

Propensity Score Matching for Evaluating ICT4D/Telecenter projects: A simplified illustration

Chanuka Wattegama

Nilusha Kapugama

CPRsouth5, Xi'an China

6 Dec 2010

Why evaluate ICT4D projects/telecenters?



Some issues identified in evaluating Telecenters

- Difficulty in isolating the impact
- Need for (or lack of) baseline data
- Over-reliance on anecdotal evidence
- Generalisation of results
- Inability to conduct randomised control trials

Propensity Score Matching?

- A quasi experimental design
- A Statistical Analysis of observational data
- Measures a program's effect on project participants with respect to non participants with similar characteristics.
 - Done by creating a '**comparison group**' (or counterfactual group) from the **untreated population** as close as possible to the **treatment group** by matching the probability of a non-participant undergoing a treatment

A Simplified Illustration

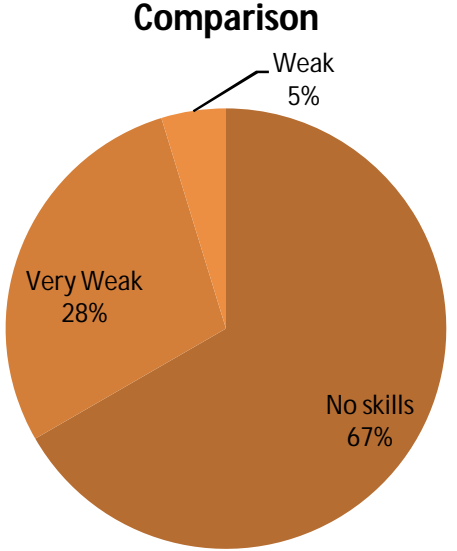
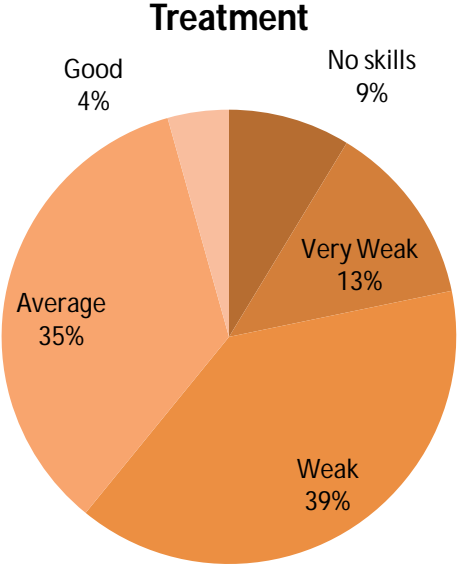
Matching? How?

Treatment Group				
	Gender	Age	Grade	Father's Occupation
1	F	14-15	9	F
2	F	14-15	9	M
3	M	14-15	10	B
4	M	14-15	10	F
5	F	> 18	13	F
6	F	> 18	13	F
7	F	> 18	13	F
8	F	> 18	13	F
9	F	14-15	10	F
10	F	16-17	11	L
11	F	> 18	13	F
12	M	16-17	11	F
13	M	16-17	11	F
14	F	16-17	10	F
15	F	> 18	11	F
16	F	16-17	10	F
17	F	16-17	10	F
18	F	14-15	11	L
19	M	16-17	11	F
20	F	16-17	11	C
21	F	16-17	11	F
22	F	16-17	11	F
23	F	16-17	11	F

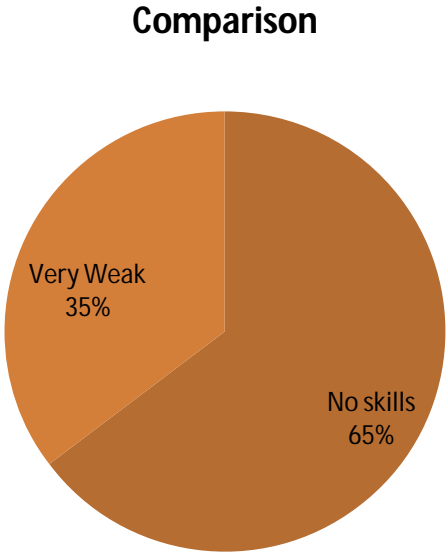
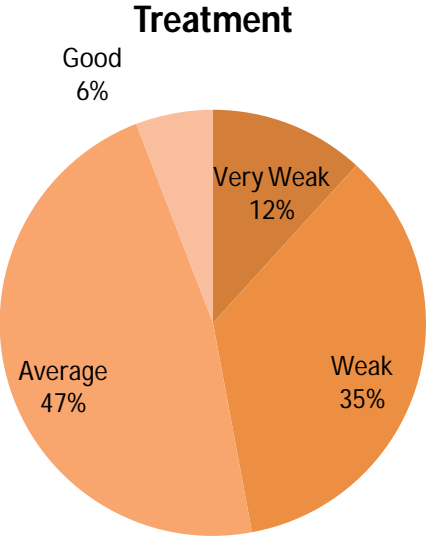
Comparison Group				
	Gender	Age	Grade	Father's Occupation
1	F	16-17	11	M
2	F	16-17	11	F
3	F	16-17	11	F
4	M	16-17	11	L
5	F	16-17	11	F
6	M	16-17	11	F
7	M	14-15	10	F
8	M	14-15	10	F
9	F	16-17	11	F
10	F	16-17	11	F
11	M	16-17	11	L
12	M	16-17	11	F
13	F	16-17	11	F
14	F	16-17	11	F
15	F	16-17	11	F
16	M	14-15	11	F
17	M	14-15	11	F
18	F	14-15	10	F
19	F	14-15	11	F
20	M	14-15	11	M
21	M	14-15	10	F

Computer literacy: Before and after

No Matching



With Matching



Why Propensity Score Matching

- Attempts to isolate the impact of treatment from the other factors of influence.
- Can be done with zero baseline data
- Experimental design is best. However not feasible in this case. Propensity Score Matching is the next best option!

For comments and questions
please contact:

Chanuka Wattegama: chanuka@gmail.com

Nilusha Kapugama: nilusha@lirneasia.net

Why not Ex-ante experimental design?

- matching only controls for observed variables
 - shortfall in PSM
- Difficulty in:
 - Identifying beneficiaries
 - Formation of control groups