Social Impact Bonds: Key Implementation Issues

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Presentation Overview

What are Social Impact Bonds?
Challenges to their Implementation
Our Proposed Solution...
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Challenges to their Implementation

Our Proposed Solution...
Background on Social Impact Bonds

Social Impact Bonds (SIBs) were first proposed and implemented in the UK.

Problem: Social programs w/certain attributes are underfunded:

- Programs with large up-front costs
- Programs that serve large numbers of people
- Risky programs

Solution:

- Use private capital to finance these programs.
How SIBs Work

A public sector problem is identified that can be solved with additional resources that are not available from within the government.

- Investment bank solicits private capital.
- Government identifies performance measures.
- Private $ solicited, invested in programs through an intermediary.
- Evaluator determines if measures are met.
- Government reimburses investors plus profit if met.
- No funds if program fails.
When is a Bond not a Bond?
When it is a Social Impact Bond!!

Important note!

Social impact bonds are NOT bonds.
- Bonds pay off from a dedicated revenue stream.
- SIBs pay off from client outcomes—monetized estimates of the costs and benefits of changes in human behavior.
Critical Ideas

• In a perfect world, SIBs would not be necessary
  - SIBs force things to happen that we would like to happen anyway

• SIB-funded programs must be run by private third parties (separate from the investor or the government)

• SIBs can be priced in a way where everyone wins
  - Suppose a program saves $100
  - $50 goes to government
  - $50 goes to investor

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An Example: The Peterborough Experiment

Peterborough is a prison in the UK.
- Sought funds to provide reentry services to short-term prisoners leaving Peterborough.
- Raised 5 million pounds from private investors.
- Targets a 10% reduction in recidivism.
- Will pay out 7 million pounds if reduction > 10%.
- Will pay 0 if less.

Experiment is underway.
Advantages of Social Impact Bonds

Fund social programs that would otherwise not be funded.

Can increase reliance on demonstrated effective practice.

Increase reliance on evidence to determine success (rather than ad hoc or subjective judgments).

Government bears little risk.

Can encourage innovation (may make government more willing to fund risky programs).

Potentially increases community-based service infrastructure (SIBs will likely focus on services delivered by the private sector).
Disadvantages of Social Impact Bonds

Beyond the headlines, extremely complex.

May discourage innovation (programs may be limited to those with a demonstrable evidence base).

May substitute private services for public services and private sector may prefer profit over pro-social goals.

Private market may prefer to serve low-risk, low-need, low-reward populations rather than high-risk, high-need, high-reward populations.
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Questions to be Answered

We are concerned that SIBs may be launched before the complexities are addressed and may fail without a fair trial.

The central question:

- How can research inform the selection of SIB-funded interventions and bond pricing in the presence of the tremendous uncertainty endemic to efforts to change individual behavior?
Key to SIB Success: Disaggregating Risk from Uncertainty

We define *risk* as a variation in outcomes that is observable.

We define unobservable variation as *uncertainty*.

- Investors are typically willing to invest in risky propositions if risks can be scored.
- Investors will be less likely to invest as uncertainty increases.

Development of a model that maximizes observable risk and minimizes uncertainty is critical to the success of SIBs.
How will Candidate Programs be Identified?

Large and growing body of empirical evidence about effective programs has largely not been adopted by government and philanthropy.

SIB-funded programs must be chosen objectively. Again, the model must maximize observable risk and minimize uncertainty.

Focus then is on probability of success, not the local average treatment effect.
Who will the Candidate Programs Serve?

Probability of success is partly a function of who gets the program.

Would like to figure out appropriate scale from prior research (but we cannot).

Instead, focus on the size of the target audience:

- For example, in City Z, there are 5,000 felons returning to the community annually.

- How many have drug problems? Literacy issues? MH disorders? A history of homelessness, etc.?

Better answers reduce uncertainty.
How will Performance Targets be Developed?

Also, how can targets account for risks in such a way that both investors and government agents would participate?

Uncertainty abounds:

- Heterogeneous program effects
- Measurement difficulties, identification problems
- Uncertain costs
- Uncertain benefits measurement

Better if performance targets include uncertainty at each stage of analysis and the answer is expressed as a probability.
How will Effectiveness be Measured?

New, risky, or controversial programs should undergo a randomized controlled trial.

- Conducted by unbiased, rigorous researcher
- From game theory—repeated games increase stability of equilibriums, so keeping the same researcher should build trust.

If a SIB funds a well studied program, performance measurement of model fidelity is sufficient.
Where do the Revenues to Pay Off the Bondholders Come From?

Prior research finds that ‘savings’ from effective programs are usually fungible and are diverted.

After prices and performance targets are developed, funding to pay off investors must be sequestered to convince investors it will be available.

SIBs solve the problem that cost-effective programs tend to be very costly to one agency while benefiting another.

- Theoretically, SIBs will only fund programs where benefits > costs so savings may fund both the SIB and other programs or be returned to taxpayers.
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These problems require a model that integrates cost-benefit analysis with meta-analysis to carry estimates of uncertainty throughout and to estimate probabilities.

The Urban Institute (UI) and the District of Columbia Crime Policy Institute (housed at UI) have developed a model to identify programs that could be most cost-effectively implemented in a given jurisdiction.
Program Effects

Model program effects based on meta-analytic results.

- We use data coded for other meta-analyses, including effect sizes for key outcomes and data on the quality of the evaluation.

- We model program effects with a three-level hierarchical model using a Bayesian framework with a diffuse prior (Smith, Abrams, and Jones 1995).
Program Effects Continued

The results of the quantitative meta-analytic model are distributions of the effect size.

- This includes the estimated mean and variance of program effects, enabling the construction of a predictive interval of effectiveness.

- Unlike classical statistics, this generates probabilities along the distribution.

- Thus, we can report, for any effect size, what the probability will be that any replication of the program will generate that effect.
Costs

Costs = Price \times \text{quantity}.

- Collect data on resources consumed in program operations.
- Use extant data sources and expert estimates from target agencies to obtain jurisdiction-specific prices (accounts for the variation in prices across places).
- Estimate quantity of each resource that is used (for instance, the number of jail-bed days per year).
- We believe these separate estimates increase our knowledge about the variation in costs which better allows uncertainty to be translated into risk.
Benefits

Benefits accrue to various agencies (including city, state, and federal agencies) and to society at large.

- We account for all beneficiaries and present the benefits to each separately.

- Benefits are the product of a quantity of resources saved and the price of those resources.

- Prices are based on budgets of involved agencies. The prices of crime (the costs to society of criminal victimization) are from jury-award data and incident-based crime data (Roman 2011).
The quantities of resources saved are more difficult to estimate.

- The effect sizes from the meta-data estimates a range of prevented arrests.
- Using various data sources from local agencies, we predict the probability that these arrests would have led to pretrial detention or supervision; criminal court trials; conviction; jail, prison, or probation; etc.
- Thus, from the estimated range of arrests prevented, we can estimate the range of costs that would be prevented.
Benefits Continued

Our simulation-based Bayesian methods account for uncertain outcomes throughout the process and provide a final range of each agency’s averted costs, allowing us to provide final estimates of the benefits (averted costs) experienced by the public and each city and federal agency separately.

These can be combined with the program costs to provide final estimates (which include reasonable ranges and probabilities) of the net benefits of program operations.
Errata

Setting performance targets as a binary decision seems counterproductive:

- A sliding scale of returns for measurable success is preferred.

Creation of a marketplace for the exchange of SIBS is preferable to one-off ventures:

- Can create options, derivatives to insure SIBs.
- Can entice financial investors as well as philanthropic investors.

Which benefits should be used to price bonds?

- Using fiscal benefits only makes it sustainable.
- The government is a not-for-profit entity.
What are the Net Benefits of Juvenile Breaking the Cycle?