Combat Inequality*. New York, NY: Russell Sage Foundation; Horn, Diane, Deborah Norris, Deborah Perry, Rachel Chazan-Cohen, and Tamara Halle. 2016. *Developmental Foundations of School Readiness for Infants and Toddlers: A Research to Practice Report*. Network of infant/toddler Researchers. Washington, D.C. Office of Planning, Research and Evaluation.

- 2 Chaudry et al. 2017; Horn et al. 2017; Jones, Damon E., Mark Greenberg, and Max Crowley. 2015. "Early Social-Emotional Functioning and Public Health: The Relationship Between Kindergarten Social Competence and Future Wellness." *American Journal of Public Health* 105(11): 2283–2290; Applied Research and Education Center. 2017-2019. *Harrison County Community Foundation Pre-K Pilot Annual Evaluation Reports*. New Albany, IN: IU Southeast.
- 3 Warner, Mildred E., and Susan Prentice. 2013. "Regional Economic Development and Child Care: Toward Social Rights." *Journal of Urban Affairs* 35(2): 195-217; Regiontrack, Inc. 2015. *Child Care in State Economies*. Commissioned by the Committee for Economic Development with funding from the Alliance for Early Access. Retrieved 01-14-2018 (https://www.ced.org/ childcareimpact).
- 4 Horn, et al. 2016.
- 5 Center on the Developing Child. 2017 (updated 2021). Three Principles to Improve Outcomes for Children and Families; Hart, Betty and Todd R. Risley. 1995. Meaningful Differences in the Everyday Experience of Young American Children. Baltimore, MD: Brookes Publishing.
- 6 Center on the Developing Child. 2017. p. 3; Hart & Risley 1995.
- 7 Egan, Suzanne M., Jennifer Pope, Mary Moloney, Cara Hoyne, and Chloé Beatty. 2021. "Missing Early Education and Care During the Pandemic: The Socio-Emotional Impact of the COVID-19 Crisis on Young Children." *Early Childhood Education Journal* 49:925-934.
- Bao, Xue, Hang Qu, Ruixiong Zhang, and Tiffany Hogan. 2020.
 "Literacy loss in kindergarten children during COVID-19 School Closures." (preprint manuscript from researchgate.net).
- 9 Stites, Michele L., Susan Sonnenschein. 2020. "It's not just ABCs preschool parents worry their kids are missing out on critical social skills during the pandemic." *The Conversation*. <u>https://theconversation.com/its-not-just-abcs-preschool-parents-worry-their-kids-are-missing-out-on-critical-social-skills-during-the-pandemic-150434.</u>

