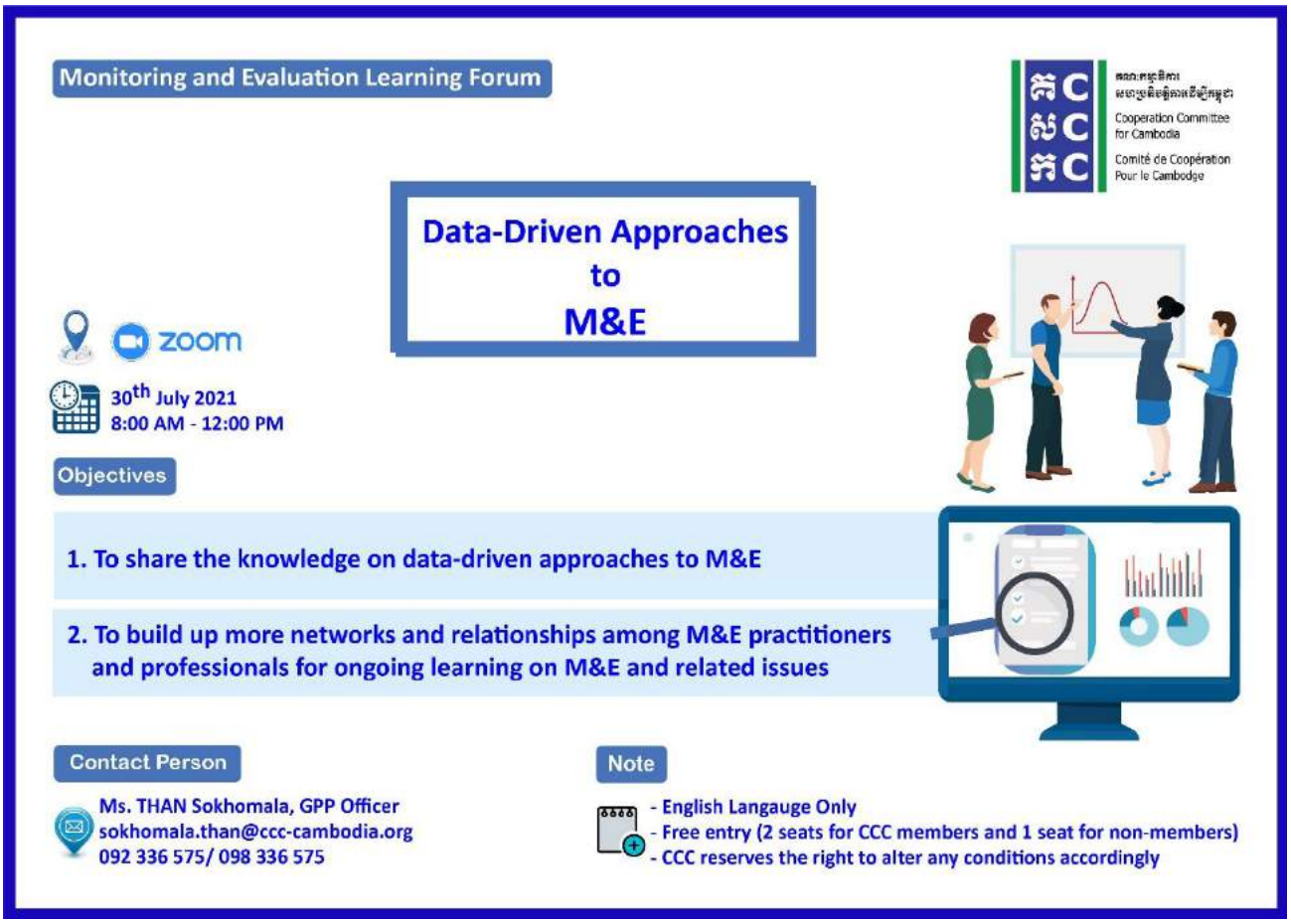
Minutes

The 26th Monitoring and Evaluation Learning Forum

"Data-Driven Approaches to M&E"

30 July 2021, 8:30 AM – 12:00 PM

Virtual Platform through **ZOOM**



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Contents

1. Introduction

To respond to the needs on capacity development of Non-Governmental Organizations (NGOs), especially in the period of COVID-19 pandemic in Cambodia, Cooperation Committee for Cambodia (CCC) has conducted several virtual learning fora. Among those learning fora, the M&E learning forum is one compartment. With a voluntary resource person who is interested to share his knowledge with NGOs in Cambodia via CCC's learning forum and the support from the M&E working group, CCC is going to organize another virtual M&E learning forum on the topic of **"Data-Driven Approaches to M&E"** on 30 July 2021. The resource person is Mr. Kenneth Ryu, Adjunct Professor from EBS Universität für Wirtschaft und Recht, Germany.

As the largest membership-based platform for NGO in Cambodia, as of December 2020 CCC has 177 foreign and domestic NGOs as members and provincial NGO networks in 15 provinces of Cambodia who are working in different development sectors.

2. Objectives of the Learning Forum

- To share the knowledge on data-driven approaches to M&E.
- To build up more network and relationship among M&E practitioners and professionals for ongoing learning on M&E and related issues.

3. Process and Result

Ms. Pheng Chandy, GPP Specialist, and the facilitator of the forum, greeted the participants, introduced the objectives and the ground rules of the forum. The forum was conducted via online (ZOOM) with the total participants of 120 people from both domestic and foreign NGOs including CCC member and non-CCC member NGOs.

3.1. Setting the Ground Rules

- Please rename your name according to the name that registered
- Please stay in a silent room that has a stable internet
- Using earphones for the forum is encouraged
- Please turn off your mic and camera if you do not use any of it
- Do not show any disturbance to guest speakers
- Please introduce yourself in chat box
- If you have any questions, please drop them in chat box
- If you have anything to talk, please click the button labeled "Raise Hand", and wait for the permission from facilitator

3.2. Open Remark

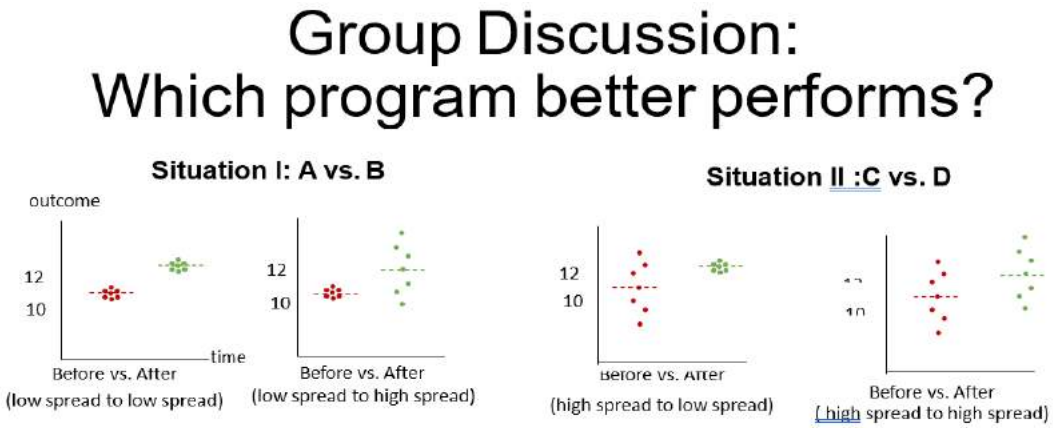
Welcome and Opening Remarks by Ms. Sin Putheary, Executive Director of CCC.

She welcomed all participants who spend their precious time to join this online M&E learning forum. This is a very special 26th M&E learning forum because we have very special guest from Germany, Prof. **Kenneth Ryu** who will be the resource person to provide the forum the impact on how the M&E data management and data driven by M&E in this platform. I would like to share some of the responses regarding the needs of the capacity building of our CSOs who are in here and our working group who always actively support on this forum to respond to the need of this topic which we will get more knowledge, experience, and platform of learning on the impact of the M&E. It is very crucial to the program level and organizational level, and it links on what we have done in the fields and what we can promote this good practices in order to make sure that we have proper data collection and the mean of different texting, the theory of impact evaluation, the pros and cons, the methods of all important measurement of M&E framework. She would like to thank to the organizers, Profs to make this event happens. It is very important that this platform is not all about learning but the common interests, and we would like to look forward learnings new approach as well as the lessons learn from the fields that our practitioners and professionals are able to communicate, combine, and corporate with one another. To conclude, I would like to highlight the key achievements of the learning platform so far that we have provided various topics, not specifically on the M&E but also the assessment on the needs and the importance of the collaboration among CSOs, development partners, government, and beneficiaries. These important actors cannot collaborate, and join the simple reports without the help of your support, collaboration and concentration, which CCC believes it is very important for CCC's members, partners and beneficiaries. Once again, thanks for providing the importance of the knowledge sharing to the platform; and even Covid-19 situation outbreak it still continues; but we hope that the new technology of the data collection tools as well as your experience and expertise will enhance our CSOs, members, and partners to be more effective to the data collection, and share the practice on the impact on the data driven approaches to M&E. Hence, we will learn new things, share, and explore the experiences, and grow altogether. I would like to applaud to all your efforts in this achievement. I would like to open the M&E forum this morning, and hope we can get the fruitful discussions in this morning.

3.3. Prof. Kenneth Ryu Profile

3.4. Importance of measures of spread and of counterfactual group

Spread is the variation; how wide and far it is.
Average is the central point that represents the entire population. Ex: height
Counterfactual group is the benchmark



Situation I: A vs. B

Mr. Norak chose A to be better program than B because the great performance of A based on the spread. It is well spread positively comparing to B since there are more under performance outcome from B.

Mr. Lim Phai chose B. In community development program, the improvement has spread over the wide range of people, so it is more impactful. In A is very limited of scope, although from 10 to 12, but small area comparing to B performed wider area.

A is better than B:

- From statistical approach, if there is a wide variation, it will not give us significant research which A gives us more significant.
- Humanitarian point of view, it should be better if there is a more consistent research rather than wide spreading.

The less the deviation, the more outcome significant, and confident.

Situation II: C vs. D

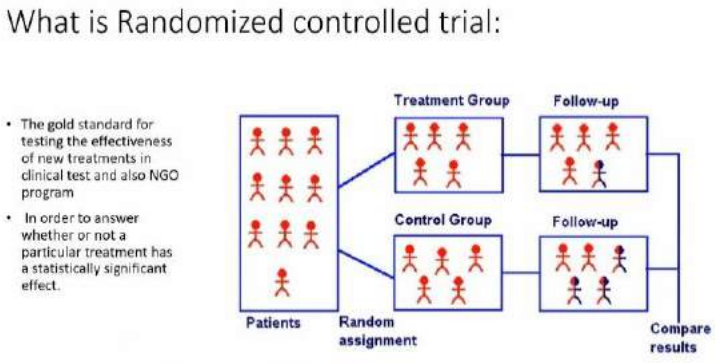
Neither could be better than the other. For C, some people improve significantly while other perform worse, which is not consistent. For D, everybody improves just a bit, which is the mixed performance from statistical point of view. Humanitarian point of view, they care about half to improve better while the other half are not minded. To most of the NGOs, would not go to D since they do not want to sacrifice half of the beneficiaries for the sake of the other half.

Ms. Leakhena: She believes all the 4 graphs are no matter that which one is better, when we see the impacts and the outcomes of the projects, we will see the whole communities developed. Even though, they cannot go with the common time and result; at least they have moved from worse to better place. Hence, the graphic should be more explainable to the project when we are setting the series of change, clearly. The whole project will provide more to the communities even though it is not the same time, and not the same level, eventually they are moving forward.

3.5. Nobel Prize Winners of Economics 2019

The couple, Mr. Abhjit Banerjee and Ms. Esther Duflo from India and France, and Michael Kremer (USA) shared the Nobel Prize for their experimental approach to alleviating global poverty.

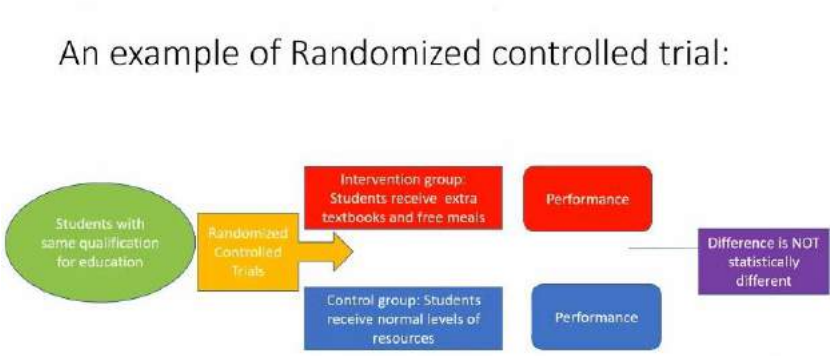
3.5.1 Randomized Controlled Trial



We compare between the treatment group and follow-up group (before Vs. after), sometimes it works, but sometimes it doesn't work because there are some external impacts.

We have to find treatment group from the same group of people, and we segregate the group into 2 sub-groups, which we randomize between the 2 by withdraw the assigned number of the people.

This method is mostly preferred by academy researchers, a lot of NGOs never use it – only in case- to have collaboration with academic institution.



If you have any question regarding data-driven M&E, email to twitter2619@gmail.com

3.6. Ways of Data Collection

Type of data collection	Description	Sampling variability	Pros/Cons
Census	Collect data from every unit in a population Collecting data about the height of everyone in your class	zero sampling variability of statistic because it is calculated using data from the entire population.	Cons(Cost, Time, Response burden, Issues of Control for all unit)
Sample survey	only part of the total population is approached for data. If you collected data about the height of 10 students in a class of 30	Non-zero sampling variability of statistic because it is calculated using a portion of data from the entire population.	Pros(Cost, Time, Response burden, Issues of Control for all unit)
Administrative data	a result of an organization's day-to-day operations. Examples include data on births, deaths, marriages, divorces and car registrations	zero sampling variability of statistic because it is calculated using data from the entire population.	Cons(Flexibility, Pros(Time series, simplicity, Response burden)

3.6.1. Type of Data by How They are Perceived

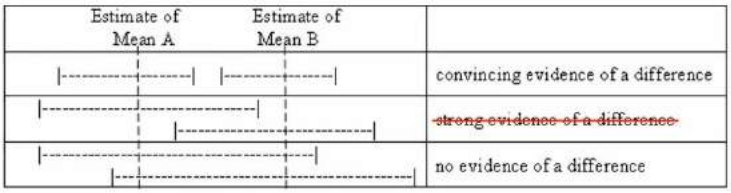
Type of data collection	Description	Example	Pros/Cons
Subjective data	Data from an interviewee's point of view, perception, concerns and feelings	Do you feel confident in facing your problems? Choices(0,1,2,3,4,5) from extremely unconfident to extremely confident	Pros: Suitable for specific research related to soft skills Cons: possible bias of response; interview skill matters
Objective data I	measurable, obtained through physical examination	(purely physical)Smog in the air Blood pressure	Pros: straightforward Cons: not flexible for the way of data-collection
Objective data II	Observable and obtained through diagnostic testing	(combined with human judgment or observation) Attendance of students Score of examination	Pros: flexible with human design Cons: not flexible for the way of data-collection

3.6.2. Nature of Data

Type of Data	Definition	Examples
Quantitative & continuous	could be divided and reduced to finer and finer levels	ex) height, weight and length
Quantitative & discrete	a count that can't be made more precise	"the number of children in your family", "the number of attacks of asthma per week"
Qualitative & ordinal attribute	categories that do have some kind of implicit or natural order	"Short, Medium, or Tall." "strongly agree, agree, neutral, disagree, strongly disagree"
Qualitative & nominal attribute	categories that do not have an implicit or natural value or rank	red/yellow/blue, negro/ caucasian/ Asian
Qualitative binominal(binary) attribute	one of two mutually exclusive categories	right/wrong, true/false, or accept/reject, male/female
Qualitative data (Open)	Random and open data	What type of lady you want to marry?

3.6.3. Mean Difference Test

Mean difference test = comparison of confidence interval between groups



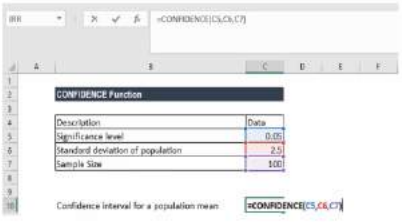
The comparison between two groups by only using the mean values: numeric data. Ex. 95 Vs. 96

3.6.4. Confidence Interval

Confidence interval: concept, mathematical formula and excel function

- a range of values so defined that there is a specified probability that the value of a parameter lies within it.

$$\bar{X} \pm 1.96 * \frac{s}{\sqrt{n}}$$

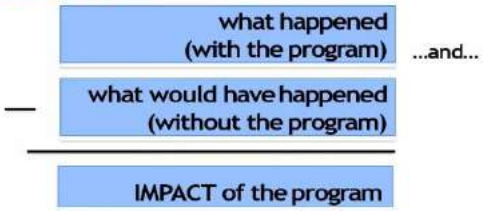


3.7. Impact Evaluation Methodologies

- Evaluate impact through comparing outcomes to a **counterfactual**
- Methods for constructing the counterfactual:
  - Pre-post
  - Simple Difference
  - Difference-in-Difference
  - Regression Analysis
  - Randomization
- Case: NGO program in India

3.7.1. How to Measure Impact

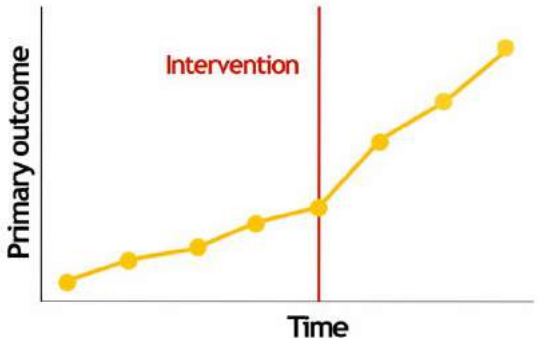
- IMPACT
  - What happened **because of the program**
  - The difference from what would have happened ***in the absence of the program***



3.7.1.1. Counterfactual

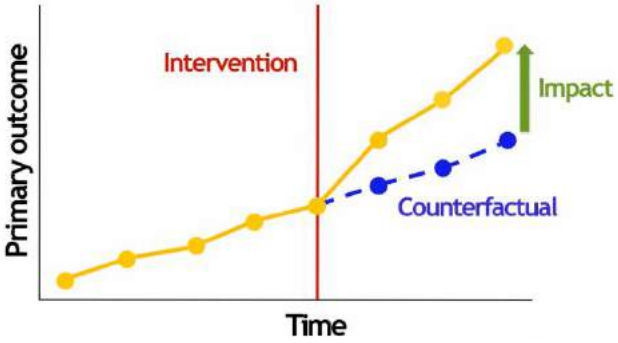
- The ***counterfactual*** represents the state of the world that program participants would have experienced in the absence of the program (i.e. had they not participated in the program)
- ***Problem***: Counterfactual cannot be observed
- ***Solution***: We need to "mimic" or construct the counterfactual

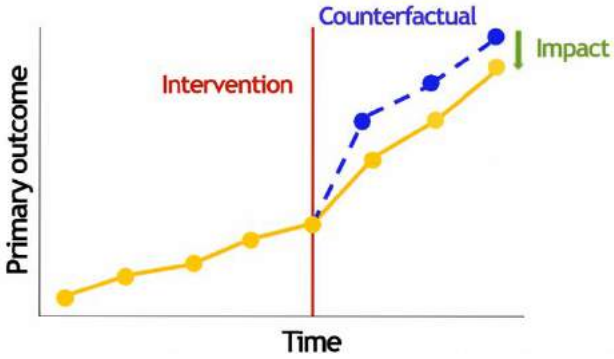
3.7.1.2. How to Measure Impact

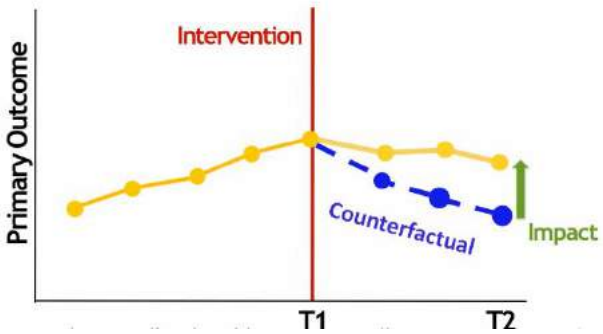


The outcome improves over time due to the intervention accompanying by other factors: macroeconomic, no natural disaster, and big investment from oversea.

The impact can be positive and negative







We can't accurately estimate impact without finding a way to accurately represent the counterfactual

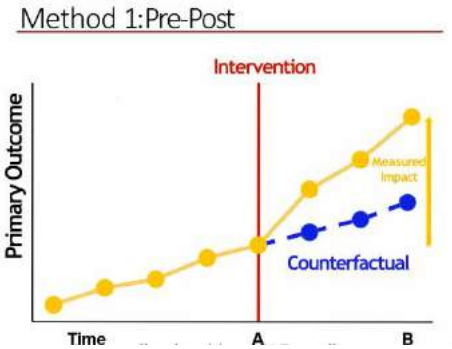
3.7.2. Pre-Post

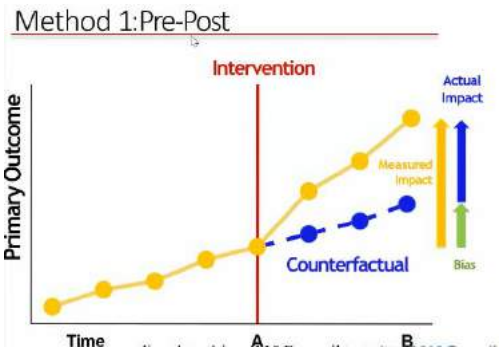
- One of the most common methods for tracking impact is comparing data for the program participants BEFORE and AFTER the intervention

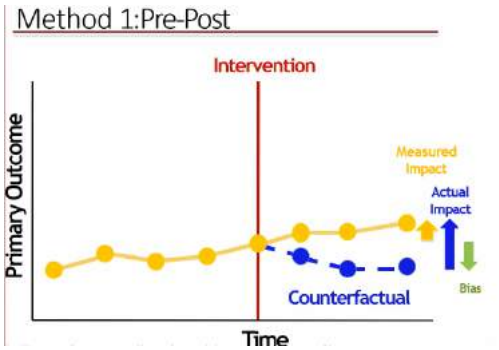
Pre-post

- In Pre-post, the counterfactual is represented by the same group before they got the program

Most of the NGOs in Africa and South East Asia apply pre-post.







Constructing the counterfactual

- In pre-post, the counterfactual is represented by the same group before they got the program
- What are the potential problems with this?
  - Other factors contribute to change overtime

Pre-post works when you can assume that there were no other factors that contributed to the change in outcomes over time

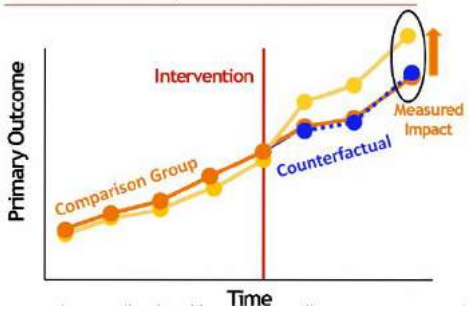
3.7.3. Simple Difference

Constructing the counterfactual

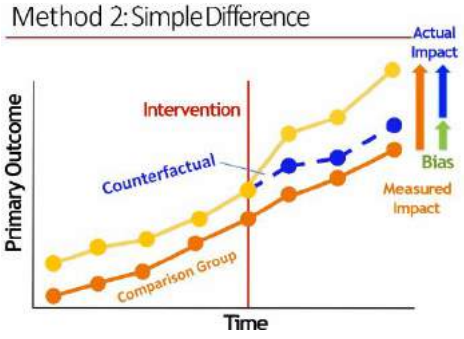
- Counterfactual can also be constructed by **selecting a group not** affected by the program

Simple Difference

Method 2: Simple Difference



Method 2: Simple Difference



- What are the potential problems with this?
  - The comparison group might be inherently different (selection bias or otherwise)

Works when you can assume that non-participants:

1) Are identical to participants except for program participation
2) Were equally likely to enter program before it started

3.7.4. Difference in Difference

Constructing the counterfactual

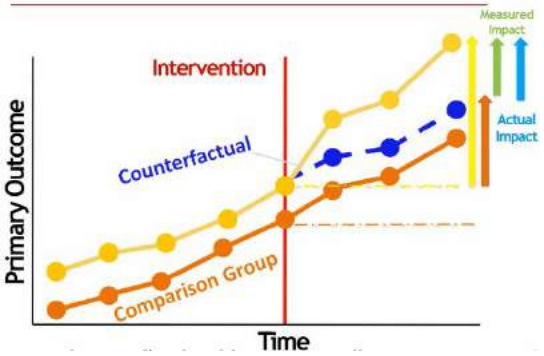
- Improve the counterfactual by controlling for differences in the two groups **acrosstime**:

Difference in Difference

- Difference in Participants minus Difference in Comparison

  (P2–P1) – (C2–C1) or (P2–C2) – (P1–C1)

Method 3: Difference-in-Difference



- Are there any potential problems with this?
  - Groups may have behaved differently over time
  - Shock to one group and not the other

Works when you can assume that if the program didn't exist, the two groups would have had identical trajectories over this period.

3.7.5. Regression Analysis

- Special case of simple difference or difference in difference
- Run regression to predict outcome
- Have an explanatory variable indicating if the individual is "treated" or "not treated"
- AND other variables that **could explain a difference** in the outcome or account for selection into treatment.

Works when you have data on all of the other potential explanations.

3.7.6. Randomization

- Identify or create a similar group for comparison
- The counterfactual is often constructed by selecting a group not affected by the program

Non-randomized	Argue that a certain excluded group mimics the counterfactual.
Randomized	Use random assignment of the program to create a control group which mimics the counterfactual.

Randomization: The basics

Start with simple case:

- Take a sample of program applicants
- *Randomly* assign them to either:
  - Treatment Group – is offered treatment
  - Control Group – not allowed to receive treatment (during the evaluation period)

- Note: distinction between offer of treatment and take-up of treatment

Randomization: The basics

Because members of the groups (treatment and control) **do not differ systematically** at the outset of the experiment, any difference that subsequently arises between them can be **attributed** to the program rather than to other factors.

Randomization is often the easiest, most reliable way to create a convincing counterfactual

3.7.7. Case: NGO Program in India

- A survey in India found that:
  - 44% of kids between 7 – 12 could not read a basic paragraph
  - 50% could not do simple subtraction despite being enrolled in school
- In a major city in Gujarat state:
  - Only 19.5% students in grade 3 could correctly answer grade 1 math problems

What are the problems?

- Large class sizes
- Low competency levels in higher classes
- Social gaps:
  - Amongst students
  - Between students and teachers
- Teacher absenteeism/pupil absenteeism?
- Poor teaching methods?
- Poor school infrastructure?

Proposed solution

NGO Program:

1) Hire local teachers (*NGOs*, female)
   - Given training to teach remedial classes in Hindi, Maths, English
2) Identify **lowest** performing students
   - Take them out of classroom for two hours
   - Ask local teachers to teach them

Implemented in all 124 Municipal Corporation Schools in the city in Gujarat

How to measure impact on learning?

1) Select outcome measure – test scores
2) Conduct a test at the **end** of the program
3) Compile Results
   – Students enrolled in the *NGO* program scored an average of 51% marks

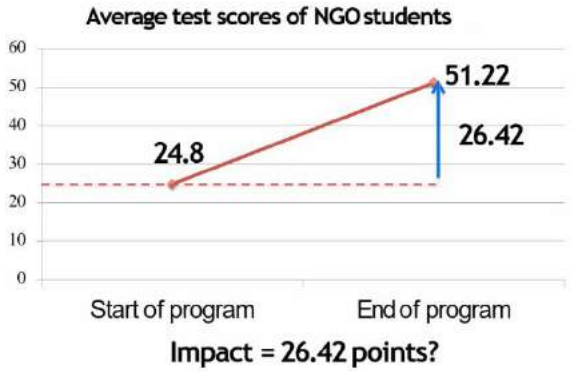
Method 1: Pre Post

- Take the students **enrolled** in the *NGO* program
- Look at their scores at the **start** and **end** of the NGO program

Pre
Not enrolled in NGO program

vs

Post
Enrolled in NGO program



Impact = 26.42 points?

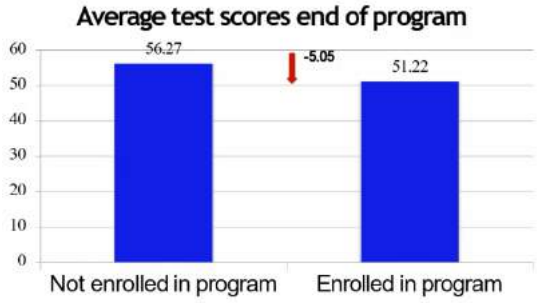
Method 2: Simple Difference

- Find a comparison group to evaluate impact:

Group 1
Enrolled in NGO program

vs.

Group 2
Not enrolled in NGO program



- Comparison group should be as similar as possible
- Compare test score of these two groups at the **end** of the program.

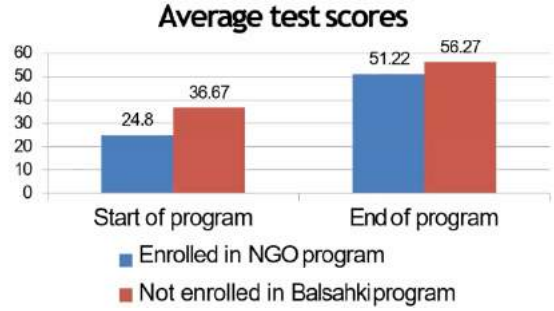
Method 3: Difference-in-difference

- Find a comparison group to evaluate impact:

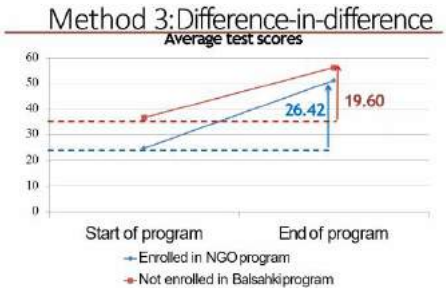
Group 1
Enrolled in NGO program

vs.

Group 2
Not enrolled in NGO program



- Compare test score of these two groups at the **start** and at the **end** of the program.
- Takes into account **pre-program** differences in the two groups



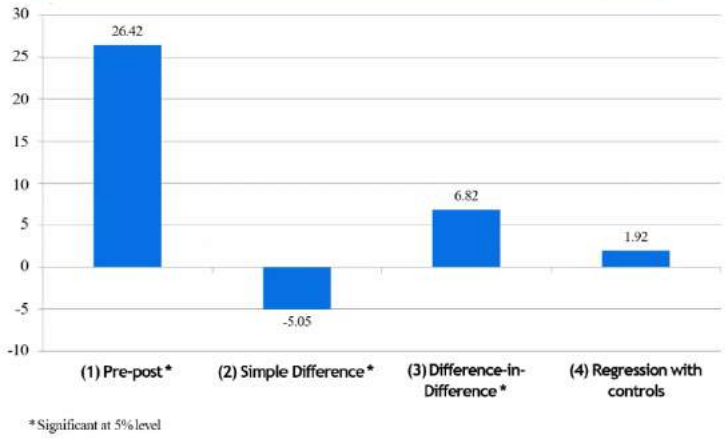
Method 4. Regression Analysis

- Find a comparison group to evaluate impact:

Group 1	vs.	Group 2
Enrolled in NGO program		Not enrolled in NGO program

- Compare test score of these two groups at the start and at the end of the program.
- Control for additional variables like gender, class-size

Impact of NGO program



Among all the methods, number (4) regression with controls is the most reliable one while pre-post is the most used method, yet a lot of counterfactuals taking into account. Difference-indifference is the second most reliable one as long as we have a good comparation group.

Conclusion

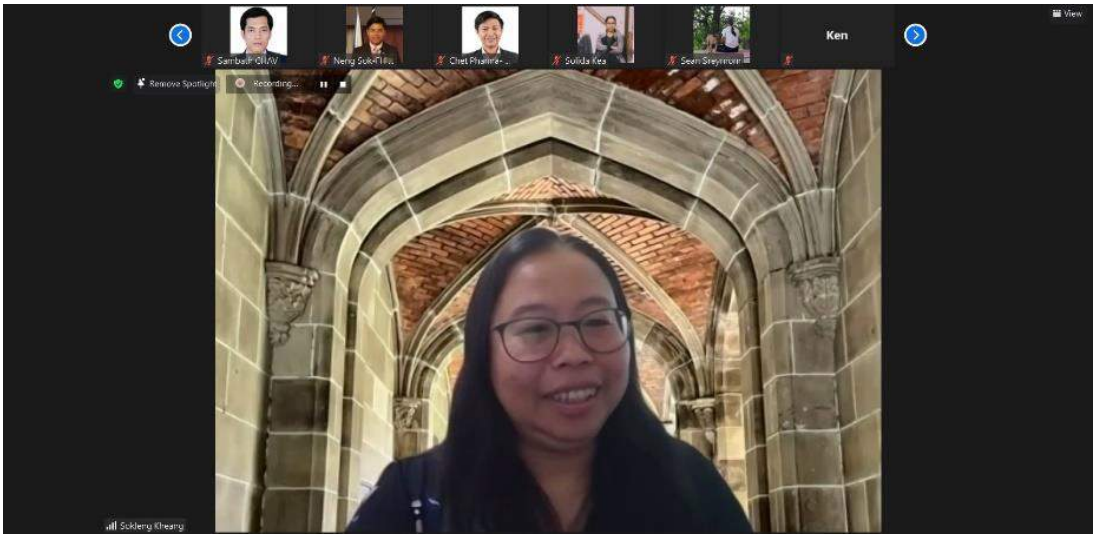
Measuring impact is all about finding a convincing representation of the counterfactual

- **Identify or create a group that mimics the counterfactual**
- **Always test your assumptions:** What else might be causing the measured impact?
- **Randomization** is often the easiest way to create a reliable counterfactual

3.8. Closing Remark

Closing remark was made by Ms. Kheang Sokleng, M&E Working Group member.

On behalf of the participants, she would like to thank CCC for organizing this forum, and Prof. **Kenneth Ryu** for the meaningful presentation. As Ms. Sin Putheary mentioned in her opening remark that this forum is the 26th forum, and it is a special one because it is presented by Prof. **Kenneth Ryu.** Today session might not be new to some of us, but maybe new M&E method to some NGOs including me. I have learned a lot from this presentation. It is very beneficial for the participants to learn the overview of the data driven approached to M&E. It is also very good that our participants use chat, and jump in the discussion. This forum is very good to know what the academic research institute using the method for and guiding us, especially M&E in NGO sector on what the direction we should move and improve ourselves. As Prof. **Kenneth Ryu** mentioned in his last slide that this seminar is just the foundation of data-driven method to M&E. Most NGOs, I believe that we may experience utilizing pre-post method; but not much in other three methods. Because of the pandemic, moving our forum to learning via virtual platform like this is a very good strategy to share his insightful knowledge to us. I can say that beside English language is the challenge, we also have some challenges with using new terminologies like the technical language for M&E which I myself try to understand some of those terms; and we have the challenge with the internet connection. However, thanks to all that we can achieve our today's objectives. Again, thanks to CCC for this forum organizing; and Prof. **Kenneth Ryu** for your informative presentation and your voluntary kindness to share your knowledge to improve the quality in NGO sector. I really thank so much for your kindness in this sharing, and finally I would like to thank to all the participants for your time and active participation in this forum. I wish everyone stay safe and healthy during this pandemic. Thank you.



4. Annex: Detail Agenda

Time	Key Contents	Resource persons
08:00-08:30	Open platform for online login	CCC Team
08:30-08:45	Introduction objectives and ground rules	**Ms. Pheng Chandy** GPP Specialist, CCC
08:45-09:00	Welcome and Opening Remarks	**Ms. Sin Putheary** Executive Director, CCC
0:00-11:00	Introduction of data science, how to make story behind data, data-driven application to M&E, and case study.	**Mr. Kenneth Ryu** Adjunct Professor, EBS Universität für Wirtschaft und Recht, Germany.
11:00-11:30	Question and Answer	**Mr. Kenneth Ryu** Adjunct Professor, EBS Universität für Wirtschaft und Recht, Germany.
11:30-11:45	**Wrap up and Closing Remarks**	**Ms. Kheang Sokleng,** M&E Working Group Member.
11:45-12:00	**Closing the event**	All