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About Utah's Social Impact Bond for Early Childhood Education

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Utah implemented the first pay-for-success project in the nation focused on improving outcomes for preschool children who are at risk for school failure, but, as with any pioneer endeavor, we were venturing into the unknown. As the pioneer for pay-for-success preschool, our approach has come under criticism, but much of the criticism has been based on incorrect assumptions about what we are doing. Information below explains the rationale supporting our pioneering endeavor.

What do we know about the preschool model that was the basis for pay-for-success?

This preschool model was first developed by the Granite School District (GSD) and evaluated as part of the U.S. Department of Education's "Early Reading First" national initiative (ERF). This preschool model was developed to work with schools that were serving the children most at risk for educational failure in GSD. The ERF initiative required that funded grantees develop a high-quality, evidenced-based preschool model and compare the model to existing lower-quality preschool programs. The research design was a two-group comparative design with pre-, mid- and post-assessment. As part of ERF, we were required to have 15 GSD classrooms with the highest risk included in the experimental (called the "GSD model") group. Twelve classrooms at high risk were included in a comparison group. The project was conducted over three academic years, 2006-07 to 2008-09, with an independent evaluation each year of the project. In the first two years of the project, the GSD model was different from the current preschool program, in that it included teachers who were certified. In the third year, the GSD model was modified, with approval from the U.S. Department of Education, to use noncertified teachers, as it was determined that this model would be the most sustainable post-funding.

The results were similar for all three years. Children in the GSD model made statistically significant progress in developing the skills needed for success in kindergarten. More importantly, these children were followed into later grades, and scores on statewide testing demonstrated high levels of proficiency as compared to all children of the same grade statewide. Additionally, rates of special education placement were significantly lower for children who participated in the preschool program. These children are still being followed as they progress through school.

We were able to compare children in the GSD model to children not receiving preschool services in an evaluation funded by the W.K. Kellogg Foundation. In 2012-13, GSD model children made statistically significant progress relative to an equivalent comparison group that did not have access to preschool on language skills and on pre-academic skills; effect sizes were 0.51 for language skills and 1.26 for pre-academic skills. These are large effect sizes.

These multiple evaluations conducted over a number of years demonstrated that the GSD model was successful and had statistically significant impacts on participating children in skills necessary for school success, when compared to children in lesser-quality preschool programs and to children not receiving preschool.

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Why consider a pay-for-success approach to funding?

Seeing these positive results in Utah, we wanted to expand preschool services for at-risk children in the state. A public option for funding preschool had been defeated in the state legislature in 2013. In addition, there was a large waitlist for the GSD model, with thousands of at-risk kids in need of an opportunity to receive high-quality preschool.

Why did we identify special education avoidance as our success indicator?

A key decision in developing a social impact bond is based on determining what the metric of success will be, or defining the criterion for making a payment to investors. Given we were the first preschool pay-for-success project in the U.S., there was no template to follow. Other early childhood projects that were considering pay-for-success models were focused on preventing negative birth outcomes, primarily very low birthweight and avoidance of neonatal intensive care unit use. This led us to consider factors that had an outcome to which a cost could be assigned; special education assignment is such an indicator. In the follow-up of the GSD model children, reduced rates of special education had been identified, making this a logical success indicator.

How did we use special education as an indicator?

Although we like to think of special education as a fixed process, we know from national research that disability identification is socially and contextually based (Sullivan & Bal, 2013). This is why we see ethnic or racial and other types of disparities in special education assignments. However, research using a nationally representative sample has found that the strongest predictor of special education placement is academic achievement in kindergarten (Hibel, Farkas, & Morgan, 2010). This finding is consistent with developmental theory on the developmental trajectory of children. The developmental trajectory of children – how well they develop over time – is based on genetics and experiences. Without a change to one of these factors, trajectory remains constant. Given this, we developed a logic model in which special education assignment would be based on the children who score substantially below normal on a predictor of later academic achievement. These children with poor developmental trajectories at 3 or 4 years of age would be expected to continue at the same trajectory until they enter school. Poor performance at school entry would increase the probability of the children being assigned to special education during their academic years; conservatively, we only considered the probability as including less-severe disabilities such as learning disability and speech or language impairment. This logic model was supported by other national experts in the field, letters of support were submitted to the Utah state legislature, and it was vetted by professionals in the special education community, both locally and nationally. Importantly, this assumption does not directly imply that this high-risk group will be assigned to special education in kindergarten or at any other grade, only that they are at very high risk of being assigned to special education.

How do you identify these most at-risk children?

Children enrolled in the pay-for-success project primarily live in low-income neighborhoods and attend elementary schools that serve children who score poorly on statewide performance assessments; these are neighborhoods where most children are at risk for poor academic outcomes. The participating programs reach out to identify families with children at risk for school failure. This begins by identifying families who are eligible for free and reduced lunch (FRL). FRL guidelines are defined by the federal government. Free lunch indicates families are below 130 percent of the federal poverty level, while reduced lunch families are between 130 and 185 percent of

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the federal poverty level. Our participating school districts also obtain additional information on family risk factors to corroborate that children are at an elevated risk for school failure. These children are then entered in the participating preschool programs. Once enrolled in the preschool program, children are assessed using the Peabody Picture Vocabulary Test. Children who score two standard deviations below the mean are included in the most at-risk group – the children for which the investor can receive a success payment if they avoid special education. A score two standard deviations below the mean indicates that only 3 percent of all children in the U.S. score at this low level. Because of enrollment procedures, we have been able to consistently identify about 25 percent of the children in the preschool programs at this highest level of risk, especially as these children often face other risk factors. Although this percentage may sound high, it is not uncommon in at-risk samples. For instance, the Head Start Family and Child Experiences Survey found similar rates in their 2006 and 2009 surveys (<http://www.acf.hhs.gov/programs/opre/research/project/head-start-family-and-child-experiences-survey-faces>).

How does this work in practice?

In order to identify a sufficient number of children for the most at-risk group, you need to begin with a much larger sample of children. In our first cohort of children, investors provided preschool funding for 595 children. All children were assessed at program entry. From these 595 children, we identified approximately 25 percent of the children in the most at-risk group. All 595 children, however, benefit from placement in the preschool program. All children are followed into school to examine later performance on statewide tests of academic achievement and potential special education assignment. The investors only receive a success payment for those children in the most at-risk group who are not assigned to special education. All children are followed through sixth grade. So far, we only have one group of children who have completed kindergarten.

Why use the Peabody Picture Vocabulary Test?

A primary misunderstanding of our model is that we use the Peabody Picture Vocabulary Test (PPVT) to identify children for special education assignment. We do not! The PPVT is a norm-referenced test of language development (specifically receptive language – what children understand); this allows us to compare scores from any child to all children of the same age across the country. The PPVT was recommended as a measure by the Committee on Developmental Outcomes and Assessments for Young Children of the National Research Council (2008). Vocabulary as measured by the PPVT is a strong predictor of emergent and conventional literacy, and the PPVT predicts outcomes both at school entry and later while in school (Craig, Connor, and Washington, 2003; de Jong and van der Leij, 2002; Dickinson et al., 2003; Dickinson and Tabors, 2001; Poe, Burchinal, and Roberts, 2004; Roth, Speece, and Cooper, 2002; Sénéchal and LeFevre, 2002; Snow et al., 1995, 2007). Another reason this assessment shows value in identifying kids who may benefit from preschool is the fact that vocabulary as measured by the PPVT is sensitive to intervention, and vocabulary trajectories have been shown to be influenced by a variety of factors, such as the quality of the literacy environment (Barone, 2001; McCartney, 2002; NICHD ECCRN, 2000, 2005; Vernon-Feagans, 1996) and targeted interventions focused on literacy (Beck, McKeown & Kucan, 2002; Silverman, 2007; Whitehurst et al., 1994). In the Utah pay-for-success model, the PPVT serves as an indicator of later academic outcomes.

What about children who are dual-language learners?

Dual-language learners – children who may be learning English and another language simultaneously – are included in our at-risk sample, and some of them are entered into the most at-risk subsample. Two factors are important to consider in Utah. First, we are an English-only instruction state. Second, over 120 languages are spoken in Utah

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schools (<http://www.sltrib.com/home/3133371-155/120-languages-now-spoken-in-salt>). Although many think of Spanish when we talk about dual-language students, the reality is that there are many languages spoken. Also, in Utah there are third and fourth generation Hispanic families, so the language environment for even dual-language children is diverse.

This being said, the logic model we developed for all children applies to these children as well. Children targeted for the program are from families with risk factors beyond just learning two languages. Vocabulary size is important for all children and is a predictor for academic success (Lee, 2011; also see Hart & Risley, 1995). For children who are learning a second language, the average time to proficiency is three years, and children learning English do not achieve parity with native-born speakers even after two years of English instruction (MacSwan & Pray, 2005). We also know from a national study of dual-language-learning children that lack of English proficiency by the end of first grade leads to poor reading, math and learning outcomes (Halle, Hair, Wandner, McNamara, & Chein, 2012). In one larger study, children with limited English proficiency were 28 percent more likely to be identified for special education in the speech and language impairment category (Sullivan & Bal, 2013). The developmental trajectory logic model applies to these children. If they did not receive preschool, we could expect home language delays to combine with other risk factors, making attainment of English language proficiency more challenging.

This has been shown in other research in Utah. In a study by Innocenti and colleagues (unpublished, available on request) they examined low-income children in Salt Lake City who had parents where either one or both parents were from Mexico. Some children were in a preschool program, not the GSD model, and some were not. Children were assessed in both Spanish and English at 36 months and 60 months of age. For children in the preschool program, English language Peabody Picture Vocabulary Test (PPVT) standard scores increased from 73 to 83, while those not in preschool changed from 60 to 63. On the Spanish version of the PPVT (the TVIP), the scores of the children in preschool decreased from 93 to 71, while those not in preschool decreased from 95 to 82. Children in the preschool had positive increases in English and losses in Spanish, while the children not in preschool stayed the same in English – significantly delayed – while losing Spanish skills at the same time. This pattern is not uncommon with other studies of dual-language learners. It is unfortunate that dual-language learning children become less adept in the language of their family, but, from an academic perspective, their improved English language skills predict better school outcomes.

What happens to children who are identified for special education while in preschool?

Children who are identified for special education placement while in preschool are removed from participation in the pay-for-success program. These children are not counted as receiving special education services for the purposes of the pay-for-success bond. We do identify additional children at the beginning of the year that meet program eligibility criteria that are in the same preschool but whose seats are not being paid by the pay-for-success bond; these children are used as replacements when attrition occurs. As the newly identified special education children move to seats funded through special education, the vacated preschool seats are filled by children on the attrition list.

What information is provided to the school after children leave preschool?

No information is provided to the schools into which the children who participated in the pay-for-success preschools transition. In most cases, many children from the same preschool classrooms who are not pay-for-success funded are also transitioning into kindergarten. The school does not receive information on how children were funded for

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preschool or scores from assessments conducted by the external evaluator during preschool. The evaluator is the only person who has information on who are the children in the most at-risk group. Even when working with the Utah State Office of Education to track children using state secure identifying numbers, all children in the pay-for-success project are tracked to ensure those in the most at-risk group cannot be identified.

Why is preschool inexpensive in Utah?

Utah has been criticized for its low funding of children in preschool programs. Utah also is last in the nation in per pupil K-12 funding in 2015. New York spends \$19,818 on students while Utah spends \$6,555. This difference is related to employment factors in Utah relative to other states; similar factors would play a role for preschool. Regardless, the cost of preschool is not a valid argument. We know that some expensive preschool programs do not have strong results. A more fruitful argument examines the indicators of high-quality for preschool in Utah. The Utah State Legislature has identified the following as indicators of high-quality preschool: an evidence-based curriculum, intensive professional development, ongoing assessment of a student's educational growth to inform instruction, pre- and post-assessment of students, appropriate class size, ongoing program evaluation, family engagement, and minimal staff qualification. (For more detail, see starting at line 167, <http://le.utah.gov/~2014/bills/hbillenr/hb0096.pdf>.) Each of the participating preschools follows these required standards for high-quality preschool. In addition, each of the participating preschools uses instructional coaching as part of professional development activities. These indicators of quality are consistent with available research (Yoshikawa et al., 2013). Examining these quality indicators is more important than looking at preschool costs. Despite the low costs, GSD has focused on providing high-quality early childhood education programs for children most in need, meeting and exceeding the state required standards for quality.

Why was a randomized control trial not used?

There is a philosophical debate about what research criteria should be adopted before implementing a social impact bond. The debate focuses on those who say we need a randomized control trial (RCT) before implementing a social impact bond, versus those who say an RCT is not necessary. Some rationale may be helpful here. Scientific knowledge is not based on a single study but on the systematic replication of research on a given topic that finds similar results. Researchers do meta-analyses (the study of studies) to determine findings from a body of research. The more rigorous the studies included in the meta-analyses, the better our understanding, so having RCT studies in the meta-analyses is good. For example, Yoshikawa et al. (2013) provide a review of what we know about preschool through 84 studies and clearly state that large-scale public preschool programs can have substantial impacts on children's early learning. The advocates of using an RCT argue the resulting findings can help in developing the bond. There are relevant arguments on both sides of the discussion.

In Utah, here are some of the reasons we did not conduct an RCT.

1. Due to our external evaluation of the "Early Reading First" grant, we had multiple years of evaluating the preschool model and the results had been consistent across years, with improved outcomes for participating children.
2. Conducting an RCT is costly. Researchers need to identify a group of children who do not participate in the preschool program and provide incentives for them to be regularly assessed. It is best to have a sample of control children with the same number of children as those receiving intervention. We did not have funding for this process.

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3. Identifying comparable children for the control group can be difficult. In the studies funded by the W.K. Kellogg Foundation, we attempted to get comparable control children who did not receive preschool using a variety of approaches. In only one of three years did we identify an equivalent comparison group. Many children began the study in the control group, without preschool, and later found a preschool program during the year. This is a frequent issue in comparative studies.
4. The participating school districts had large waiting lists and were unwilling to use a random assignment process. It is difficult to justify that a group does not receive intervention when we know the intervention is effective in preparing at-risk children for success in school. We are using proven methods for children who are identified as having multiple risk factors to improve their long term academic proficiency.

How are the investors paid?

What are the other benefits of the social impact bond?

The investors in the social impact bond pay for a large number of preschool slots for children at risk for school failure. Looking to target a subset of at-risk kids, our “payment cohort” is defined as students who, at preschool entry, score at or below two standard deviations below the mean on the Peabody Picture Vocabulary Test (PPVT), an assessment that serves as an indicator for later school outcomes. From this group, we identify those most at risk for school failure and special education placement for delayed academic skills. If these most at-risk children are not assigned to special education, the investors receive a payment for each year, up to sixth grade, for children from this group not assigned to special education. This payment indicates the success of the high-quality preschool for all children enrolled, not just for those in the highest risk group. Again, by expanding access to this quality program, all children benefit! To date, our pay-for-success program has provided high quality preschool services to over 1,400 Utah children who would not have otherwise received this service. These children and their families benefit, our schools benefit and our state benefits.

As pioneers in this area, we made decisions on how we would move pay-for-success from discussion to practice. Our logic model was supported by national and local experts. We have learned much in this process and continue to learn. The steps we took were action-oriented and we know that children are benefiting. As other pay-for-success projects are established, they can learn from our first steps. It is easy for those unfamiliar with the model to criticize based on incorrect assumptions, but we hope that increasing people’s understanding of the pay-for-success model developed in Utah will lead to informed discussions about pay-for-success as an option for funding early childhood programs.

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