BENEFIT-COST BRIEF: THE ECONOMIC CASE FOR MEDHA

Long-term Economic Returns and Cost-Effectiveness

Key Metrics

Metric	Result
Benefit–Cost Ratio (Primary Estimate)	9.8×
Payback Period	1.3 years (≈16 months)
PV Lifetime Income Gain	₹269,034 ($2,934)
Causal Monthly Income Gain	₹1,799 ($20)
Program Cost per Student	₹27,500 ($300)
Statistical Significance	p = 0.048

All figures represent Intent-to-Treat (ITT) estimates from a randomized controlled trial.

Why This Matters

Low-income youth in India often face a difficult transition from education to employment, struggling to enter careers that offer stable earnings and upward mobility. Medha addresses these frictions by strengthening 21st-century skills, career awareness, job search capability, workplace readiness, and employer matching.

This brief evaluates the long-term economic returns and cost-effectiveness of Medha's intervention using randomized controlled trial (RCT) evidence and projections of lifetime earnings gains.

Headline Findings

1. **High economic return (benefit–cost ratio)**
   Under the central conservative projection, every $1 invested generates approximately $10 in additional lifetime earnings (benefit–cost ratio: 9.8×).

2. **Rapid payback period**
   At a 5% discount rate, the program's economic gains exceed program costs in roughly 1.3 years (≈16 months), recovering its cost early in participants' working lives.

3. **Causal income impact (RCT evidence)**
   Students assigned to Medha earn ₹1,799 ($20) more per month on average in the RCT endline survey (p = 0.048), equivalent to roughly ₹21,588 ($235) in additional annual income per student.

Evidence of Program Impact

Medha's impact estimate is based on the randomized controlled trial (RCT) endline survey. Monthly income is measured, including zeros for non-earners, ensuring the estimate reflects the effect of assignment across the full sample of observed respondents rather than only those already employed.

This approach is important for cost-effectiveness because program costs are incurred for all students served. Measuring income across the full sample, therefore, provides a direct estimate of the average income gain per student assigned to the program.

The main regression estimates that students assigned to Medha earn ₹1,799 ($20) more per month than students in the control group (p = 0.048). Because the outcome includes non-earners, the estimate captures both:

- **the extensive margin** (higher employment probability)
- **the intensive margin** (higher earnings among those working)

A robustness check excluding control variables produces a similar estimate (₹1,522 per month), suggesting the result is not sensitive to model specification.

Projecting Long-Term Returns

Because the RCT measures outcomes at an early stage of participants' careers, the analysis projects observed income differences forward over a 20-year horizon using a 5% annual discount rate.

Three projection approaches are used to reflect uncertainty about how income differences may evolve over time. All projections are based on the RCT endline data.

Scenario	Core Assumption	Lifetime Income Gain	Lifetime Benefit-Cost Ratio
Projection A — Central Conservative Estimate	Income gap remains constant over time	₹269,034 ($2,934)	9.8×
Projection B — Structural Scenario	Separates employment and wage effects with experience growth	₹353,713 ($3,855)	12.9×
Projection C — Illustrative Upper Bound	Earnings gap widens with experience	₹780,937 ($8,516)	28.4×

Full details are provided in the accompanying Technical Appendix: Modeling the Long-Term Economic Returns and Cost-Effectiveness of Medha

The primary analysis uses **Projection A** because it relies directly on the statistically significant RCT intent-to-treat estimate and assumes no widening of the income gap over time.

Payback Timeline

The program's economic returns accumulate rapidly.

Year	Cumulative Benefit–Cost Ratio
Break-even	~1.3 years
Year 3	2.1×–2.6×
Year 5	3.4×–5.0×
Year 10	6.1×–12.0×
Year 20	9.8×–28.4×

With a program cost of $300 (₹27,500) per student, the conservative projection estimates that every $1 invested generates approximately $10 in additional lifetime earnings (benefit–cost ratio: 9.8×).

Why the Estimate Is Credible

Several features make the analysis intentionally conservative and decision-relevant:

1. **RCT-based causal estimate**
   Anchored in a randomized controlled trial using intent-to-treat effects.
2. **Rigorous statistical specification**
   Batch/cohort fixed effects with clustered standard errors, consistent with the primary Beaman et al. (J-PAL) specification.
3. **Conservative base case**
   Assumes the observed income gap remains constant over time, not widening.
4. **Explicit sensitivity testing**
   Alternative assumptions about uncertainty, discounting, persistence, and displacement.

How it Compares

Medha's 9.8× benefit-cost ratio compares favorably to rigorously evaluated interventions globally.

- Year Up – one of the most rigorously evaluated workforce programs globally, generated a societal BCR of 2.5× over seven years through an RCT of 2,544 low-income young adults at a cost of ~$28,000 per participant (Fein & Dastrup, 2022). Medha achieves 3.4× at five years at $300 per student.
- GiveDirectly – unconditional cash transfers generate approximately $2.50 in economic activity per dollar at ~$1,000 per recipient; Medha achieves a 9.8× income multiplier at $300 per student (GiveWell, 2024)
- GiveWell – funding bar for top charities is 8× its cost-effectiveness benchmark; Medha's 9.8× BCR is consistent with and exceeds that threshold (GiveWell, 2024)
- J-PAL – review of 28 vocational training RCTs finds the strongest results in programs combining practical experience, employer matching, and soft-skills training — Medha's core approach (J-PAL, 2022)

Stress Tests and Robustness

Scenario	Assumption	Benefit–Cost Ratio
Discount rate stress test	10% discount rate	6.7×
Fade-out stress test	10% annual decay	5.0×
Fade-out stress test	20% annual decay	3.1×
Displacement stress test	50% displacement	4.9×
Combined stress test	20% annual decay + 50% displacement	1.6×

Notably, even under the most severe combined stress test (20% annual decay and 50% displacement), the program continues to generate positive economic returns.

Limitations and Uncertainty

The estimates should be interpreted with several important caveats:

- **Early-career measurement**
  Long-term impacts are projected from early labor-market data.
- **Persistence uncertainty**
  Treatment effects may shift as control-group participants gain experience.
- **Potential displacement**
  Some gains may reflect reallocation rather than new economic output (stress-tested in the analysis).
- **Scaling considerations**
  Costs and effect sizes may change as the program expands.
- **Economic vs. welfare returns**
  Estimates reflect projected earnings, not moral-weighted welfare gains.

Key Takeaways

The evidence suggests that Medha improves early labor-market outcomes while generating economic returns that substantially exceed program costs.

- The RCT shows a statistically significant increase in monthly income
- The central conservative estimate implies a 9.8× benefit–cost ratio
- The program breaks even in approximately 1.3 years
- Projected gains remain positive even under severe stress tests

For Further Details

This brief summarizes the main findings of the full technical appendix, which provides additional detail on the regression specification, projection models, discounting assumptions, sensitivity tests, and limitations.

For additional information, please contact info@medha.org.in.