

Financing Human Capital Development for Economically Disadvantaged Children

Applying “Pay for Success” Social Impact Finance to Early Childhood Education

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“Pay for Success” Social Impact Finance

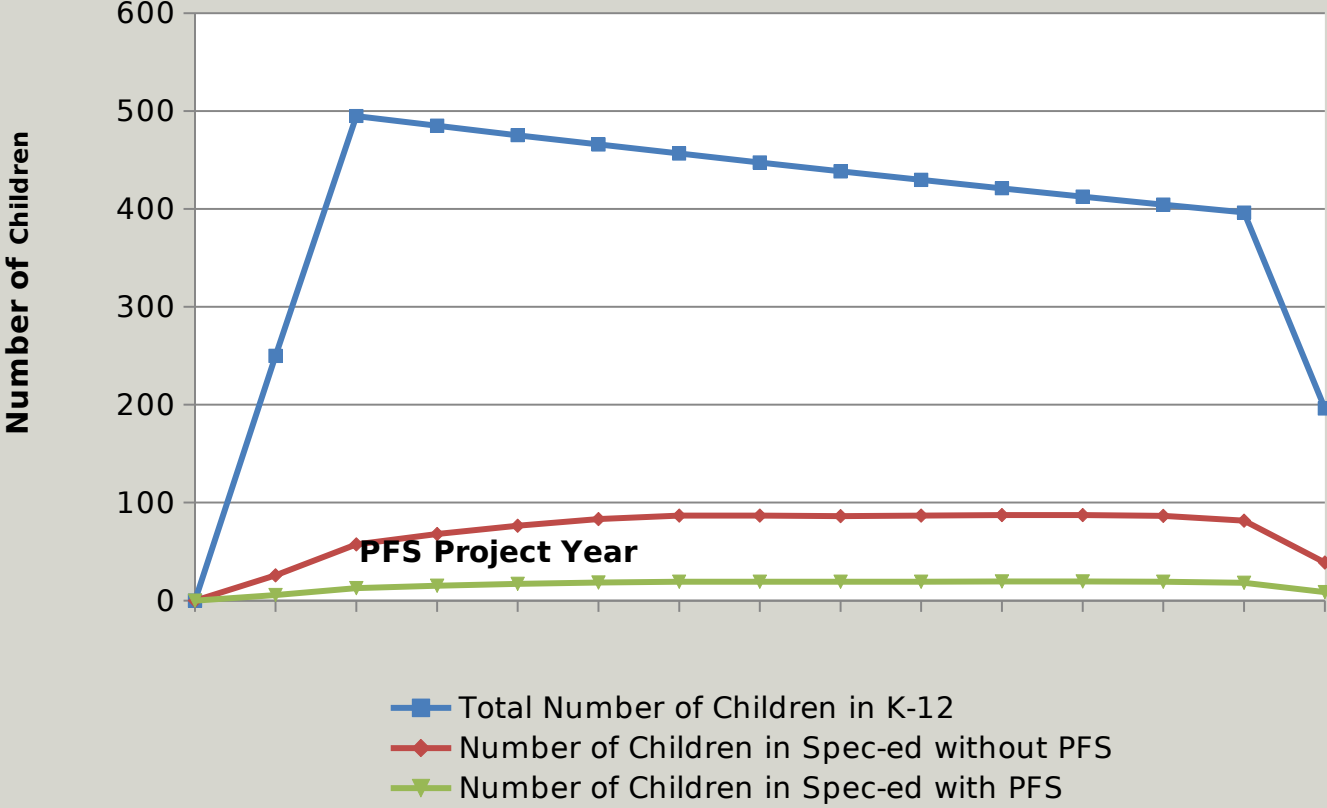
- “Pay for Success” refers to performance-based contracting between government and providers of social services arranged by an intermediary or lead contractor. Under this construct, government pays when results are achieved as opposed to providing up-front and on-going payments for services.
- “Performance” has come to have two meanings -- “cost avoidance” and “outcome improvement”. Cost avoidance refers to actual reductions in governments operating costs that are the result of an intervention. Outcome improvement refers to measured changes in outcomes in desired directions that are the result of an intervention.

Early Childhood Pay for Success Finance

- Early childhood research shows that public school elementary school special education assignment rates for three and four year-old socially and economically disadvantaged children can be significantly reduced by providing the children quality prekindergarten (pre-k) educations.
- Several studies indicate that the reduction in public school special education costs resulting from the lower assignment rates may be large enough to pay for the initial pre-k using “pay for success” (PFS) social impact finance principles.
- The central challenges to PFS project implementation are (1) obtaining sound statistical research that firmly establishes an economic linkage between an intervention and an early childhood benefit, (2) devising contracts between the parties in a PFS project, which capture the benefit monetarily and which all parties are willing to sign, and (3) monetizing the returns within a timeframe acceptable to investors.

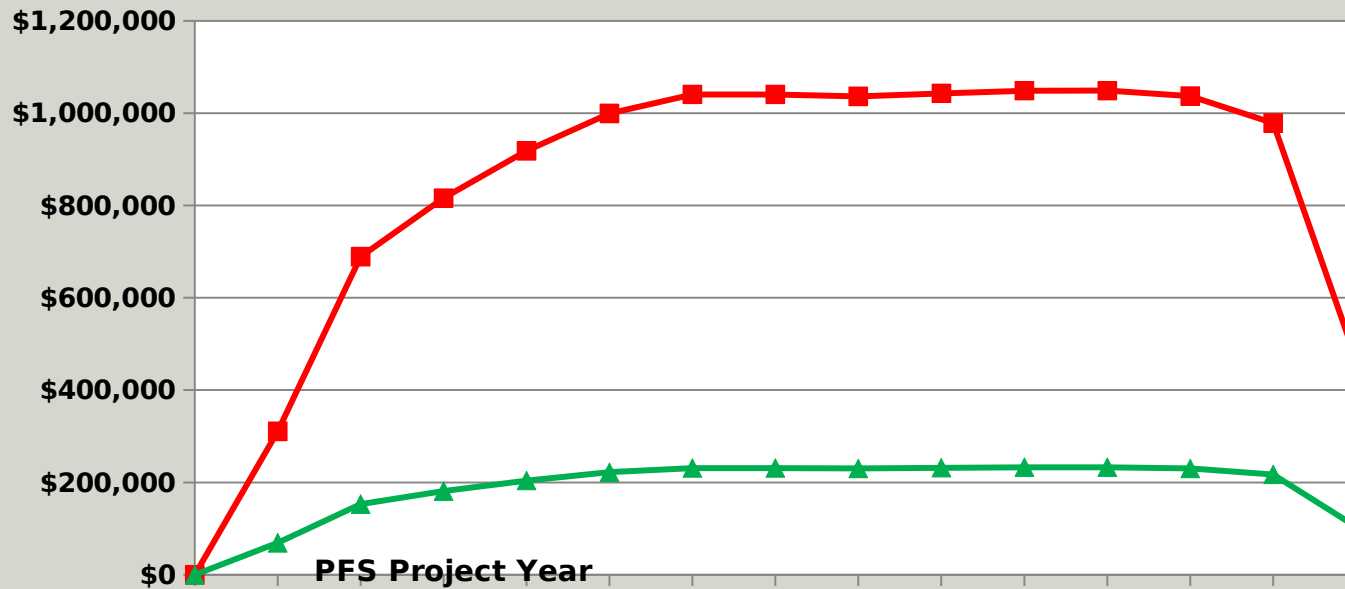
Reduction of Special Education Assignment

Comparison of Number of At-Risk Children in Special Education With and Without PFS Scholarships



Special Education Cost Avoidance

Comparison of Special Education Cost With and Without PFS Project



- Special Education Cost Without PFS Project
- ▲— Special Education Cost With PFS Project

Structure of Returns and Sources of Funds

- Long-term Returns to state and federal government and philanthropy
 - Government and philanthropic investment in PFS pre-k projects should be viewed in the context of the all-in benefits of quality prekindergarten to the public sector. These benefits include everything from lower special-ed costs to higher tax revenues from higher-earning employment
 - Many studies have looked at the cost/benefit question. Estimated returns on quality pre-k ranges from 7% to 18% per year.

- Monetizable and Non-monetizable Returns
 - Monetizable returns are ones that can be accurately measured and captured in workable contracts within investable timeframes from twelve months to ten years. Non-monetizable returns may be extremely valuable to individuals and society, but they are difficult to measure and capture in workable contracts. Such returns also often take more than ten years to realize.
 - The near-term special education cost reductions are monetizable, that is, the cost avoidance can be measured accurately and a portion of it could be paid as a “success payment” to whoever brought about the savings pursuant to a contract. Adolescent crime reductions have large monetary effects; however, at present, they are not easily monetizable

PFS Fundamental Relationships

- **The Cost Ratio** - The ratio of intervention cost to remediation cost.
 - The higher the cost of remediation is relative to the cost of intervention, the higher the possible cost avoidance will be, other things equal. For example, the more special-ed costs relative to pre-k, the less pre-k needs to reduce special-ed assignment rates in order to achieve threshold feasibility.
- **The Effect Ratio** - The ratio of intervention effect to non-intervention effect.
 - The more the intervention achieves the desired outcome, the more cost avoidance is achievable. For example, the more pre-k reduces special-ed assignment rates, the less difference there needs to be between the cost of pre-k and the cost of special-ed.
- **The Investor Ratio** - The ratio of investor capital to philanthropic and government capital.
 - The more philanthropic and government capital there is in a PFS project, other things equal, the better will be the risk and return profile of the project for investors.

Prekindergarten Returns and Benchmark Prekindergarten Programs

- Granite School District Preschool Program
 - Cost Ratios: Prek/Special Ed = 47%
 - Effect Ratio: 30% of 737 at-risk children potentially eligible for Special Education at 4 years old; 1.5% assigned to Special Education through elementary school.

- Bethlehem Area School District Preschool Program
 - Cost Ratios: Prek/Special Ed = 65%
 - Effect Ratio: 18% assignment rate for low income students without prek to 2.5% with prek.

Description of the Financing Model

➤ Fixed Debt

- Investors receive fixed interest and principal payments on a loan or bond with a given maturity, such as five or ten years.
- Investor funds are used to provide “scholarships” that pay for prekindergarten education services.
- Success payments after interest expense accrues in a reserve account to be available for later payments of principal. Any amount remaining in the reserve account after PRI investments are repaid are paid to the state.
- The timely payment of fixed-debt interest and principle is guaranteed by philanthropic foundation commitments to make PRI investments to cover periods of negative cash flow. Generally brief periods of negative cash flow are expected in the first few years of an early childhood project when operating expenses will likely exceed Success Payments, and in the years when large payments need to be made to repay debt principle.

Fixed Debt Structure

Cumulative PFS Success Payments, Fixed-Debt Repayment, and Reserve Account Balance Available for Distribution to State or for Future Rounds of Pre-k Financing

PFS Project Year

Cumulative PFS special-ed cost avoidance	PFS fixed-debt repayment
Funds available for state budget or project expansion	Philanthropic PRIs

Description of the Financing Model

➤ Pass-through

- Investors receive annual payments consisting of a percentage of the Success Payments.
- These payments constitute interest payments and principle repayment. The actual yield on the Pass-Through depends on the amount and timing of the Success Payments.
- Pass-Through payments may vary from year to year because they depend directly on the amount of Success Payments actually earned.
- In the Pass-Through structure, the debt instrument stands on its own – neither payments nor a given return on investment are assured by philanthropic PRI investment commitments.
- Pass-Through obligations have higher investment risk than fixed-debt obligations.
- The state receives the success payments not paid to support the Pass-through in the year in which it occurs.

Financial Model Projection Results

Base Case

➤ Assumptions

- BASD special education assignment rate reduction from 18% to 3%
- Combination of 75% funding from investors and 25% from state government

➤ Base Case Results: IRR

- Fixed Debt Structure:
 - Investor: 4.17%
 - State: 1.27%
 - PRI: 1.29%
- Pass-Through Structure: IRR
 - Investor: 6.0%
 - State: -6.27%

Financial Model Projection Results Variations

Variation A: Funding Source: 75% Investor, 10% state, 15% federal		
	Fixed-Debt Structure	Pass-through Structure (Requires 88.35% of Success Payments paid to Investor to reach Target Return)
IRR to the Investor	4.17%	6.00%
IRR to PRI	1.29%	0%
IRR to the State	8.28%	5.82%
Variation B: Funding Source: 50% Investor, 50% state		
	Fixed-Debt Structure	Pass-through Structure (Requires 58.9% of Success Payments paid to Investor to reach Target Return)
IRR to the Investor	4.17%	6.00%
IRR to PRI	1.39%	0%
IRR to the State	2.14%	0.75%
Variation C: Funding Source: 50% Investor, 25% state, 25% Federal		
	Fixed-Debt Structure	Pass-through Structure (Requires 58.9% of Success Payments paid to Investor to reach Target Return)
IRR to the Investor	4.17%	6.00%
IRR to PRI	1.39%	0%
IRR to the State	7.45%	11.63%
* All variations assume a reduction of special education assignment rate from 18% to 3%		

Financial Model Projection Results

Sensitivity Analysis

Variation A: Funding Source: 75% Investor, 10% state, 15% federal

	Fixed-Debt Structure					
	Reduction of special education assignment rate due to PFS pre-k					
	<u>from 18% to 3%</u>	<u>from 18% to 4%</u>	<u>from 18% to 5%</u>	<u>from 18% to 6%</u>	<u>from 18% to 7%</u>	<u>from 18% to 8%</u>
IRR to the Investor	4.17%	4.17%	4.17%	4.17%		
IRR to PRI	1.29%	1.23%	1.22%	1.22%		
IRR to the State	8.28%	5.34%	0.74%	-11.96%	<i>Return too low</i>	<i>Return too low</i>
	Pass-through Structure					
	Reduction of special education assignment rate due to PFS pre-k					
	<u>from 18% to 3%</u>	<u>from 18% to 4%</u>	<u>from 18% to 5%</u>	<u>from 18% to 6%</u>	<u>from 18% to 7%</u>	<u>from 18% to 8%</u>
IRR to the Investor	6.00%	6.00%	<i>Below target rt</i>	<i>Below target rt</i>	<i>Below target rt</i>	<i>Below target rt</i>
% of Success Payment Payout	88.35%	94.65%				
IRR to the State	5.82%	-5.48%	<i>Return too low</i>	<i>Return too low</i>	<i>Return too low</i>	<i>Return too low</i>

Financial Model Projection Results

Sensitivity Analysis

Variation C: Funding Source: 50% Investor, 25% state, 25% Federal

	Fixed-Debt Structure					
	Reduction of special education assignment rate due to PFS pre-k					
	<u>from 18% to 3%</u>	<u>from 18% to 4%</u>	<u>from 18% to 5%</u>	<u>from 18% to 6%</u>	<u>from 18% to 7%</u>	<u>from 18% to 8%</u>
IRR to the Investor	4.17%	4.17%	4.17%	4.17%	4.17%	4.17%
IRR to PRI	1.39%	1.39%	1.39%	1.39%	1.39%	1.29%
IRR to the State	7.45%	6.26%	4.88%	3.22%	1.13%	-1.70%
	Pass-through Structure					
	Reduction of special education assignment rate due to PFS pre-k					
	<u>from 18% to 3%</u>	<u>from 18% to 4%</u>	<u>from 18% to 5%</u>	<u>from 18% to 6%</u>	<u>from 18% to 7%</u>	<u>from 18% to 8%</u>
IRR to the Investor	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
% of Success Payment Payout	58.90%	63.10%	67.95%	73.65%	80.35%	88.35%
IRR to the State	11.63%	8.54%	5.09%	1.10%	-3.79%	-10.59%

Conclusions and Future Research

- Implementing operational PFS projects will be helped significantly if future research focuses on at least five areas of PFS finance:
 - (1) Standard error estimates of the distribution of returns on PFS assets.
 - (2) PFS project capital structures, risk, subordination and loss absorption.
 - (3) Sensitivity analysis of returns to variations in parameter values and financial structures.
 - (4) Pre, concurrent and post intervention data needed to evaluate near-term financial returns and longer-term all-in outcome improvements.
 - (5) Research methodologies to use when needed data are limited.