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UNLOCKING SMALLHOLDER INSIGHTS FOR FINANCIAL SERVICE PROVIDERS

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Towards a common objective

Driving financial inclusion or in other words ensuring that every individual has access to and uses quality and affordable financial services, has become an increasing global priority. There is a growing realization amongst policy makers that inclusive financial sectors are critical for growth that is sustainable. They not only allow access to affordable financial products, but also create new channels for people to transact at lower costs and diversify their sources of livelihoods to become more resilient to periodic shocks, thereby helping especially the vulnerable sections of the society.

Despite the interest that financial inclusion has garnered in the last few years, around 1.7 billion adults globally remain unbanked or excluded from the formal financial services sector.¹ Further, the access to finance continues to be unevenly spread across countries and segments of populations within countries.² Most of the un(der)banked adults reside in the developing countries of the world, come from the poorest households in these countries, have the lowest educational attainments and more often than not, are employed in the agricultural sector.

Limited outreach is one of the key factors responsible for this underwhelming progress in driving global financial inclusion. Often the financially excluded segments consider lack of sufficient funds to need an account, followed by cost and distance of opening an account, as reasons for not reaching out to formal financial institutions.³ Lack of appropriate documentation and limited trust in the financial service providers (FSPs) are other commonly cited reasons for not having formal banking accounts.⁴ As a result, marginal borrowers often approach informal money lenders who are easily accessible and impose no documentation requirements for their financial needs. While these money lenders meet the short-term credit needs of these borrowers, according to empirical studies, their unlawful practices - exorbitant interest rates and unethical recovery practices, often trap the borrower in vicious debt cycles.

This suggests that driving financial inclusion necessitates that we introduce changes in the very architecture of the financial sector of an economy, particularly with respect to outreach. This transformation requires as a first step, understanding the characteristics of the target segment, using extensive data collection, analysis and inference to help FSPs develop financial products suited to the former's attributes. However, to ensure a sustainable solution, such financial interventions should be followed by the assessment of their impact, so that the intended impact is achieved over the long run.

In this paper, Mercy Corps Agrifin Accelerate program (AFA), working with Nathan Associates, discuss the nuances of these steps in context of the importance of presentation of data in unlocking insights for FSPs and the techniques used to assess impact of the resulting financial interventions. We discuss these with regards to financial inclusion of smallholder farmers (SHFs) in Kenya.

Current status of financial inclusion in Kenya

In recent years, the government of Kenya with support from the private sector has provided a strong stimulus to address challenges to formal finance. Innovations in mobile payment systems through platforms such as M-Pesa, Equitel and M-Shwari have brought about 10 million Kenyans under the ambit of formal

1 <http://microfinance-mena.org/category/countries/mena/>

2 <https://www.worldbank.org/en/news/press-release/2018/04/19/financial-inclusion-on-the-rise-but-gaps-remain-global-findex-database-shows>

3 https://globalfindex.worldbank.org/sites/globalfindex/files/2018-04/2017%20Findex%20full%20report_0.pdf

4 https://globalfindex.worldbank.org/sites/globalfindex/files/2018-04/2017%20Findex%20full%20report_0.pdf

financial services.⁵ The number of active users of M-Pesa in Kenya has reached 18 million over the span of ten years from its launch.⁶

Donor and multilateral organizations are contributing towards driving financial inclusion in rural Kenya. For instance, Alliance for Green Revolution in Africa (AGRA) in partnership with the Government of Kenya launched the Programme for Rural Outreach of Financial Innovations and Technologies Program (PROFIT). The programme supports the development of various financial products such as community infrastructure loans, savings and insurance products along with focus on improving the financial literacy skills of SHFs in Kenya.^{7,8} Mercy Corps is also contributing extensively towards this end. Through its AgriFin Accelerate (AFA) program, Mercy Corps is aiming to create an ecosystem to facilitate provision of digital financial and information services by suppliers and usage by SHFs.

However, there still exist gaps in the country's financial inclusion strategy as 17 percent of adults in Kenya continue to be financially excluded. 80 percent of these adults belong to rural areas, 55 percent being females.⁹ Agriculture likely contributes to majority of these un(der)banked adults since the intrinsic characteristics of the sector - dependence on monsoons and small size of land holdings, make the sector risky and inhibit financial institutions from advancing credit to the sector. Most affected are hence the SHFs who are typically the farmers producing crops or raising livestock on two or less hectares of land.¹⁰ As per estimates, only about 10 percent of such SHFs in Kenya access financial services including credit and insurance.¹¹

Like in most developing countries, SHFs in Kenya face various challenges to access formal finance, most common being the cost of opening an account (in the form of minimum balance). Lack of awareness, low levels of education and financial literacy also hamper the financial inclusion of this segment. These factors often compel SHFs to approach informal sources of credit such as money lenders, savings groups or their friends and family to service their financial needs. According to a study published by Mercy Corps Agrifin accelerate (AFA), 2017 benchmark study, focusing on SHFs in Kenya, almost 24 percent of SHFs in Kenya access informal finance.

Given this gap in demand and supply of formal financial services catering to the SHF segment, FSPs can unleash untapped opportunities by creating markets where none exist. In other words, FSPs can realize gains by developing financial products that suit the needs and characteristics of this segment. In the next few paragraphs, we discuss how data collection and compelling presentation of the results can facilitate FSPs in identifying their target segment.

⁵ King, Michael, "The Kenyan financial transformation (2000-2015)", World Bank Blog (June 20, 2016), <http://blogs.worldbank.org/allaboutfinance/kenyan-financial-transformation-2000-2015>

⁶ <https://edition.cnn.com/2017/02/21/africa/mpesa-10th-anniversary/index.html>

⁷ AGRA- "Financial Inclusion", Available at <https://agra.org/program-development-and-innovation/financial-inclusion/#1501506244154-8f91a101-3748> (accessed March 12, 2019)

⁸ IFAD, "Programme for Rural Outreach of Financial Innovations and Technologies", Available at <https://www.ifad.org/en/web/operations/project/id/1378/country/kenya>

⁹ Cook, William, "Who are Kenya's financially excluded?", CGAP blog (November 9, 2017), <https://www.cgap.org/blog/who-are-kenyas-financially-excluded> (accessed March 12, 2019)

¹⁰ <https://www.ifc.org/wps/wcm/connect/8dc5628042112fdbba2fff494779b2ad/Handbook+-+Working+with+Smallholders.pdf?MOD=AJPERES>

¹¹ <https://www.worldbank.org/en/events/2019/04/05/disruptive-agricultural-technology-challenge-and-conference>

Data collection, analysis and inference to understand SHF characteristics

The biggest challenge facing FSPs in extending their services to marginal borrowers, concerns identifying the target group¹² and then developing financial products suiting the former's needs and characteristics. Data collection through surveys acts as a powerful tool to overcome this challenge as it helps extracting information about the key attributes of the target group needed for decision-making. Further, analysis of extensive volume of information on the target also helps the FSPs to better understand the needs of the target groups.^{13 14, 15} For instance, a project on financial inclusion by the World Bank Group applied data analytics in Ghana, Uganda and Zambia to create a tool to increase the adoption and use of digital financial services (DFS). Data was used to identify samples who use mobile phones but not DFS. Analysis of this data helped in mining behavior patterns of the samples which would stimulate better use of DFS and tap new users.¹⁶

Data however becomes more effective when presented in a compelling manner. For instance, graphical or pictorial representation of data enables identification of new patterns and connections between multi-dimensional data sets and facilitates better demonstration of data for decision-making. One such demonstrative tool of data visualization is the location-based maps which illustrate the various characteristics of SHFs mapped to their geographical locations. We provide below the location of young SHFs (age less than 35 years) spread across 33 counties of Kenya using the Mercy corps AFA benchmark Kenya dataset dated 2017. The figure shows that Narok, Kericho, Bomet and Uasin Gishu have more than 60 percent of their SHFs below 35 years of age. Using this information, FSPs can target young SHFs in these counties and introduce digital financial services as youth have increased financial knowledge and demonstrate positive outcomes of financial inclusion.¹⁷

¹² A target group is a group of users who are interested in using the product or service offered to them

¹³ Hope, Diana, "How Big Data is Enabling Financial Inclusion", Smart Data Collective (January 30, 2018) <https://www.smartdatacollective.com/big-data-enabling-financial-inclusion/>

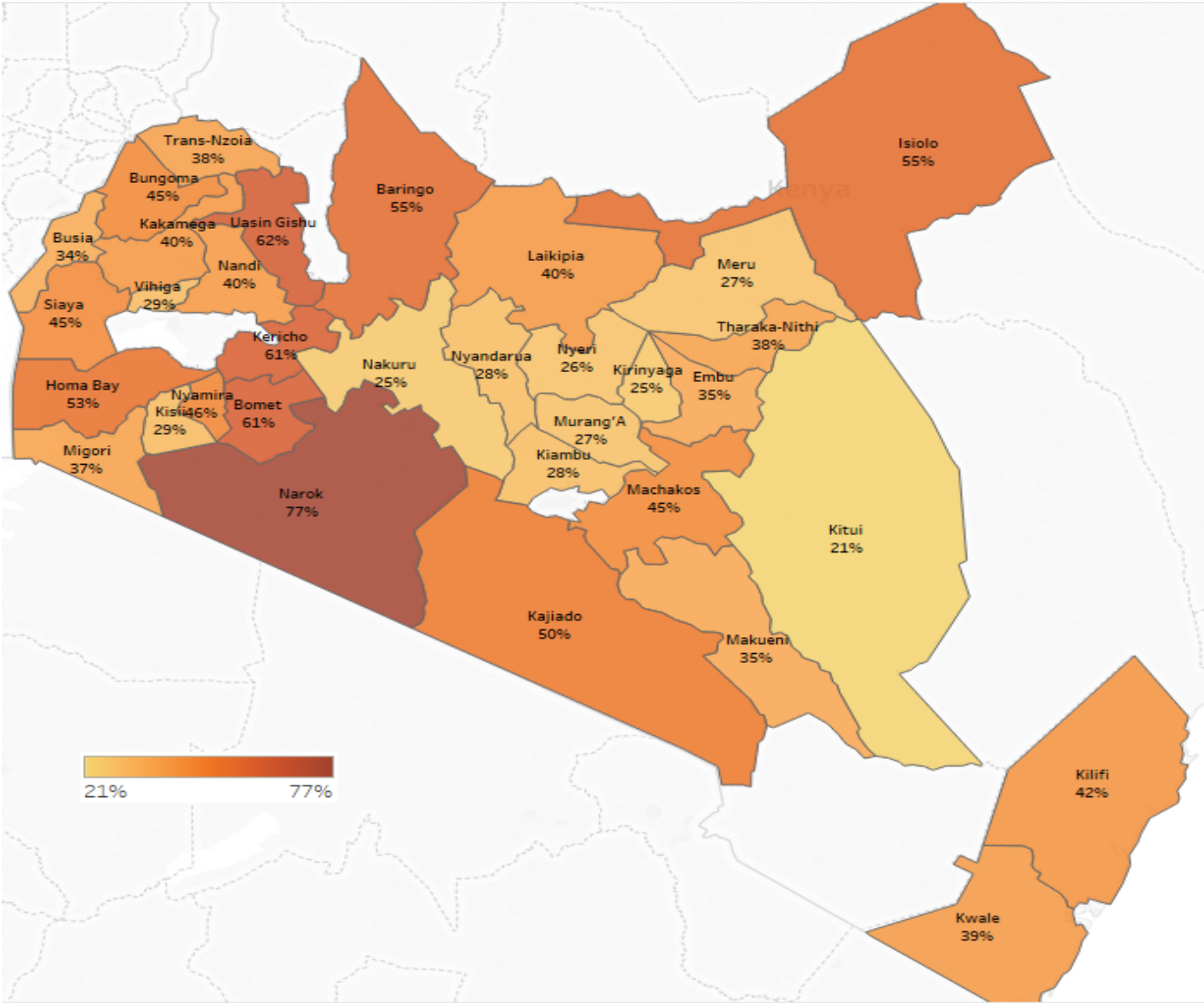
¹⁴ Gardeva, Anita, "Four ways big data will impact financial inclusion", Centre for Financial Inclusion (November 14, 2012), <https://www.centerforfinancialinclusion.org/four-ways-big-data-will-impact-financial-inclusion>

¹⁵ Harten, Sven, "Big Data for financial inclusion", World Bank Group, https://olc.worldbank.org/system/files/WBG_BD_CS_FinancialInclusion.pdf

¹⁶ Harten, Sven, "Big Data for financial inclusion", World Bank Group, https://olc.worldbank.org/system/files/WBG_BD_CS_FinancialInclusion.pdf

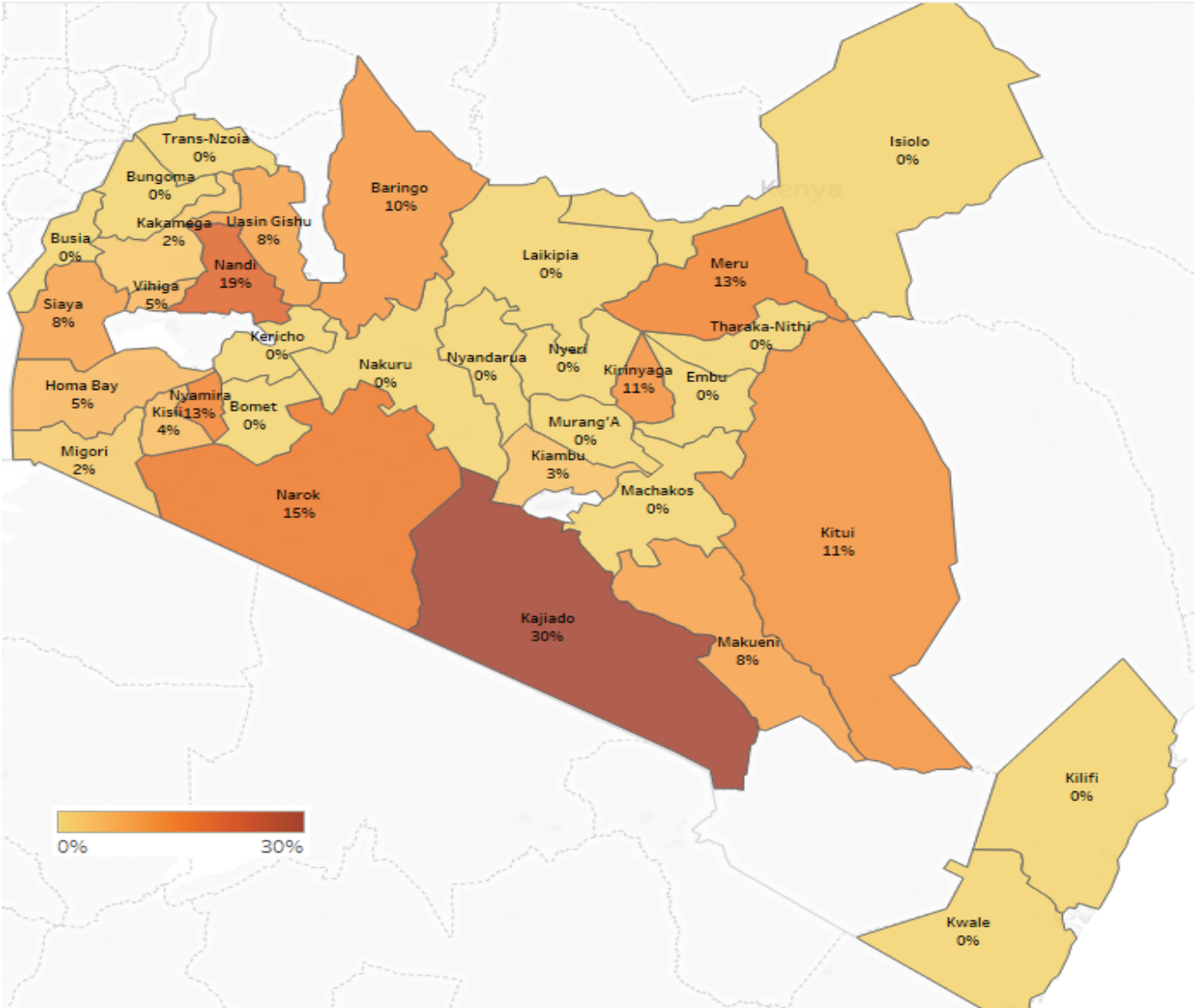
¹⁷ FinDev Gateway- Youth and Children, Available at <https://www.findevgateway.org/youth-and-children-faqs>

FIGURE 1: DISTRIBUTION OF YOUNG SMALLHOLDER FARMERS



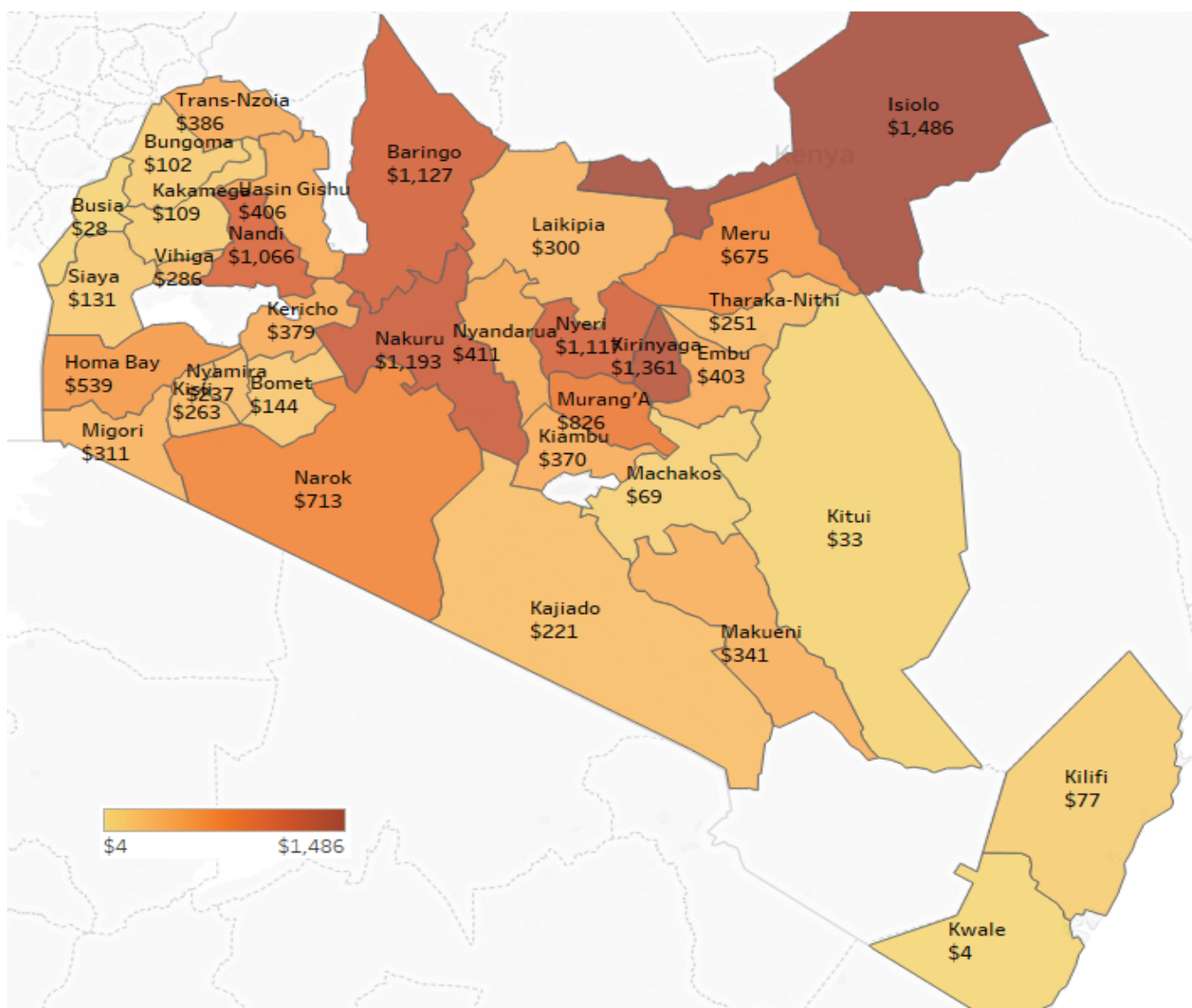
Location based maps are also used to generate insights about constraints facing SHFs which the FSPs can leverage to extend services other than availing credit. For instance, in the map below, we show the distribution of SHFs who face distance as a constraint to availing saving facilities with formal financial institutions. Narok, Nandi, Kitui, and Kajiado are the top 4 counties where more than 30 percent of SHFs report distance as a constraint to savings. This is a critical insight for FSPs who can expand coverage in these target counties to ensure farmers travel only shorter distances to access these institutions. FSPs can also offer services that can be accessed through mobile phones which would help in overcoming the tyranny of distance to financial access.

FIGURE 2: SMALLHOLDER FARMERS WHO REPORT DISTANCE AS THE CONSTRAINT TO SAVING



Another business case for FSPs using location-based maps is based on the income profile of SHFs. The figure below shows the geographical distribution of SHFs whose annual income per acre is more than USD 1,000. Assuming income per acre is indicative of an SHF's ability to repay, FSPs can consider this segment of SHFs to offer loans for buying inputs such as seeds, pesticides, and fertilizers. Such loans can improve farm productivity for these SHFs.

FIGURE 3: DISTRIBUTION OF SMALLHOLDER FARMERS WHOSE ANNUAL INCOME PER ACRE IS GREATER THAN USD 1000



Assessment of the impact of the intervention

Once the FSPs have developed and delivered the products based on findings from analyses of collected data, it is vital to conduct an impact assessment of the financial products as it helps in assessing progress and inform changes in the design of the intervention.¹⁸ The findings from such assessment are constructive in improving financial inclusion measures and understanding what is required to make the intervention work for different target groups¹⁹ thus, enabling FSPs to redesign, expand or interrupt the intervention, whether it be with respect to identifying the target segment or the nature of financial product itself.²⁰

¹⁸ OECD, "Outline of Principles of Impact Evaluation", Available at <http://www.oecd.org/dac/evaluation/dcdndep/37671602.pdf>

¹⁹ Better Evaluation, "Impact Evaluation", Available at https://www.betterevaluation.org/en/themes/impact_evaluation

²⁰ Lima, Souza and Figueiredo, "Impact Evaluation of Development Programs: Challenges and Rationale", Available at https://www.afdb.org/fileadmin/uploads/afdb/Documents/IEM_-_Impact_Evaluation_of_Development_Programs-_Challenges_and_Rationale.pdf

In most cases, the impact is assessed by contrasting the situation of the beneficiaries of the target groups post the launch of financial products, with a counterfactual comprising non-beneficiaries.²¹ Two analytical techniques are generally used in such cases: Experimental design and Quasi-experimental design. Under Experimental design, the counterfactual or the control group and the group receiving the intervention (treatment group) is randomly chosen from the same population. The two groups are followed up to assess the impact of the intervention by evaluating the differences in their outcomes.^{22,23} The evaluation technique is also known as Randomized Controlled Trials (RCTs).

The second method, Quasi-experimental design, differs from RCT as it lacks random assignment. In other words, assignment of members to the groups are by means of self-selection. The method involves creation of a comparison group like the treatment group based on observable characteristics, prior to the intervention as against RCT in which individuals are randomly assigned to the control and treatment groups. After constructing the groups, the impact of the intervention is assessed either by single impact difference method or the double difference method. In the former method, the outcomes of the two groups are compared with each other at a point in time whereas in the latter approach, changes in outcomes between the two groups are compared over time to estimate the impact. The double difference is known as the difference-in-difference method.²⁴

Another technique used to assess impact – the non-experimental design, is based on comparison of the treatment group before and after implementation of the program. Using this technique, evaluators can study the impact of the program over time (known as time series design) or can study the treatment group at a point after intervention (known as post-test only design).²⁵

While the choice of the analytical technique to be used is one of the primary components of the research design of an impact assessment exercise, there are other steps that are crucial for a robust impact assessment. The chart below demonstrates a general step by step framework which can be used to assess the impact of a financial intervention. It begins with an understanding of the objectives and rationale of the program, followed by identifying indicators for which data needs to be collected in order to assess impact, and analysis of the collected data using the techniques discussed above.

²¹ Counterfactual represents the performance of the target group participants in the absence of an intervention

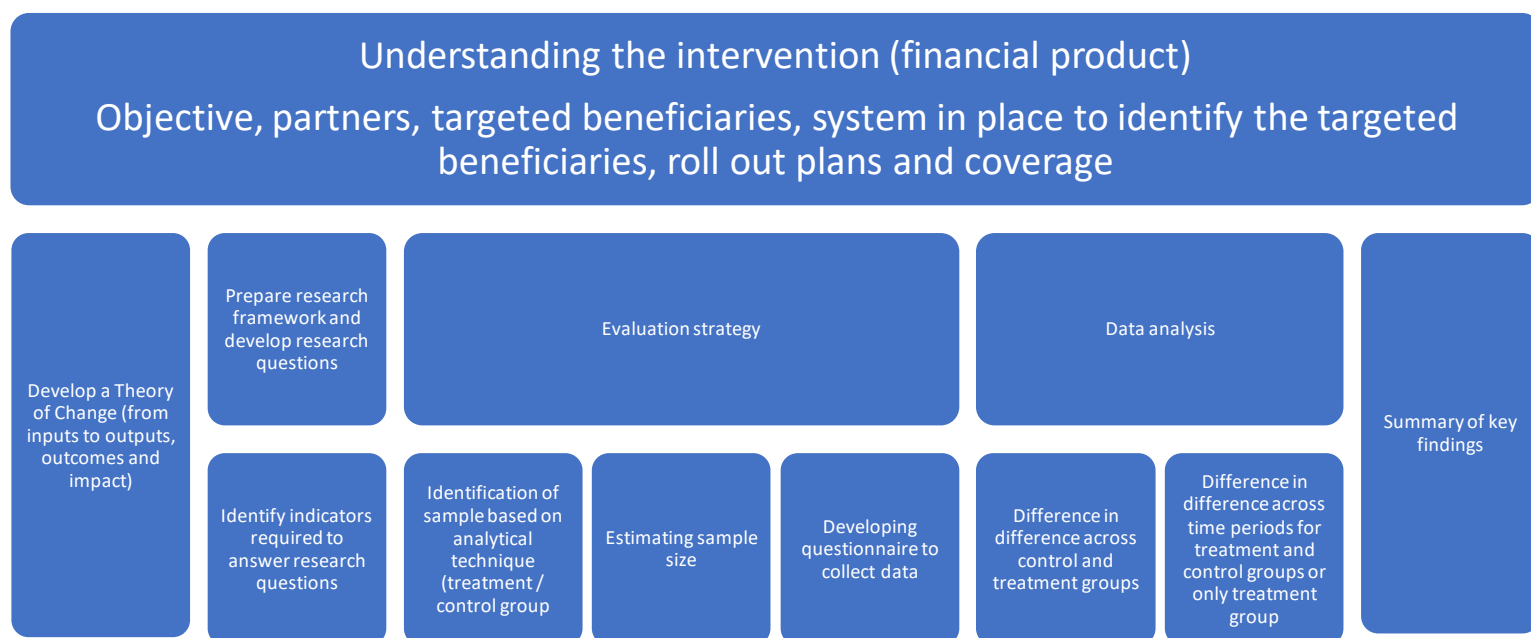
²² Kendall, "Designing a research project: randomised controlled trials and their principles", *Emerg Med J*, 20, 164-168, (March 2003), Available at <https://emj.bmj.com/content/emjmed/20/2/164.full.pdf>

²³ White, Sabarwal and Hoop, "Randomized Controlled Trials (RCTs)", UNICEF- Methodological Briefs- Impact Evaluation No. 7, Available at https://www.unicef-irc.org/publications/pdf/brief_7_randomized_controlled_trials_eng.pdf

²⁴ White, Sabarwal and Hoop, "Quasi- Experimental Design and Methods", UNICEF- Methodological Briefs- Impact Evaluation No. 8, Available at https://www.unicef-irc.org/publications/pdf/brief_8_quasi-experimental%20design_eng.pdf

²⁵ K4Health, "Types of Evaluation Designs", Available at <https://www.k4health.org/toolkits/measuring-success/types-evaluation-designs>

FIGURE 4: IMPACT ASSESSMENT FRAMEWORK



Impact assessment is not free from challenges. Often the timing of evaluation affects the results of the assessment, making it prudent to decide when to execute the evaluation.²⁶ For instance, randomization is possible before the intervention starts. On the other hand, when the evaluation is performed during the implementation of a program, it allows changes to be introduced in the program design to achieve the desired goals. Selection of the counterfactual poses another major challenge as²⁷ it is critical that other than the differentiating factor of receiving treatment, the counterfactual is similar to the treatment group in terms of socio-economic and demographic characteristics. Another challenge is to estimate the size of the sample. A larger sample is required to assess the impact when its magnitude is smaller, and variability is larger. The challenge is to anticipate the magnitude of the impact as its failure would lead to inappropriate sample size which would hinder the impact evaluation.²⁸

Conclusion

This paper highlights the importance of data and its visual presentation and analysis to design financial products that are more likely to be used by the un(der)banked segments of population in developing countries. Not only will such an approach allow FSPs to expand their coverage to new clients, but also motivate them to create financial services market for marginal customers in sectors such as agriculture, which are considered risky by formal financial institutions. Further, incorporating in this approach, a self-correcting impact assessment exercise, will set the foundations of a financial last mile connectivity channel, which is effective as well as sustainable in the long run.

²⁶ Lima, Souza and Figueiredo, “Impact Evaluation of Development Programs: Challenges and Rationale”, Available at <https://www.afdb.org/fileadmin/uploads/opev/Documents/IEM - Impact Evaluation of Development Programs- Challenges and Rationale.pdf>

²⁷ Lima, Souza and Figueiredo, “Impact Evaluation of Development Programs: Challenges and Rationale”, Available at <https://www.afdb.org/fileadmin/uploads/opev/Documents/IEM - Impact Evaluation of Development Programs- Challenges and Rationale.pdf>

²⁸ Lima, Souza and Figueiredo, “Impact Evaluation of Development Programs: Challenges and Rationale”, Available at <https://www.afdb.org/fileadmin/uploads/opev/Documents/IEM - Impact Evaluation of Development Programs- Challenges and Rationale.pdf>

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