



GPI

Global Partnership
for Financial Inclusion

Synthesis Report

New Trends in Agricultural Finance

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The report was prepared by Calvin Miller based on five research papers and their summaries as well as the outcomes of the discussions during the Roundtable on Agricultural Finance held in Antalya, Turkey on September 9, 2015. The authors of the five research papers and their summaries are:

- Jamie Anderson and Carlos Cuevas
“Understanding Demand, Driving Innovation: Smallholder Households and Financial Services”
- Kate Lauer and Michael Tarazi
“Digital Financial Services: Developments in Serving Smallholder Farmers”
- Panos Varangis
“Financing to Support Women in the Agricultural Sector”
- Rauno Zander
“New Trends in Financing Agricultural Value Chains – Promising Practices and Emerging Recommendations for Policy Development”, and
- Ulrich Hess, Peter Hazel and Saskia Kuhn
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Synthesis Report on New Trends in Agricultural Finance

Executive Summary

Agricultural finance is crucial to support the growth of the agricultural sector. This is essential for food security, job creation, and overall economic growth. This synthesis report presents a summary of research studies on five key areas of agricultural finance innovation prepared under the G20 Global Partnership for Financial Inclusion (GPI) and the presentations and discussions of these during the “G20 Roundtable on Innovations in Agricultural Finance” convened on September 9, 2015 in Antalya, Turkey by the SME Finance Sub-Group¹.

After a brief background for setting the scene, the five key research areas presented in the synthesis² are: a) Understanding Demand of Smallholder Households, b) Digital Financial Services, c) Financing for Women in the Agricultural Sector, d) Value Chain Finance, and e) Agricultural Insurance. The five areas of emphasis each look at the innovations and trends with the first ones looking at the needs and opportunities for small farmers and women and ways in improve their inclusion into the financial spectrum. The fourth area presents an approach and innovative tools for effective agricultural lending and market inclusion and the fifth area focuses on innovations in using agricultural insurance as one of those tools to address one of the most important risks that inhibit agricultural finance, especially for smallholder households. Given the diversity of topics, the format of the research papers and summaries vary with the theme. The synthesis ends with key messages on the trends and lessons with recommendations for policy interventions and further research and development.

¹ The SME Finance Forum is a platform for knowledge sharing and dissemination of best practices. The Subgroup focuses on improving SME access to finance in the poorest countries, improving access to finance for agricultural SMEs, and promoting access to finance for women entrepreneurs.

² Respective authors are a) Jamie Anderson and Carlos Cuevas, b) Kate Lauer and Michael Tarazi, c) Panos Varangis, d) Rauno Zander and e) Ulrich Hess, Peter Hazel and Saskia Kuhn.

I. Setting the Scene

a. Background

There is a heavy demand for investment capital and providing sustainable financial services for rural areas and agriculture in order to address the growth and food security needs of the world. In particular, smallholder households and enterprises in developing countries lack the required investment and have to face low agricultural productivity and efficiency resulting low incomes and high losses. Tackling this challenge requires significant investment on many fronts.

Agriculture and its many associated value addition agribusinesses and services must play a crucial role in order to meet the 17 new global Sustainable Development Goals (SDGs) and their important goals and targets toward ending hunger, poverty and reducing inequality by 2030. The SDG investment required is estimated at more than \$4 trillion annually. Current investment in SDG-related areas leaves an annual financing gap of about \$3.1 trillion with official development assistance at about \$135 billion in 2013, but with global capital markets, valued at an estimated \$218 trillion. Yet, due to the nature of the sector, despite many efforts by the public and private sectors, meeting the heavy demand for agricultural investment capital and providing sustainable financial services for rural areas and agriculture has proven to be extremely difficult.ⁱ

Many rural households and segments of the population are marginalized from formal market systems and financial services. Many of these are smallholder farmers. FAO estimates there are 500 million family farms of which 475 million are less than 2 hectares.ⁱⁱ Many of them do not get the financing needed. As noted in the Seoul 2014 Financial Inclusion Action Plan, universal financial inclusion requires bringing 2.5 billion people, who are currently excluded, into the formal financial system.ⁱⁱⁱ Among these, credit and savings gap for small and medium enterprises (SMEs) as well as small producers and microenterprises is also huge.

The G20 created the Global Partnership for Financial Inclusion (GPI) to promote improved access to finance for individuals and businesses. It has placed a strong focus on agricultural finance and rural agro-enterprise finance to address areas where both poverty and financial exclusion are highest. In 2011 and 2012, the G20 GPI SME Finance Sub-Group prepared two reports. The 2011 G-20 report on

“Scaling up Access to Finance for Agricultural SMEs – Policy Review and Recommendations,” provided guidelines for policy and regulatory frameworks conducive to agricultural finance and consistent with the G20 Principles for Innovative Financial Inclusion. It addressed how policy making can help guide the

Since the adoption of the Monterrey Consensus, the world has made significant overall progress in mobilizing financial, economic and technical resources for development and many developing countries have implemented policy frameworks that contributed to increased mobilization of domestic resources for economic growth and social progress. However, many of them continue to face significant challenges and some, in particular the most vulnerable countries, have fallen further behind. Other persistent challenges include growing inequalities and the exclusion of women, as well as indigenous peoples and other vulnerable segments of the population.

Addis Ababa 2015, Financing for Development)

formulation of an agricultural SME policy framework and engage the private sector.^{iv} It also took into account the role of public sector banks and institutions.

The 2012 G-20 report on “Innovative Agricultural SME Finance Models” highlighted promising and innovative approaches to agricultural SME finance in certain types of agricultural SME finance country environments. It looked at: a) financing models involving value chain finance approaches replacing traditional collateral with transaction based or moveable types of security, b) risk mitigation and risk transfer models and c) mobile and branchless banking service models to reduce transaction costs.^v

The broad messages from these studies and other noted publications on agricultural finance are becoming familiar – risk mitigation, transaction costs, information and communication technologies (ICTs), competitiveness, market demand segmentation, capacity development and the enabling environment to name a few. However, it is important to delve deeper into understanding the demand and areas of innovation to help address these challenges. For this reason, five areas within the broad topic of agricultural finance have been identified that could attract new attention and warrant further research and an update. Some of these areas are relatively new and/or have benefitted from new technologies or models that are require further analysis in order to understand and share the learning and lessons from them.

b. Drivers of Change and Innovation for Improving Agriculture Finance

Innovations in technology and structure of agricultural markets enable the evolution of approaches and products that can help agricultural finance. As noted in the 2012 report, sustainable agricultural finance one need to address: a) risks, b) costs/distribution channels, c) find bankable opportunities and d) offer the right product to the right people. The five areas of research undertaken by the GPFI, as summarized in the present report, contribute to solutions on the above areas. Value chain finance is most relevant to address points a), b) and c) above, insurance focuses on a) but is also confronted with b), demand assessment is critical for d), technology is driving innovation for b), and financing women is for c) and d). While not comprehensive, innovation in these five areas make an important contribution to global learning.

Before delving into the research summaries, it is useful to note two broad lessons that are common in research. First, who are the drivers of the innovations, what is the demand, and what are the failures as well as the successes? Understanding the key drivers of innovations and their context that contributed to the successes. In addition, it requires assessing the failures and challenges to depict the causes of those failures and how to address them.

A second issue is scale. There are many incidences of success in reaching to smallholders, small agro-enterprises and off-farm rural micro enterprises with the new financial technologies and innovations but a critical limitation

The wide-spread Village Savings and Loan Associations (VSLAs) originated by observing local women’s “tontine” savings and credit groups and working together to improve the services according to the needs, and then adapting to country interests for scaling up across Africa. In India, a different model with self-help groups is widespread, in large part driven by governmental policies. In what manner are these drivers and contexts replicable and how will they evolve over time?

affecting many innovative tools and technologies is that of scale. The research highlighted that many of these remain at the pilot stage or very localized. Some of the better known cases have received heavy support from donor agencies and have not really passed the test of time and self-sustainability. Bankers and investors will not be interested on a larger scale until there is convincing research and data to guide the way forward for achieving growth and a profitable business model. Policy makers will lend their support until there is convincing information to guide the way forward for achieving impact for the sector and target groups. However, many of the innovative approaches or concepts have spread widely. The value chain approach to agriculture, the use of insurance coupled with finance and the widespread incorporation of mobile applications for micro and small households are examples. In addition, the growing scale of recognition of “know your client” and innovations in impact assessment and other such broader lessons and tools support women in agriculture and product development overall.

The following five sections depict highlights of research to identify the trends in those areas, the demand and the drivers of innovation in the GPFI selected priority areas of interest.

II. Understanding Demand, Driving Innovation: Smallholder Households and Financial Services^{vi}

While there has been renewed appreciation for how reaching smallholder households could drive financial inclusion, little is known about this unique and yet massive client group. Even data on the very number of smallholder households worldwide is fraught with caveats and nuance. Information about how they manage their financial lives and the tools they demand to do so is even more difficult to find, and further complicated by the many different ways of defining what a smallholder is.

Working to build the evidence base on smallholder households, CGAP has been conducting financial diaries, national surveys, and sectoral segmentations in a number of markets. This research was designed to provide a data-rich, deep understanding of the demand for financial services by smallholder households, based on a careful analysis of their livelihoods and an accurate depiction of their agricultural and financial lives. The purpose of the landscaping paper was to provide background for this demand-side research, drawing on existing literature and recent developments in both financial inclusion generally and smallholder finance specifically. It is intended to orient the smallholder financial diaries and national surveys, and other demand-side research with this client group, in the larger ecosystem and long history of related research and experience.

It is known that smallholders' lives generally center on agriculture yet many of their livelihoods are dependent upon a variety of economic activities and sources of income. How they perceive their agricultural and non-agricultural activities in their daily life and future plans shapes their demand for financial tools and the trends for the future. For example as more family members migrate to the cities or abroad, the demand for transfers and mobile technology increases relative to agriculture finance. Finance for smallholders is in itself complex with insufficient understanding and product development on financial products that fit the irregular and multiple cash flows of the smallholders and the costs of transactions for both the user and the service providers. The CGAP smallholder diaries in three countries found that the median sources of smallholder agricultural production and non-agricultural production income ranged from two to nine sources respectively from crops, livestock, selling labor, small businesses, construction work, etc.

Careful research attention is given to understanding the multiple sources of the financing with the informal sources of family, friends and traders being the most important. These financing relationships are intertwined with the securing of inputs, marketing of products, risk mitigation, social security at time of need and cultural norms. Governmental programs often focus on direct financing of loans to smallholders when savings and indirect sources of financing are found to be the most prevalent. The diaries found that savings are important but due to the costs of transaction, the first and second most important avenues for saving was in cash, animals and harvest rather than formal savings accounts. Mobile applications, while offering a future avenue for ease of for an array of financial services to smallholders, including insurance, are still incipient. Hence, understanding the demand and drivers of innovation and the context is critical for guiding interventions for promoting financial inclusion in rural households.

a. Implications for Policy Makers

Smallholder families are crucial targets in poverty alleviation interventions. Understanding the segments inside the general smallholder category is essential to design effective interventions. This review, and preliminary findings from the smallholder financial diaries, suggest that:

- categorizing smallholders is highly context specific;
- relying primarily on land area as a segmenting variable can be misleading, and a poor predictor of the ability of the smallholder farmer to have a marketable surplus; and
- access to markets and interactions with local traders of inputs and outputs are important factors in the financial lives of smallholder farmers.

A clear understanding of these day-to-day relationships, and the opportunities they may entail for innovation in financial transactions and the generation of reliable information seems a logical next step in gathering intelligence to address smallholder finance.

Financial services can help in different ways to improve smallholders' wellbeing; yet making them available and affordable to the rural poor is difficult. Agent banking and mobile banking seem to be preferred avenues, but these mechanisms face limitations in rural areas that urban-focused policies tend to ignore. Policies that attempt to improve the use of mobile banking among smallholder households need to address severe rural-urban discrepancies in access and effective usage. This paper finds, both in existing literature and in preliminary findings from the smallholder diaries, that poor signal coverage of mobile networks and low connection penetration rates, especially for women, are prevalent in rural areas. Further, there seems to be an important gap between basic access to a mobile phone and the smallholder user's ability to perform transactions with it (using SMS functionality).

Much is yet to be accomplished in improving the enabling environment. Legal and regulatory frameworks ought to enable the use of movable property and receivables as collateral, provide for reliable agent banking mechanisms that make service delivery sustainable and their usage affordable and practical, and allow for expeditious contracting and contract enforcement. Supporting innovation with smart subsidies remains an open door for market-friendly government interventions.

b. Implications for Financial Service Providers

A number of innovations are being tested, and new approaches are emerging that could sustainably reach smallholders and the varied segments that comprise this enormous client group. "Keep your eyes open" is the main message from this review. The points above on categorizing smallholders are particularly relevant for financial service providers (FSPs) as well. FSPs serving smallholders either directly or through value-chain finance approaches will benefit from the financial diaries findings as these provide new insights on the attributes smallholders value in financial products and services. The ability of FSPs to cross-sell, in particular, could be substantially enhanced by using the refined knowledge emerging from the diaries.

Information technology is increasingly making a difference to reduce transaction costs in the "last mile" of service delivery. Introducing technology further upstream, e.g., digitizing supplier delivery records at the off-taker/aggregator level could make an even more impactful difference in terms of profitability and portfolio expansion. Like all the innovations outlined here, successful applications of technology are

rooted in understanding consumer demand, and in this case, carefully differentiating among 500 million smallholder households and their specific demands for financial tools.

III. Digital Financial Services: Developments in Serving Smallholder Farmers^{vii}

A number of private-sector actors and other stakeholders are experimenting with digital financial services (“DFS”), particularly those enabled by mobile phones, to overcome the specific challenges of serving smallholder farmers and their families. Buoyed by the relative success of DFS in the non-agricultural context, a range of DFS deployments have been launched in recent years aimed at extending financial services to smallholders. The efforts are still nascent and the challenges plentiful – but there is widespread interest to exploring the potential of DFS to overcome a number of traditional “pain points” that currently limit smallholder use of formal financial services. Given the embryonic and rapidly developing state of DFS for smallholders, it is too early to draw clear conclusions from the examples to date. While initial evidence suggests that DFS via mobile channels offer great promise for improving the lives of smallholders and their families, significant challenges remain. This paper identifies some key examples in the use of digital financial services to reach smallholder families and highlights some related policy considerations.

a. Agricultural Credit

Credit is critical to agricultural finance, whether to purchase inputs (seeds, fertilizer), tools, or to cover ongoing operational costs prior to harvest time. Yet for smallholders, it is relatively rarely taken from financial institutions. The cost of assessment of the client risks and transactions costs of providing loans by conventional means is too high.

Credit can also be made accessible by e-warehousing, which enables the recording and transfer of information on crop storage that can be used as a warehouse receipt for loan collateral.

b. Insurance

Insurance can reduce the negative impacts of crop failure and livestock illness and may improve a farmer’s ability to access credit and willingness to invest in labor and inputs. There are several types of agriculture-related insurance, including weather index insurance (e.g., drought, excessive rain), area yield, livestock mortality, and price insurance. The operational costs

Agrilife illustrates how a provider can use digital means to collect data, enabling the lender to assess the farmer and determine whether to extend a loan without requiring an in-person visit by a lending officer. Agrilife is a cloud-based technology platform developed in 2012 by Mobipay Kenya Ltd. that interacts with mobile phones and web platforms. By analyzing data of thousands of smallholders through their mobile money transactions, a credit appraiser in partnership with Agrilife identifies smallholder farmers as “credit-worthy” or not and a partner bank lends to individual Agrilife farmers via farmer cooperatives and other aggregators, from whom it obtains a loan guarantee.

Acre Africa, a micro-insurance product designer/insurance intermediary, offers an example of digital access to insurance. It offers a digitally accessed index weather insurance product. The farmer purchases a bag of a participating supplier’s seed; each bag of seed has a unique ID number (which is on a card in the bag) that the farmer sends by SMS to register. The cost of the guarantee is currently paid from the marketing budget of the participating seed supplier, which views the product as a value-add for its customers. If there is drought in the area, payment is automatically made to each participating farmer in the area via each farmer’s M-PESA account. No claim is necessary.

of making and receiving payments for insurance, making payouts and verification often make the costs prohibitive for smallholders. Insurance providers innovated using index insurance for weather risks coupled with mobile registration and payments.

c. Payments

There is a fast-growing trend in mobile money transfers. Where available, some smallholder farmers are customers of a digital payment provider and make transfers and/or payments outside of their agricultural activities. There are also recently developed platforms that enable organizations and government agencies to make payments for specific agricultural purposes including for fertilizer and seed subsidies. The use of electronic vouchers using mobiles can reach considerable scale, such as with Zoono in East Africa where more than 1 million e-vouchers were issued to smallholders and in Nigeria where 8 million farmers receive fertilizer vouchers that can be redeemed by mobile phone.

MNO Tigo, for example, is working with commodity buyers and nonprofit organizations in Ghana to use Tigo Cash mobile wallets to make payments to smallholder farmers. These electronic payments reduce the costs and risks (fraud and theft) of making payments in cash. Buyers will pay a fee (a small percentage of the value transferred) to Tigo, which is responsible for ensuring that funds are transferred to farmers and that Tigo agents maintain sufficient liquidity to meet farmer cash-out requirements.

d. Set-aside Savings

With so much focus on credit and insurance, financial service providers often overlook savings products for smallholder farmers. One example of a savings-like product specifically designed for farmers is myAgro with operations in Mali and Senegal that uses an ITC system and rural traders to provide the service.

myAgro provides smallholder farmers with a convenient way to set aside funds to be used in the purchase of fertilizer and seed. A farmer purchases a scratch card worth the equivalent of \$1 - \$25 from a network of rural vendors and sends the secret code (revealed by scratching the back of the card) to myAgro via SMS. Upon receipt of the SMS, myAgro's system automatically credits the farmer's "layaway account" with the value of the scratch card. In addition to the purchase layaway, myAgro funds can also be withdrawn for purposes other than the input package that the farmer signed up for, thus making it possible to set aside savings.

e. Regulation and Protection Considerations

The role of digital innovation in agriculture and finance is critical and opens many opportunities. It is growing rapidly, but has not expanded on the scale needed. At the nexus of digital innovation and agriculture, digital financial services for smallholders raise a number of questions for policymakers and regulators, including: (i) financial consumer protection, (ii) regulation of agents as cash-in and cash-out points, (iii) prudential regulation and supervision of nonbank e-money issuers, (iv) customer identification and compliance with AML/CFT recommendations, (v) data security and (vi) interoperability

of payment systems. Perhaps most importantly, coordination among in-country policy makers is a common challenge but central to the advancement of DFS in general and DFS for smallholders in particular.

Despite ongoing challenges, DFS offers one of the most promising pathways yet to serving smallholder families with affordable and appropriate financial services. However, in order to achieve this goal, financial inclusion efforts need to focus on complementing existing DFS with innovations that are designed based on a better understanding of the needs of smallholder families.

IV. Financing to Support Women in the Agricultural Sector^{viii}

Providing financing to agriculture is challenging for both male and female farmers, however women face some unique challenges. These challenges relate to the role of women in the household that often restricts their control over assets and constrains their available time for productive activities. Their role in the household is often invisible, particularly when it comes to their economic and financial contributions. As such, women have lower access to economic and financial services. Women often have limited control and ownership over large assets such as land and lack the ability to post hard collateral for loans. In addition, the literature points out that women have limited opportunities to develop human and social capital such as facing constraints in accessing training and capacity building and membership in producer organizations. These unique challenges make access to finance a much bigger challenge for women compared to men in the agricultural sector.

Some of the constraints for women that are the most difficult to address are not financial nor can they be addressed simply through economic or market opportunities. Cultural issues and constraints such as the purdah system in rural Islamic areas can have an overarching influence on the role of women. The challenge for financial service providers is to understand the varied interests and cultures and together with the target group adapt culturally appropriate products and services to meet those interests.

The research in this topic reviews the existing literature and summarizes the key issues and challenges regarding the access of women to financial services in the agricultural sector. Research and experiences so far demonstrate that there is a business case to be made for closing the financing gap between men and women in agriculture. Research also highlights some examples of various private and public initiatives that aim to achieve greater economic growth in agriculture by closing this gap.

Comparing various experiences across a number of institutions that serve female clients in the agricultural sector shows that the same areas and issues that make an institution successful in serving agricultural clients overall also make this institution successful in serving female clients in agriculture. Although this is a pre-condition, it is not the only one. In addition, for an institution to develop capabilities in serving agricultural clients, it needs to identify what the role and contributions of women are in agricultural households. Further, the institution needs to adapt this understanding to products, services and delivery channels accordingly. It needs to apply a “gender lens” and see within an agricultural household. It needs to learn how women contribute since their role often tends to be underestimated, even in their own estimation.

Women’s World Banking has characterized women’s contributions in agriculture as often invisible, despite women fulfilling a wide range of roles within the household, from doing housework, taking care of the children, working alongside their male counterparts in farming, and supplementing family incomes with side activities (on and off of the farm). Women’s workload and lack of time is often a limiting factor for their full participation in work other than housework activities. It also affects their ability to start or expand a business and request financing. Studies have found a disconnect between the economic and financial contributions of women to the household and their perceived role. Even these same women underestimate how much they contribute and have difficulty seeing themselves as

entrepreneurs. This is also reinforced by certain cultural aspects and norms that create disincentives for women in rural areas to engage in entrepreneurial activities. Both men and women often view the role of women in agricultural-dependent households primarily in terms of housework and helping the male farmer. However, anecdotal evidence and research findings have shown that women often contribute a significant amount of incomes to their households. Financial institutions that apply the usual assessment of borrowers (such as those done in urban areas for small businesses) often can miss the financial contributions of women in agricultural household production. Furthermore, understanding that women are time poor, means that financial institutions would need to seek alternative delivery channels (like mobile banking) and appropriate marketing channels.

Understanding the roles and contributions of women in an agricultural household would facilitate an improved risk assessment of the whole household. It would also present new opportunities to offer financial services to female clients to grow their business and purchase additional products for their households, such as establishing savings accounts, buying insurance products and pension annuities, among others. Adding women as clients requires senior management and shareholder prioritization, a targeted allocation of resources, training, planning, data/metrics and patience in growing this long-run profitable business sub-segment. In addition, it requires that financial institutions perceive women as valuable and profitable clients. In this context, it is important for these institutions to fully understand women's needs and preferences— and to strategically target them.

Despite the challenges presented in this paper and various solutions being implemented, the potential to achieve greater economic growth by closing the financing gap for women in agriculture is very significant. Closing this gap requires a call to action by policy makers, the private sector, and civil society to prioritize, advocate, and devise solutions for reducing and eventually closing the gender gap in access to finance in the agricultural sector.

a. Call for Collaborative Action

Financial institutions alone cannot provide the solution. Indeed, governments and policymakers can influence the establishment of an investment climate favorable to rural women. Public-private cooperation is also necessary to establish an enabling environment to address the human and social capital needs of women. Some specific actions for international organizations, donors and policy makers to improve the access of women to finance in the rural areas and agricultural sector are as follows:

- Promote the production of statistical data that quantify the access to finance by women in rural, agricultural areas by including both formal resources as well as informal ones. Currently, statistics on financial inclusion in rural areas, even from formal resources, are very weak. Even if they exist, however, they are not disaggregated by gender.
- Mainstream access to finance issues by women in rural, agriculture areas. Incorporate them into national financial inclusion strategies, and specific programs and projects aimed at promoting development in rural and agriculture areas. Recognize that identifying and addressing particular issues and constraints for women in rural areas/agriculture could potentially unleash greater developmental impact in the agricultural sector and in rural areas in any country.

- Promote women’s legal, economic, political, social and cultural rights. Women’s access and control over assets, cultural norms about their role within a rural household, improved education (financial as well as technical), are key issues that need to be addressed along with efforts to improve their access to finance.
- Create information programs, training and awareness raising at all levels to sensitize the population—both men and women— about the societal value and benefits of improving women’s rights and empowerment.

V. New Trends in Financing Agricultural Value Chains – Promising Practices and Emerging Recommendations for Policy Development^{ix}

With increasing market liberalization and the integration of the agricultural sector of developing economies into world markets, rural transformation is accelerating. Commodity and financial flows and the processing of agricultural goods up to the final consumers have become more sophisticated. This integration of agricultural and food product markets is likely to grow further as obstacles to the free flow of agricultural goods on international markets diminish. Analysis of an entire value chain means that important opportunities and constraints that may not be apparent when considering single production systems or chain layers in isolation can now be identified and analyzed. Recent studies show that looking at the entire value chain (rather than just parts of it) offers better insights. This enables an understanding of both financing within a value chain and financing that is tailored to fit a value chain (Miller and Jones, 2010). A number of trends have had significant influence on emerging market economies. These are fundamentally altering the way agribusiness cooperates with the financial sector: value addition, the emergence of supermarkets, and agro-industries emerging as a major source of income and livelihood development. In sum, value chains are ever more important to understand agricultural markets. Producers that are left out of them, run the risk of being marginalized in terms of prices and market integration. Financing requirements, above all the small units in the rural non-farm sector, have typical patterns. These small processing units may operate out of the home premises or in small village-based and family-operated facilities. They usually operate on high ratios of operating costs to fixed assets. Liquid resources are needed to pre-finance the procurement of produce during harvesting periods. In addition to these cash requirements, chain actors closer to primary producers often do not have sufficient own liquidity and need financial backing by the wholesale buyers, processors and chain actors closer to the end consumer. As a result, the demand for financing often goes beyond what banks or other financial institutions offer. Requirements are usually a) for highly leveraged liquid resources, at b) short notice and c) for short to very short lending periods. For mid-level chain actors such as traders and produce buyers, these short and often flexibly secured funds for short-term loans during harvest campaigns are add up to large ticket transactions in relation to the total asset and security base of the concerned chain actor or agri-food small industry.

a. Product, Process and System Innovations

There are three principal avenues for innovating in agricultural value chain financing. First are *product innovations*. Miller and Jones (2010) highlight different financial products used for agricultural value chain financing. The background paper highlights some examples of new (agricultural investment funds) and adapted (sharia compliant structured financing) products for agricultural value chain financing. Financial enhancements make up an increasingly important part of these product-driven innovations. GPF (2014) captured some of these new products in Europe; for a global overview see also Zander and Miller (2013). *Process innovations* in agricultural value chain finance often improve the transparency of market conditions for different actors in the chain. The background paper outlines a case from Uganda. Automation or increased transparency for different contractual partners can make a substantial difference to the way financing works and can penetrate into niches previously considered too costly or

risky. *Systems innovations* are those driven by new actions or changes required by internal value chain actors and/or by framework and environment related innovations. The background paper has an example illustrating how market framework conditions can affect the functioning of value chains and influence their financing. Of particular importance are the different types of product safety, hygiene and health standards introduced and enforced through large market players. These also include a different type of system innovation that is based on demand pressures from advanced agri-food markets, i.e. certification and special labelling systems, in particular certification for organic and differentiated food and agricultural products.

The three types of innovations in agricultural value chain financing all follow the innovation path from more basic structures, such as informal credit advances between single and mutually known producers and buyers, to more complex mechanisms, such as warehouse receipts and systems, that strengthen market and price transparency overall. In some cases, known approaches were adapted to the financing of value chains, as in the case of Islamic financing and the liquidity injections through agents on a commission basis show. In more complex cases, such as the ICT example highlighted from Uganda and in the case of special agricultural investment funds, the innovations strengthened the enabling environment and introduced entirely new systems of financing aggregators into local financial markets.

b. Critical success factors

The research noted important factors to consider regarding the supply, demand and the sector environmental perspective for financing within VCs and into VCs. First is to look at supply side factors affecting the producer. These include, but are not restricted to, the financial and borrowing status of smallholder farmers and their producer associations, the underlying formal and informal contractual relationships and incentive structures, their reliability of and marketable surplus over time, and their interest to be included in informal or more formalized financial relations. On the demand side, the market requirements, VC actors' competitiveness and market trends are the drivers. For mid-level chain actors ("the aggregator perspective"), the engagement levels of lead firms and market players make the difference. Security of contract and transparency of contract obligations, both towards the producer and towards the off taker help to maintain and cement agricultural value chains. Conclusions of the analysis and developmental recommendations for the macro environment focus on:

- Creating or leaving space (tax and registration requirements) for chain actors;
- Promoting industry competitiveness
- Ensuring proper for VC governance and control

GIZ and a software company SAP initiated a mobile phone ICT-based VC solution for facilitating product and financial flow information among the actors. With the Rural Sourcing Management Tool, coffee bags are recorded on delivery and all subsequent transactions including cash advances, warehousing, hulling, selling to exporters and final payments are digitally synchronized in a central database by the lead firm. The 50,000 Ugandan smallholders can also receive SMS transaction confirmations, prices, weather and technical updates and information at any time.

- Providing flexibility in risk assessment by central bank and supervisory authorities for considering collateral substitutes and contract based financing arrangements.

VI. Innovations and Emerging Trends in Agricultural Insurance^x

a. Risk and Response

Agriculture is a risky business and farmers face a host of market and production risks that make their incomes volatile from year to year. These risks include yield losses due to bad weather, pests and diseases; post-harvest losses during storage and transport; and unexpectedly low market prices. Traditional risk management arrangements frequently fail to provide an adequate safety net for the poor. These are also limited in their ability to manage catastrophic risks that affect many farmers within a region at the same time (e.g. regional droughts or floods). Covariant risks are also a problem for financial institutions and input suppliers, since they can be faced with widespread defaults on loans and unpaid bills.

Agricultural insurance can support farmers' efforts to mitigate and provide access to value propositions that lead to higher yet somewhat riskier incomes. A World Bank research assessment of the extent of usage of agricultural insurance around the world from 2007 estimated that 104 countries had some form of agricultural insurance in place that year. The total agricultural insurance premium collected in 65 of the countries that responded to the related questionnaire was an impressive \$15.1 billion (including premium subsidies). However, 88% of this was collected in high income countries (mostly North America and Europe) while lower middle income and low income countries accounted for a meager 7.5%. An Insurance Sector Project of GIZ mapped all known agricultural insurance programs and found that the total number of insured farmers in developing countries is 177 million divided into approximately 440,000 in Africa, 3.3 million in Latin America and the Caribbean, and about 173 million in Asia, of which 140 million are in China, and 33 million in India.³ Thirty-three countries used insurance programs to insure public relief efforts.

Three types of agents are active in providing agricultural insurance: the private for-profit sector, governments (public), and other, mostly non-profit agents (mutual groups, NGOs, microfinance institutions, etc.). Other agencies help finance and initiate insurance programs, including bilateral donors, UN organizations, multinational development banks, private foundations, and international reinsurers, but they do not deliver insurance on the ground.

Private insurers have sought to expand their market in recent years by developing and underwriting index based products. Sometimes insurers use their own networks to sell insurance directly to farmers, but more often in developing counties they work through other players along value chains who sell directly to farmers. Private insurers have sought to expand their market in recent years by developing and underwriting index based products. Sometimes insurers use their own networks to sell insurance directly to farmers, but more often in developing counties they work through other players along value chains who sell directly to farmers. For example, they may link up with agro processors, input suppliers,

³³ An updated list of all the currently known agricultural insurance programs in the developing world, together with estimates of the number of farmers insured is available in the GIZ. 2015. GPFI Draft Document, "Innovations and Emerging Trends in Agricultural Insurance".

or seed companies that offer farmers insurance along with credit, seeds, fertilizer, or contract farming arrangements.

Public agricultural insurance has tried to fill the gap left by the private sector, especially for meeting the insurance needs of the many smallholders who cannot afford to pay the full costs of insurance. Until recently, most public agricultural insurance was provided through a public insurance agency, but in recent years, there has been a marked shift towards involving the private sector in the actual delivery of the insurance to farmers through various kinds of PPPs.

Recent years have seen the growing involvement of many *non-profit organizations* in providing insurance targeted at poor people. These include local and international NGOs, microfinance institutions, and farmer associations, all of which work at grass roots levels and have their own networks for distributing insurance to farmers. Since most of these organizations are not licensed to sell insurance, they inevitably partner with private insurers who provide and underwrite the insurance contracts. An advantage for private insurers is that these partnerships give them access to lots of small farmers whom they might not otherwise be able to reach, often in aggregated form (e.g. farmer groups or mutual insurance groups), and the non-profit will typically do most of the work and market, service and subsidize the insurance.

b. Index-based Insurance

Index-based insurance (IBI) grew out of the need to overcome the perverse incentive problems that have plagued traditional forms of crop insurance. Like private crop insurance, index insurance seeks to provide cover against specific perils, but in this case, contracts are written against events defined and recorded at regional levels rather than at individual farm levels (e.g., a drought recorded at a local weather station, or a low official crop yield estimate for a district or county). To serve as agricultural insurance, the index should be defined against events that are highly correlated on the downside with regional agricultural production or income. For example, an insured event might be that rainfall during a critical period of the growing season falls 70% or more below normal.

Many governments and non-profits have also found it necessary to provide direct disaster assistance to relieve the problems of rural areas stricken with catastrophic losses caused by natural hazards such as drought, flood, and hurricane. In addition to emergency assistance, recovery may be built around food and cash transfers, debt forgiveness, temporary employment schemes, and asset replacement. Some government relief programs have been able to develop or purchase IBI products to insure part of their expected relief costs. Given the broad scale of insurance programs to insure public relief efforts, indices were developed as proxy for farm level losses. Index-based insurance programs help overcome delays and uncertainties in funding relief when most needed and helps smooth the relief costs to government and/or donors in the form of a predictable and regular annual premium. In Ethiopia, for example, the government, WFP and the World Bank established the Livelihoods Early Assessment and Protection (LEAP) mechanism in 2008. LEAP is an integrated food security and early response system, which combines early warning, capacity building, contingency planning, and contingent (explain) finance. While LEAP is based on donor-provided contingent financing rather than commercial insurance, it uses an index-based approach. LEAP seeks to bridge an 'assistance gap' in the case of shocks in the

government's Productive Safety Net Program (PSNP), and does this by allowing the immediate scale-up of the PSNP in anticipation of severe droughts.⁴

One way to view relief programs is as a substitute for insurance, since if farmers and rural people had adequate insurance they would be more self-reliant during disasters. Yet disaster relief, once people assume they can count on it, can also undermine incentives for buying insurance. An innovative way to reduce these problems while making relief more assured and effective for the poor is the use of Early Recovery Vouchers.

Index based insurance is a promising development for overcoming many of the more serious risk problems that have plagued past agricultural insurance and relief programs, and it can help engage the private sector in a larger way in managing agricultural risks. However, IBI programs have not yet approached anywhere near the scale needed to enable the majority of smallholder farmers and rural people to be protected from existing, let alone future levels of risk.

Index-based insurance faces a number of challenges that hinder scale-up:

- *Demand problem* – all insurance programs face general demand problems from uncertainty of the product or need, as well as specific problems related to the index nature of the product. Relatively few farmers seem willing to purchase IBI products. Few IBI schemes for farmers have achieved scale without being heavily subsidized and/or the insurance is made compulsory (e.g. for public bank borrowers in India). Two reasons suggested for this weak demand are: a) farmers have other ways of managing risk that may seem to be less costly than insurance, and b) farmers may not have the liquidity to pay the insurance premium at the beginning of the farming season, particularly poorer farmers. Better-off farmers also probably have more options than poor farmers, including in years with calamities.
- NWK AgriServices is a contract farming buyer that offers weather index insurance to its 80,000 farmers on a voluntary basis. Approximately 10,000 farmers buy insurance with their inputs from NWK. Premiums are paid at harvest. NWK recovered much more of the in-kind credit given to insured farmers compared to non-insured farmers. Due to droughts, payouts were made in some locations in both of the last two years and the timely income contributed to this higher loan recovery rate from insured farmers.
- *Index problem* – A fundamental requirement for IBI is the availability of an index that correlates highly with the agricultural risk to be insured, and for which there is a suitable and reliable database to perform actuarial calculations and objectively determine when an insured event has occurred. The index also needs sufficient spatial granulation to minimize basis risk. These can be daunting requirements in countries and regions with limited weather stations, or where the data is unreliable or released too late to be useful for determining payouts. Technological advances are rapidly reducing the cost of adding secure weather stations, and in some countries, private firms now offer weather station services for a fee (e.g. India). Greater problems are that additional weather stations add to the cost of developing and marketing

⁴ <http://www.dppc.gov.et/Pages/leap.html>

insurance contracts, and new weather stations come without site-specific historical records and require the calculation of “synthetic” datasets behind them based on the triangulation of existing historical weather data. There has been a lot of recent innovation in developing indices that can be assessed remotely with satellites, such as cloud cover, vegetative cover, or soil moisture content for a chosen region during critical agricultural periods. Such data is sometimes linked to a biophysical model that relates the remotely sensed data to the agricultural losses to be insured.

- *Distribution problem* – There are serious difficulties and costs in marketing index insurance to large numbers of smallholders, and in collecting their premiums and making payments. Few private insurers have the required distribution networks in rural areas in developing countries, so they often work through an intermediary with an existing network of their own (e.g. a microfinance institution, bank, input dealer, agro processor, or NGO), or they work with groups of farmers that can be insured as single entities (e.g. farmer associations and mutual funds). For example, Fresh Co in Kenya, SFS in the Philippines, and Pioneer and NWK AgriServices in Zambia, all use private input dealers to market their insurance. Examples of the aggregator approach are the Zambian National Farmers’ Union in Zambia (which arranges insurance for groups of its members), and Agroasemex in Mexico which reinsures farmers’ self-insurance funds (fondos).
- *Public goods and first mover problem* – Although private insurers are actively engaged in most of the weather index insurance programs, they have rarely initiated programs. Instead, governments, multinational agencies such as the World Bank and World Food Program, and international NGOs like Oxfam have played the crucial initiating role. This suggests there may be important public roles that are required, without which the private insurers face high set-up costs and barriers to entry. There is also a first mover problem whereby the high initial investment costs in research and development of index insurance products might not be recouped given the ease with which competitors can replicate such products if they prove profitable to sell. Private insurers may be particularly wary of this issue and unlike public insurers, they are often not subsidized.

Climate change is expected to increase both the frequency and severity of extreme weather events, especially in many drought prone areas, and this will be compounded by greater uncertainty about the levels of risk involved. Adapting to these changes may in some cases require major changes in farming systems and livelihood strategies, or even relocation for some people. More widely, it will disrupt traditional risk avoidance and coping mechanisms at household and community levels, increasing the need for greater public and donor assistance in coping with catastrophic weather events. Under these circumstances, IBI ought to become an even more attractive risk management aid. However, its costs will also increase (IPCC 2014).

c. Public Sector Considerations

There are a number of ways in which the public sector can help overcome these problems:

- Building weather station infrastructure and data systems: weather index insurance requires a reliable weather station infrastructure, and these must be sufficiently dense to avoid excessive basis risk. Beyond the physical presence of weather stations, there is need to collect, maintain, and archive data and to make it available on a timely basis in relation to insured events.
- Supporting agro-meteorological research leading to product design. One of the challenges associated with private-sector development of new financial products is the ease with which others can replicate them.
- Provide an enabling legal and regulatory environment. Establishing a legal and regulatory environment for enforcing contracts that both buyer and seller can trust is a fundamental prerequisite for index insurance.
- Educate farmers about the value of insurance. To increase the likelihood that information is presented in a balanced way, and that sufficient investments are made in a broader educational effort for untested insurance products, public funds from governments and/or donors may be required.
- Facilitate initial international risk pooling or access to reinsurance. The highly covariant nature of the payouts for index insurance poses a challenge to a private insurer. Most often, it is also necessary to sell part of the risk in the international financial or reinsurance markets, yet access for smaller countries and risk portfolios is limited.
- Provide SMART (clear objective, costs contained, transparent, targeted, monitoring and evaluation, exit strategy/long term financing, helps risk discovery) subsidies. Given all the challenges discussed above, it seems unlikely that IBI will ever scale up quickly without increased levels of public support by governments and donors. Pilot programs are still exploring the limits of unsubsidized insurance with IBI products, but there are no programs of scale that are not currently subsidized.

VII. Key Lessons and Conclusions

It is important to recognize the trends in agriculture and in financing it, often in response to those sector changes and to changes in technologies and approaches. There is a growing importance of stronger value chain relationship due largely to the trend of increasing qualitative and quantitative demands for processed food products and higher value products. The need to fulfill higher standards and time-driven deliveries will undoubtedly continue and lead to a much higher proportion of agricultural production organized in value chains. The impacts of these dynamics on the structure of agricultural markets have to be understood by all actors in the chain as well as service providers, especially financial service providers. The risks of non-compliance also multiply increasing the needs of insurance and innovations in ITC. Hence, by understanding and using the value chain and knowing your client and their clients, financial services and other complementary support services can be offered in a more systematic way at lower cost and risk.

The private sector is increasingly leading the way for agricultural financial services. Production, marketing and finance are more and more intertwined and offering or linking partners with financial services is a part of the business model. Other non-financial service providers such as telecom companies and technology companies are now major providers or conduits for the provision of a whole array of financial services. Yet public agencies and governments cannot shy away from their role in the sector. Private driven initiatives by nature focus on the easier and more profitable sectors and populations, which can make some smallholders, women and indigenous groups even more disenfranchised. The efforts of the GPMI research was precisely to help understand the trends and innovations to help understand the opportunities and consequences and help guide the actions necessary for financial inclusion of agricultural households and communities.

Emerging and frontier economies hold significant promise for private investors and corporations who are seeking to diversify their portfolios and enter new high growth markets. Yet, many private actors remain on the sidelines largely because they see returns in developing countries as not commensurate with the high levels of risk (real or perceived). Public and philanthropic funders can use their resources to shift the risk-return profile of investee projects or companies to create favorable conditions for private sector to engage.

A summary of the key lessons from each of the research studies is presented in Annex A. These lessons were used in formulating the following Policy Recommendations.

VIII. Policy Recommendations

The G20 countries have an important role in addressing the services needed to support food security and productive livelihoods for all populations. Inclusive financial services for agricultural and rural households and enterprises are very important toward this end. The G20 Global Partnership for Financial Inclusion has supported research and development to promote improved access and inclusion for agricultural finance and rural agro-enterprise finance. In 2011 and 2012, respectively, the G20 GPFI SME Finance Sub-Group prepared reports on guidelines for agricultural finance policy and regulatory frameworks and on promising and innovative approaches to agricultural SME. The current research on innovations and trends looked highlighted new approaches, tools and technologies with an emphasis on how they contribute to improving agricultural growth and greater financial inclusion. The following recommendations highlight key lessons and their corresponding policy recommendations:

- A. **Understanding market dynamics and implications.** All actors in agriculture, including policy makers, must understand the impact of the market-driven dynamics growing qualitative and quantitative demand for processed food products and higher quality standards that come with urbanization, increased incomes and food safety awareness and control and must assess and deal with the implications this has on smallholder households.
- B. **Importance of value chains – a key ingredient for growth and scale.** Financial service providers need to recognize the nature of the value chain relationships, transactions and risks and use this information to offer financial services that are less risky and costly and with an opportunity to be more inclusive of smallholder producers and SMEs. Well-functioning value chains provide farmers and all other VC actors, as well as financial service providers, with access information on the current and future trends of the markets, the capacity and competitiveness of the VC actors of the and the technical information needed at the different stages of the VC.

Policy makers must be aware of bottlenecks that affect the efficient functioning of the value chains to enhance the competitiveness and consequently promote agricultural growth. They can support initiatives that help bring transparency and strengthen business relationships and cooperation among value chain actors that also helps increase the inclusion of smallholders into competitive value chains and access to improved finance.

- C. **Digital technology as a potential game changer.** The consequences are immense with many direct and indirect opportunities for improving inclusion in financial services and value chains. Financial inclusion efforts need to focus on complementing existing digital financial services with new innovations that are designed based on a better understanding of the needs of smallholder families. They also must include efforts to use digital technology in the whole realm of production, logistics, marketing and capacity building to reduce costs and fit with the changes in the industry.
- D. **Public support and subsidies can be helpful, at many levels – but be SMART with them!** The research and roundtable discussions highlighted the importance of public support in many areas and the risks of subsidies. For example, the lessons from the agricultural insurance sector clearly highlighted the importance of public support, called smart subsidies, including providing an enabling

infrastructure for insurance, help generating data (from weather to pricing), build capacities at all levels and supporting the product design.

- E. **Build Technical and Human Capacity at all Levels.** Technical, organizational and management capacity is needed at all levels to be competitive in the changing agricultural scene. For policy makers, it is especially important to address the technical and human capacity of the smallholders and marginalized groups so they can fit into the market economy and meet consumer demands. Financial service providers also lack sufficient understanding of the specific needs of such clients. Particular attention must be given to supporting the critical role of women in agriculture and in VCs.
- F. **Supporting dialogue and partnership of all actors (including PPPs).** Promoting dialogue and a better understanding of the diverse demands and tailor products and government policies to serve the various niches and underserved segments (youth, women, indigenous people, marginalized households and communities). Efforts to promote agricultural finance can be more effective by facilitating linkages between financial sector and real sector entities and creating effective mechanisms of risk sharing and efficient distribution channels to reach beneficiaries.
- G. **Invest in better data.** The agricultural market is fragmented and complex. Understanding evolving trends and dynamics in market demand and structure is critical to building the appropriate supportive infrastructure and adapting appropriate financial instruments. Investing in data and data analytics for information and metrics (from pricing to weather) and its analysis are required for developing agriculture and addressing its risks. Data is also needed to understand and analyze the risks and assess opportunities for designing appropriate instruments and structuring financing in agricultural areas.
- H. **Good governance/good overall legal framework is essential.** Governance and an appropriate legal framework is a public good required for ensuring social transparency and responsibility in finance and market interventions. This is critical public good, both in policy directives and applied in practice.
- I. **Support mainstreaming of women and minorities.** Support is needed to promote the development and outreach of innovations for meeting the specific needs for financing women, youth and vulnerable populations and policy guidelines and compliance is required to ensure equitable services.

The OECD Development Assistance Committee's Network on Gender Equality (GENDERNET) targets include an increase in ODA in support of gender equality, both through dedicated programmes and through gender mainstreaming and addressing underinvestment in women's economic rights through increasing ODA in support of gender equality in the economic and productive sectors.

GENDERNET, 2015

The five research studies and G20 GPFi Roundtable emphasized constraints, innovations and areas of action, many of which are common across the five themes. The following chart highlights areas for action and synthesizes policy areas for intervention. It is noted that many of the constraints are similar

and addressing them in one area will benefit others as well. For example, capacity development needs for smallholders cuts across the five areas and policy makers should consider addressing this in a comprehensive way rather than piecemeal actions or training activities. Similarly, legislation and application on governance that promotes growth and innovation but protects and enhances the rights of the poor and excluded is just as important in insurance, contract farming and digital services even though the particular actions and policies will differ.

GPFI Research Areas and Actions							
Constraints	Understanding Demand, Driving Innovation for Inclusion	Digital Technology, Financial Services and Smallholder Farmers	Financing for Women in the Agricultural Sector	Agricultural Value Chain Finance	Agricultural Insurance	Considerations for Action	Policy Recommendations
Lack of data	X	X	X		X	Invest in data collection and research	Support data collection, research and impact assessment
Product development		X	X		X	Private and public product design	Co-fund innovative product design for the vulnerable
Lack of understanding	X	X	X	X	X	Orientation; training; information sharing	Training subsidy and information platform support
Lack of human technical capacity	X	X	X	X	X	Capacity development support; smart subsidy	Smart subsidy for capacity development and extension program
Weak organizational capacity			X	X	X	Strengthen producer & enterprise groups and linkages to services	Smart subsidy for capacity and organization development
Lack of economies of scale		X	X	X	X	Organizational development; VC linkages	Organizational development; VC linkages
Lack of competitive VCs		X	X	X		Private public linkage; contract farming	Private public linkages, contract compliance; investment support
High startup costs	X	X	X	X	X	Private public collaboration & co-funding; digital platforms	Smart subsidy; enabling environment; cost-sharing
Lack of governance		X	X	X	X	Legislation and regulation strengthening	Legislation and regulation improvements; capacity building support
Inadequate compliance				X	X	Improved contracting; partner dialogue; private-public collaboration	Clear guidelines and legal processes and enforcement support
Lack of financial service providers		X	X			Innovation of financing models and approaches	Smart subsidy for financing innovations & selected start-ups
Lack of public-private collaboration	X	X	X	X	X	PP dialogue; VC partner facilitation	PP dialogue & investment; VC dialogue facilitation
Exclusion of vulnerable groups	X	X	X	X	X	Demand & impact research; collaborative product design	Incentives for reaching vulnerable groups, support for R & D for product & impact innovations

Agricultural finance is part of an agricultural eco-system; it cannot be addressed in isolation. Cooperation between all actors and partners is essential, including cooperation among the G20 agricultural, food security and finance work-streams. In summary, it is imperative that the G20 nations continue to lead in the important effort for greater financial inclusion and improved financial services to agriculture and rural communities. Through G20 support of the GPFI and the SME Finance Sub-Group, important strides have been made. With an evolving agriculture and new experiences and innovations in agricultural finance, more lessons are to be learned and shared, building off the work that has been done.

ANNEX A: Key Lessons from Research and Roundtable Discussions

Understanding Demand

- Smallholders are a complex group and segmentation is critical
- Non-agricultural income is generally more important than agricultural related income
- Digital innovation in rural financial services has the potential to be a game changer
- Automating data on smallholders can improve bankability
- A large portion of smallholders do not need credit but digital payments services/savings based products
- Disconnect between research and practitioners/policymakers
- Continued research is needed on households/smallholders and on putting it into practice
- Demand research should lead to action and adjusted products and services of financial institutions
- The costs for generating and collecting demand data need to be carefully watched. Financial institutions should only cover those portions that are directly related to their business.

Financing for Women

- Market research is essential to understand women clients' needs.
- The right financial products must be offered to fit women's needs based on market research.
- A dedicated implementation strategy, which is embedded with a gender lens, is needed.^{xi} Cultural and sociological barriers need to be identified and considered in market development and product design

Digital Technology

- Digital technology opens many avenues for financial inclusion of smallholder families and rural poor but needs public as well as private support to scale up and to reach those currently excluded.
- Financial inclusion efforts will need to focus on complementing existing DFS with new innovations that are designed based on a better understanding of the needs of smallholder families.
- The reach and impact at present is still minute given the potential of the technologies and the scope for scale

Agricultural Value Chain Finance

- Successful value chains are driven by consumer demands.
- Selling produce in organized VCs tends to improve market returns. As quoted, "If you cannot sell your produce to VC, you have to sell it to miserable markets."
- VCF is always finance+ (research, extension, ICT, insurance...).
- Some known financial products like factoring, which is almost never used in agriculture in an isolated way, have become more important when integrated into a VC context.
- Commitment, governance and standards are essential at all levels; the functioning has to be understood by farmers, financial service providers, policy.

Agricultural Insurance

- An emerging trend in the last few years is the bundling of insurance with credit or by input suppliers.
- There is also increased interest and use of insurance as a safety net
- Agricultural insurance is subsidized around the world and it should be expected at least in the early stages of development. However, the use of subsidies must be SMART, that is its purpose must be clear (to address equity or market failure), and well targeted, to the specific segment of farmers or herders and specific areas that are intended to benefit so as to minimize leakages to others.
- SMART subsidies will usually be less distorting if made directly to the insurer to offset administration and development costs rather than subsidizing the premium rates paid by farmers. Examples of this include support for data, customer awareness and education and product design support.
- There is a need to better understand the impact of insurance for product design and how to best target the support.

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