Impact Evaluation for SME Finance Policy and Interventions

Impact of SME Finance Policy Session
AFI Global Policy Forum

Douglas Pearce, September 2014
Why is Impact Evaluation Important?

In summary, to ensure that SME Finance Policies have the desired/maximum impact on ‘real world’ priorities

Impact Evaluations enable Policymakers to:

- quantify the effects of different policies,
- design the most effective interventions (that is, programs, policies, and regulations)
- improve targeting
- refine policies to better fit objectives, optimize the scarce use of resources, and understand the underlying mechanisms.
What is Impact Evaluation?

Rigorous assessment of the effects of a program
Impact Evaluation ≠ Monitoring

Impact Evaluation isolates the effects of a policy from other changes that may be taking place.
Consider the following example...
Evaluate what happened to SMEs’ exports after a public credit guarantee program...

In which:

– Commercial banks receive guarantees from the government to extend loans to a set of SMEs
Simple monitoring compares exports before and after:

Public credit guarantees begin

<table>
<thead>
<tr>
<th>Year</th>
<th>% SMEs exporting</th>
<th>Exports US Million</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>15.2%</td>
<td>5.2</td>
</tr>
<tr>
<td>2016</td>
<td>18.5%</td>
<td>6.8</td>
</tr>
</tbody>
</table>

Δ in exports:

- % SMEs exporting: 3.3%
- Exports US Million: 1.6

Assumption of this approach: Δ IN EXPORTS caused by INTERVENTION
But what if during these years...

Exchange rates change?
Local economy grows?
Credit registries improve?
Any other variable influencing SMEs changes?

SME Exports may change regardless of the program!!!!!!

△ IN EXPORTS CAUSED BY:
  - Intervention +
  - Exchange rate movements
  - Local economy
  - Credit registries +
  - Etc...
The before-and-after difference **confuses** the policy impact with changes caused by all other factors over time

How can we isolate the policy from other changing factors?
What we need to know is:

what would have happened to the firms that participate in the intervention if they would not have participated?

- SMEs exporting $\uparrow$ in 3.3%
- Exports $\uparrow$ in 1.6 US Million

- SMEs exporting $\uparrow$ in 2.8%
- Exports $\uparrow$ in 1.1 US Million
Impact Evaluation identifies a **proper counterfactual group** to compare with the group of SMEs that were affected by the policy.

Following the same example:

<table>
<thead>
<tr>
<th></th>
<th>Firms <strong>with</strong> intervention</th>
<th>Firms <strong>without</strong> intervention</th>
<th>Effect of program</th>
</tr>
</thead>
<tbody>
<tr>
<td>% SMEs exporting</td>
<td>3.3%</td>
<td>2.8%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Exports US Million</td>
<td>1.6</td>
<td>1.2</td>
<td>0.4</td>
</tr>
</tbody>
</table>
Selecting a proper control group is not trivial

A valid control group consists of:

- A group of firms with similar characteristics to those of the participating firms (treated firms)
- but who do not receive the intervention
Depending on how the control group is selected, Impact Evaluation approaches can be classified in two broad groups:

<table>
<thead>
<tr>
<th>Experimental approach</th>
<th>Non-Experimental methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Randomly assign the intervention between the treatment group and the control group</td>
<td>Identify a control group and use statistical techniques to ensure that the impact is properly measured</td>
</tr>
<tr>
<td>Randomization ensures that any difference between these groups is attributed to the intervention</td>
<td></td>
</tr>
<tr>
<td>However as SME finance involves careful selection based on risk and return, this can be difficult to apply</td>
<td></td>
</tr>
</tbody>
</table>
Experimental approach

Strength: Clear comparison group
Of all SMEs eligible for the intervention:
randomly select treatment and control
Experimental approach

The effect of the intervention is given by the average difference between treated and control groups.
Experimental approaches (RCTs)

• Basic RCT: take a baseline survey and randomly assign some participants to the project.

• Oversubscription design: all eligible candidates are allowed to apply to the program, and a subset of all applicants is randomly assigned to receive the program (via a lottery system, for example). Can be used for randomizing among marginal loan applicants, as in Karlan and Zinman (2010).

• Randomized phase-in: randomizing who receives the program first (applicable where scale of intervention is limited)

• Encouragement design: some individuals or firms are randomly “encouraged” (via financial incentives or marketing materials) to participate in the program, even though the program is available to the rest of the population.
Non-Experimental approach

Non-experimental evaluations:

• do not randomize participation into the program

• rely on identifying a control group and then using statistical techniques to isolate the impact of a policy

• can be conducted without prior planning
Non-Experimental approaches

- Difference-in-Differences (DD)
- Regression Discontinuity (RD)
- Instrumental Variables (IV)
- Propensity Score Matching (PSM)
Difference-in-Difference (DD)

DD compares outcomes, before and after an intervention took place and between the group that received the intervention (treated group) and a control group:

\[ DD\ Effect = \Delta_t(\text{Treated group}) - \Delta_t(\text{Control group}) \]

Graphically...
Difference-in-Difference (DD)

Productivity

INTERVENTION

Treatment group

2007  2010

How was productivity affected by the intervention?
Difference-in-Difference (DD)

How was productivity affected by the intervention?

The function of the control group is to take into account changes over time that might also affect the treatment group’s outcomes.

Control group needed

Productivity

2007  2010

time

INTERVENTION

Treatment group

2007

2010

Productivity

???????
As with RCTs, the control group is used to infer what would have happened to the treated group if the intervention had not taken place.
As with RCTs, the control group is used to infer what would have happened to the treated group if the intervention had not taken place.
From the control group, it is evident that productivity would be higher in 2010 even without the intervention.
In Pakistan, the Central Bank provides subsidized loans through commercial banks to firms exporting certain commodities.

What is the impact of this subsidy on domestic firms?
  – Does it benefit firms who would otherwise would not get credit?
  – Does it promote exports among firms?

DD Example:
Credit subsidies to exporting SMEs in Pakistan (Zia, 2006)
DD Example:
Credit subsidies to exporting SMEs in Pakistan (Zia, 2006)

- To understand the impact of the subsidies a control group is needed

- A valid control consists of firms eligible to receive the subsidy but who did not receive it...
DD Example:
Credit subsidies to exporting SMEs in Pakistan (Zia, 2006)

• Zia, 2006 exploits an exogenous change in eligibility that discontinued subsidies for a specific commodity (cotton yarn)

• He compares yarn firms with no-yarn textile firms before and after the subsidies were discontinued

• Is this a valid control group?
Panel A: Product Level Trend in Total Exports of Yarn and Non-Yarn Textiles

Export growth trends for non-yarn textile firms closely follow the growth trend of yarn firms before the subsidy was eliminated.

After the subsidy was removed, exports from yarn and non-yarn textile firms begin to diverge.
Relative to non-yarn textile firms:

– loans for yarn firms declined by 22%
– the average yarn firm was unable to substitute subsidized credit for regular loans
– yarn firms were 10% more likely to exit loan relationships with banks
– exports of yarn firms decline by 31%
Are Impact Evaluations Affordable?

Main cost is data collection. Therefore monitoring and reporting framework key

• Surprisingly, the cost of more rigorous impact evaluations is not much higher than the cost of minimal-standard (before and after) monitoring.

• The most expensive part of both monitoring and assessing impact is collecting new data. If data are available, then the difference in cost between two methods not substantial.
Using administrative data for impact evaluation
If data available, then relatively low cost & straightforward

The case of Mexico:

- In Mexico, CNBV collects on a monthly basis information of all loans made by commercial banks to firms and individuals with entrepreneurial activities

- The data includes detailed information on: size of loans, interest rates, maturity, collateral pledged, delay in payment, etc...

- This information is being used to evaluate different financial interventions
<table>
<thead>
<tr>
<th>Project</th>
<th>Objective</th>
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</table>
| Evaluation of NAFIN Credit Guarantees with Eva Gutierrez and Claudia Ruiz | Compare first time borrowers with and without a NAFIN guarantee to examine if over time having a guarantee:  
  a) improves the credit terms of firms even in the post-guarantee years (e.g. more favorable interest rates, larger loans, etc...)  
  b) increases the likelihood of survival of firms  
  IE method: Propensity Score Matching |
| Impact of Domestic and International Monetary Policy on the Mexican Credit Market with Bernardo Morais, Jose Luis Peydro and Claudia Ruiz | Identify the impact of domestic and foreign monetary policy on the type of loan contracts that banks write (size, maturity, collateral and interest rate)  
  Findings:  
  a) An expansionary monetary policy leads to contracts of larger loan size and maturity, but higher collateral  
  a) The nationality of the bank is very important: loan contracts offered by US banks in Mexico are more sensitive to movements in the US Fed Funds, whereas Spanish and UK banks to movements in EONIA, and SONIA respectively  
  IE method: Difference-in-Difference |
SME Finance Impact Assessment Framework (Ruiz, Love, 2012) includes:

• Comparison tables for evaluation techniques – both planned and unplanned
• Detail on evaluation methodologies
• Examples of how techniques were applied

Also:
• SME Finance Policy Guide
• SME Finance Forum

For further information

SME Finance Impact Assessment Framework
bit.ly/SMEFinanceImpactAssessment
Annexes
Impact Evaluation for Innovative SME Finance Approaches: Matched P2P Lending

- Crowdfunding platforms, which can provide more direct and efficient ways of accessing funding by using web platforms to cut out the middleman, are on the rise. They aim to offer borrowers cheaper loans and investors access to a new asset class. They are increasingly ‘picking up the slack’ as banks shift to a more conservative SME lending approach.

Governments providing match funding for Peer to Peer Lending:

- UK scheme to match loans to SMEs through selected P2P lenders
- Aim is to open up access to finance from formal (supervised) P2P lenders for creditworthy SMEs who otherwise are not able to access credit from banks.
Impact Evaluation for Innovative SME Finance Approaches: Electronic Platforms for Supply Chain Finance/Procurement

• The public sector can be a major buyer of goods and services from SMEs, and can effectively link SMEs to supply chain finance and to factoring.

• Electronic security and signature laws, and market facilitation platforms, can facilitate supply chain and factoring transactions with SMEs.

• **Chile Compra** is a public, electronic system for purchasing and hiring based on an internet platform that caters to companies, public organizations, and citizens.

  > Largest business-to-business site in Chile with more than 850 purchasing organizations including businesses, government ministries, public services, hospitals, etc.

  > Registered companies are mostly MSMEs (97% of total), providing a volume of US$6.5 billion in 2010.

  > The participation of MSMEs in government purchases helped double their overall share in Chilean economy.