

FINAL REPORT

The intersection of agricultural and financial markets



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List of abbreviations

AGRA	Alliance for a Green Revolution in Africa
CAADP	Comprehensive Africa Agriculture Development Programme
CGAP	Consultative Group to Assist the Poor
DRC	Democratic Republic of Congo
FSP	Financial Service Provider
GAFIS	Gateway Financial Innovations for Savings (a programme of Gates Foundation)
GDP	Gross Domestic Product
GSMA	Groupe Speciale Mobile Association
ICT	Information and Communication Technology
MAP	Making Access Possible
MFI	Microfinance Institution
MNO	Mobile Network Operator
NFA	No-Frills Account
NPL	Non-Performing Loan
NGO	Non-Governmental Organisation
SACCO	Savings and Credit Cooperative
SSA	Sub-Saharan Africa
UNCDF	United Nations Capital Development Fund
VSLA	Village Savings and Loan Association

EXECUTIVE SUMMARY

Millions of smallholder farmers living in or close to poverty rely on agriculture for their livelihoods. Agriculture is fundamental to poverty reduction; it plays a crucial role in driving economic transformation and ensuring growth is inclusive of the poor. The pathways that exist out of poverty – whether through farming, employment, non-farm processing and trading or migration – are all heavily reliant on agriculture. Over the longer term, increasing agricultural productivity plays an even greater role in economic development by enabling economic transformation through a new green revolution.

For agriculture to work better and improve the livelihoods of the rural poor, financial services need to work better for agriculture. Financial services can help to unlock some of the pathways out of poverty for agricultural households. Finance has a vital role to play in helping the rural poor to diversify their sources of livelihoods and reduce hunger, become more resilient to periodic shocks and prevent them from falling into poverty traps. Finance is also needed for the agricultural investment that is a major catalyst for job creation, higher incomes and increased productivity across the economy as a whole.

Financing agriculture however is complex – all of the challenges that hinder financial outreach in regular markets are larger in a rural and agricultural context. Rural populations are poor, sparsely distributed, poorly literate and mostly engaged in informal activities. Agricultural activity, mostly characterised by smallholder farming, has low returns and is subject to high and covariant exogenous risks. Moral hazard, adverse selection, poor enforcement and danger of exploitation all exist on a large scale. For suppliers of financial services, the cost of operating in rural areas is often extremely high which, when combined with the low and risky returns available, leads to a large under-supply of financial services.

Because agriculture plays such a considerable role in any economy (in particular the lives of the poor) and due to the size of the challenges faced, it has been a popular area for government involvement. At the overlap of agricultural and rural development, financial inclusion and agricultural finance, governments have developed a range of policies and institutions to push finance towards agricultural markets and populations. Decades of rural development banks, agricultural credit lines, policy-directed lending, credit guarantees and other such mechanisms have taught us that governments have an important role to play as an enabler of markets that work for the rural poor, but not as an agent itself that can crowd out sustainable, market-based solutions. It is clear that new innovations are needed at the overlap of financial and agricultural markets and it is equally clear that the most effective way for governments to extend the innovation frontier is not to push it themselves but to facilitate the creativity of the private sector to do so.

If financial services are to work better for rural and agricultural populations then they need to be based on an understanding of the needs of the users, which can be very different to those of urban populations. This demand is currently not well understood. Financial service providers, governments and donors do not have a good understanding of the financial behaviour, usage and needs of rural populations and this restricts the effectiveness of rural outreach. There are also significant weaknesses in financial literacy, and an understanding of how to build the financial capability of rural households and enterprises. Even though the access frontier has been pushed out, driven by technology, usage remains low and there is a big problem with dormancy.

On the supply side, an increasing number of traditional and non-traditional financial service providers are innovating in the agricultural space, driven by a combination of declining profitability in more advanced markets and the huge potential offered by the unbanked millions in rural areas. Innovation is taking place: in delivery models led by technology and building alliances between those who have assets and those who have low cost outreach; in risk management enabled by big data and leveraging existing relationships within the value chain (buyers and sellers, farmers associations, co-ops); in products driven by a better understanding of what farmers need, matching tenor and interest and repayment schedules to agricultural cash flows and addressing agricultural development with finance.

SECTION 1. INTRODUCTION

1.1 THE OBJECTIVES OF THIS PAPER

With much of the world's poor reliant on agriculture for food and the incomes they earn, the provision of finance to increase the returns from agriculture and other livelihood activities is a vital tool in the continued reduction of poverty. Moreover, finance for agriculture is important for bringing about the green revolution that has failed to materialise in most of the countries of Sub-Saharan Africa. A green revolution is essential in bringing about the economic transformation that is vital to sustaining growth. Hence, agricultural finance has a vital role to play in sustaining growth and ensuring it is inclusive of the poor.

Services for the rural poor exist at the intersection of two markets – for agriculture and for finance – that are extremely complex, riddled with market failures and yet vital in the everyday lives of poor rural populations. The systems are inextricably linked and must be treated as such in any analysis of finance working more effectively for agriculture and the rural poor. Finance is a necessary but not a sufficient condition for productivity growth – it can unlock critical constraints but just as critical are the unlocking of constraints in agricultural systems, such as access to markets for other inputs, storage and logistics and efficient market channels, that determine the returns to agriculture and hence the demand for financial services.

If the goal is to alter the dynamics of markets so that they work more effectively for the poor and economic transformation, we need to understand the interaction of these market systems. The key relationship to understand is how agriculture shapes the demand for financial services and how the rural context in which it takes place affects the costs, risks and returns to supplying financial services. Here, financial services (and some non-financial services) are provided by a range of formal and informal institutions – from international commercial banks to village moneylenders – to recipients from subsistence smallholder farmers to large agri-businesses. The way that demand and supply are affected needs to take account both the type of household and the type of financial institution attempting to supply their need. This relationship exists within, and is supported by, an environment that may or may not be conducive. The wider environment, in terms of geography, demographics, social attitudes, infrastructure and institution, needs to be understood in assessing what is needed to push forward the market frontier so that the needs of more people are served effectively.

The purpose of this paper is to provide an evidence-based analysis of:

- How do agricultural and financial markets interact?
- What are the issues that need to be overcome to serve the needs of poor rural households effectively?
- Where do the frontiers of access and usage currently lie and what innovative approaches promise better outcomes for the future?

Clearly, the answer to the questions is context specific. For this paper, the focus has been on countries that UNCDF is currently working in and hence has data available for analysis¹. The methodology was based on the compilation of a database of the theoretical and empirical literature, analysis of the data on agriculture and financial inclusion and a survey of financial institutions in the focus countries.

This paper is structured as follows:

- The remainder of this section sets out the importance of agriculture for inclusive growth and the role of agricultural finance in improving agricultural outcomes;
- Section 2 provides a brief overview of the literature around agricultural finance and the economics of why it is so difficult to deliver cost-effectively;

¹ Cambodia, Democratic Republic of Congo, Laos, Lesotho, Malawi, Mozambique, Myanmar, Nepal, Rwanda, Swaziland, Uganda, Tanzania, Thailand, Vietnam, Zambia

- The policies and regulations and institutions that governments have used to promote agricultural finance are covered in Section 3;
- Section 4 analyses the evidence that exists on the demand for, access to and usage of financial services in agricultural households, based primarily on existing demand side data;
- Section 5 looks at the supply side of the market, combining secondary sources with primary research undertaken by our team to analyse where the innovation and access frontiers currently lie in agricultural finance, and what we have learned about what works (and what doesn't) for providers and products;
- Section 6 provides a synthesis of the key issues around increasing the provision of agricultural finance

1.2 THE IMPORTANCE OF AGRICULTURE

Evidence from across the developing countries suggests that agriculture is fundamental to reducing poverty, plays a crucial role in enabling economic transformation and ensuring growth is inclusive of the poor. This section reviews the evidence and sets out the agenda for agriculture in priority countries.

1.2.1 PATHWAYS OUT OF POVERTY

In recent years, some of the poorest countries in the world have recorded impressive rates of growth, especially in Sub-Saharan Africa (SSA). Between 2000 and 2008, across SSA, growth averaged 4.9% p.a. Between 2003 and 2012, GDP almost doubled. However, the pattern of growth has meant that, in many instances, a relatively small percentage of the population has benefitted from this growth so the incidence of poverty has remained stubbornly high. The potential benefits of growth have been lost through growing inequality. Zambia exemplifies the lack of inclusive growth. Between 2006 and 2010, growth averaged 6.2% p.a. but poverty fell by just 2.3%. Inequality has increased with the Gini coefficient rising from 55% in 2006 to 58% in 2010.

Figure 1. Rural and urban poverty indicators

	Population below national poverty line			
	Survey year	Rural %	Urban %	National %
Congo, D.R.	2006	75.7	61.5	71.3
Ethiopia	2011	30.4	25.7	29.6
Lao PDR	2008	31.7	17.4	27.6
Lesotho	2003	60.5	41.5	56.6
Malawi	2010	56.6	17.3	50.7
Mozambique	2008	56.9	49.6	54.7
Nepal	2010 ^d	27.4	15.5	25.2
Rwanda	2011	48.7	22.1	44.9
Tanzania	2012 ^d	33.3	15.5	28.2
Thailand	2011	16.7	9	13.2
Uganda	2009	27.2	9.1	24.5
Vietnam	2010 ^d	27	6	20.7
Zambia	2010 ^d	77.9	27.5	60.5
Zimbabwe	2011 ^d	84.3	46.5	72.3

Source: World Development Indicators

Poverty incidence has remained particularly intractable in rural areas of poor countries, well above urban levels. In Zambia, in 2010, poverty incidence was 27.5% in urban areas and 78% in rural areas. The disparity between rural and urban poverty is widespread across Africa and Asia.

In many countries of SSA, about 60% of the workforce lives in rural areas, dependent mainly on agriculture for their livelihoods. Poverty is widespread for two key reasons:

1. The size of farms is small. Across Africa as a whole, 85% of the land is in holdings of less than 2 h.a².

2. The productivity of agriculture is low; much of SSA is yet to experience a green revolution in which yields rise dramatically, as witnessed in Asia³.

Chinese farmers have proved that small land holdings

² McKinsey on Africa: A continent on the Move.

³ World Development Report 2008

need not mean being stuck in poverty. They achieve some of the highest yields in the world. It is the combination of small land holdings and low productivity in Africa that results in widespread poverty

As a result, in many countries of SSA, over half the rural population lives in extreme poverty⁴. Increasing agricultural growth and productivity is central to reducing rural poverty, as set out in the box below:

Box 1: The Link between Agricultural Productivity and Poverty Reduction

The literature provides overwhelming empirical evidence that agricultural growth, particularly productivity based, has a major impact on reducing poverty:

The green revolution in Asia lifted millions out of poverty. Between 1973 and 1994, the average real incomes of small farmers rose by 90% and of casual labourers by 125% in South India (*World Bank (2000)*).

Across the developing countries, a 10% increase in crop yields may lead to a 6% to 10% reduction in people living on less than \$ 1/day (*Irz et al. (2001)*). Cross-country analysis by *Thirtle et al (2001)* found that a 1 per cent increase in agricultural yields decreases the percentage of population living on less the US\$1 per day by 0.48 per cent in Asia.

Increased agricultural productivity also creates greater employment opportunities on farm - on which poor households rely as part of their livelihood strategies. *Mellor (2001)* estimated that for every 1% increase in agricultural output, farm employment is increased by between 0.3 and 0.6%.

Ravallion and Datt (1999) found that within India, differences in the growth rate of average agricultural output per hectare were important in explaining cross-state differences in rural poverty reduction between 1958 and 1994.

A 1% increase in agricultural growth has a higher positive impact on the poorest households than an equivalent increase in manufacturing and services growth (*Gallup et al (1997)*).

The agricultural agenda in Africa

The reasons why Africa has failed to experience the rapid and sustained increase in agricultural productivity that would constitute a green revolution are many and complex. The diversity of agricultural conditions, multi-crop rather than mono-crop agriculture, poor public institutions for research and extension, poor policies and low public investment, lower density of roads and poor infrastructure are cited as causes why Africa has not been able to follow Asia's path to a green revolution⁵. The result is that the much of African agricultural remains traditional, unable or unwilling to use the modern inputs of improved seeds, artificial fertiliser, pesticides and weedicides and irrigation that helped propel the growth of Asian productivity. In most African countries, the use of modern inputs is restricted to less than 10% of households and these are likely to be larger, more commercial farmers. The percentage of land under irrigation is usually limited to less than 3%, leaving agriculture vulnerable to the periodic droughts that are frequent in the vast semi-arid areas of the continent.

Agriculture in the lagging regions of Asia

As shown in **Error! Reference source not found.**, the higher incidence of poverty in rural areas persists even in the countries of Asia, such as Thailand, that have experienced a green revolution (though the magnitude of poverty incidence tends to be lower). The causes of such poverty are different to SSA. A very high percentage of the rural poor in these countries live in remote, lagging regions, such as the hilly areas of North Vietnam, where arable land is scarce, distance to markets is long and whose people often suffer discrimination as they are from ethnic minorities. The people in these lagging regions are disadvantaged in benefitting from the opportunities provided by the strong growth in demand from affluent urban consumers and use of modern inputs that has helped to boost agricultural productivity in the rest of the country.

In general, the impact of agricultural growth on poverty is markedly lower when the distribution of assets is inequitable, as is the case in countries with lagging regions or where land holding is

⁴ World Development Indicators, World Bank

⁵ Pro-Poor Growth in the 1990s.

concentrated in the hands of the few. Ravallion⁶ shows that high inequality in assets leads to lower growth and even lower reduction of poverty. Thirtle et al.⁷ demonstrate that inequitable land ownership is a significant factor in explaining variation in poverty effects of agricultural growth among countries – in Latin America, where there is a highly unequal land ownership structure, they estimate that 1% increase in yields only reduces the number of poor by 0.1%.

For these lagging regions, the agricultural agenda is quite different to Africa. The emphasis should be on connecting the regions to attractive markets in the rest of the country and overseas⁸. That is likely also to require a switch from basic staples to commercial, high value crops. Inevitably, the change in the orientation of agriculture is likely to be led by larger, more commercial farmers. But they can help to lead smaller farmers by example and may provide access to markets for them. Opening up efficient channels to markets for inputs and outputs is key.

Agriculture and livelihood strategies

The rural poor have to adopt a diverse range of livelihood strategies. These strategies are shaped by their asset endowments, access to factor markets (including finance), outcomes in input and output markets, the functioning of state institutions, social norms and exposure to risk⁹. In rural areas, agriculture is the centre of these livelihood strategies. However, in general, the greater the reliance on agriculture, the poorer the household is likely to be. By occupation, the highest incidence of poverty is amongst subsistence farmers that are most dependent on agriculture¹⁰.

Moving to commercial agriculture is likely to result in higher incomes but the poor, reliant on agriculture for the food they eat, lack social protection and so are too risk averse to attempt to change the crops they grow or invest in animal husbandry or fish farming which could provide higher incomes. Even if they are convinced of the merits of switching to commercial agriculture, failure in the market for finance may prove to be a binding constraint if, for example, the farmer needs credit to buy modern inputs.

As it is, in areas where land holding are very small or agricultural productivity particularly low as there is only one growing season, the poor are net consumers of food. They suffer long hungry seasons before the new harvest during which they are desperate to find any means of earning money to pay for food and often have to pay very high interest rates to be able to borrow to pay for food. Without access to formal sources of finance, they often turn to informal money lenders or to buyers of their produce to lend them money at usurious rates of interest. This can help trap them in a vicious cycle of low incomes and high debt.

Earnings from selling labour are frequently higher than from subsistence agriculture¹¹, however opportunities to sell labour may be limited. In the case of selling labour to other farmers, the fact that the poor household may be undertaking the same task on their own farm limits their ability to supply labour to others. In the case of supplying labour off-farm, the main limitation is likely to be lack of demand for labour as a result of lack of non-farm enterprises, especially in the poorest regions. Migration to urban areas is possible but, in general, the poorest are the least likely to migrate. They lack the social capital needed to find employment in the towns and the lack of social protection makes them risk averse.

In general, the more commercial the farmer and the more diversified the sources of income, the richer the household is likely to be. Incomes from processing and trading food and agricultural commodities are often far higher than from agriculture itself. But the poor are likely to lack the financial resources to undertake such activities.

⁶ Ravallion, Martin, 1997. "Can high-inequality developing countries escape absolute poverty?"

⁷ Thirtle, C.; Lin, L.; Piesse, J. "The Impact of Research-Led Agricultural Productivity Growth on Poverty Reduction in Africa, Asia and Latin America"

⁸ Reshaping Economic Geography: World Development Report, 2009.

⁹ Agriculture for Development, World Development Report 2008

¹⁰ Pro-Poor Growth in the 1990s: Lessons and Insights from 14 Countries, World Bank, 2005.

¹¹ In Zambia, for instance, the returns from growing maize, the dominant crop, are much lower (\$1.30/day) than wage labour (\$3-\$4.5/day)¹¹.



There is considerable variation in the asset endowments and livelihood strategies that rural households can pursue. These differences led the World Development Report 2008 on Agriculture for Development to classify the rural population into 4 rural worlds with large commercial farmers that enjoy diverse sources of income at the top and smallholder subsistence farmers at the bottom. These rural worlds are interconnected. The large farmers may buy from, provide employment to and sell produce to those at the bottom. The poor may well therefore benefit from gains in productivity and efficiency made by those at the top.

Despite enormous heterogeneity between poor rural populations, across and within countries, a common thread is that opening up pathways out of rural poverty – whether through farming, employment, non-farm trading and processing or through migration – are reliant on improving agricultural outcomes, especially agricultural productivity. If agricultural productivity increases at the bottom, the poor are likely to be less likely to go hungry and be more secure against the periodic shocks that are inevitable in agriculture. That may make them more willing to grow higher value commercial crops, invest in modern inputs and even trade and process commodities. Some may migrate.

If agricultural productivity increases for those at the top, they are likely to need more labour, on and off-farm, thus providing opportunities for the poor. Indeed, the higher incomes that they may earn may lead them to increase the volume of processing and trading thus making them buy more from and sell more to the poor, improving outcomes for the poor as producers and/or consumers.

1.2.2 ENABLING ECONOMIC TRANSFORMATION & INCLUSIVE GROWTH

Important as its role is in providing pathways out of poverty, in the longer term, agriculture plays an even greater role in economic development by enabling economic transformation. As economies grow, they reduce their reliance on primary activities, such as agricultural and the exploitation of natural resources, and increase the share of GDP that comes from manufacturing and services. The transformation from a reliance on primary to secondary and tertiary activities helps to diversify source of growth but also plays the crucial role in increasing productivity. It is fundamental to moving from lower levels of per capita income to middle and high income levels¹².

In fact, at the early stages of development, the growth of agricultural productivity is a major catalyst for economic transformation and increasing productivity across the economy as a whole:

- Increasing agricultural productivity contributes directly to aggregate productivity and growth as agriculture is a major employer and contributor to GDP;
- As agricultural productivity increases, it provides surplus labour and cheap raw materials to be used in manufacturing and services thus making them more competitive, spurring economic transformation and growth;
- The transfer of labour from agriculture to manufacturing and services, where productivity tends to be higher, provides an added boost to productivity and growth (allocative efficiency).

Agriculture's contribution to economic transformation and inclusive growth in SSA

This is why many academics used to think that it was not possible for economies to sustain growth without a green revolution. Africa's growth experience over the past two decades may challenge that view. However, it is clear that without a green revolution, many African countries have failed to transform their economies. Manufacturing accounts for around 10% of GDP in most countries as against the over 20% in Asian countries. Further, most African countries have failed to create formal jobs resulting in large parts of their workforce being employed informally in low value and uncertain occupations such as petty trading. In most countries, less than 15% of the workforce is employed formally.

This is because, in addition to reducing poverty directly, agriculture also plays a crucial role in ensuring that wider economic growth is inclusive of the poor. In the rural areas, where most of the

¹² Industrial Development Report, 2009, UNIDO written by Paul Collier.

poor live, as noted in Box 1, increasing agricultural productivity helps to increase the demand for labour on-farm. The process of spurring the growth of other sectors, especially the processing and trading agricultural commodities, helps to boost employment opportunities off-farm. For the very poor, who may have little or no land at all, the increased demand for labour may help to change livelihood strategies reducing their reliance on subsistence agriculture and increasing their incomes through more remunerative waged employment.

This combination of increased agricultural productivity and the transfer of labour to more productive non-farm occupations was found by Ravallion & Datt to be the most powerful way of explaining faster reductions in poverty across the Indian states. In China, the Deng Xiaoping reforms that enabled the emergence of the household responsibility system and the growth of township and village enterprises, caused large gains in farm productivity and non-farm employment and productivity, resulting in the fastest reduction in poverty the world has ever seen.

Further, even in the urban areas, the growth of agricultural productivity plays a major role in ensuring growth is pro-poor. It enables the price of food to remain low, boosting food security and ensuring that the cost of labour does not rise rapidly. That, in turn, ensures that the demand for labour remains high providing jobs for the urban and rural workforce. An increase in the share of manufacturing employment is associated with faster poverty reduction¹³. The failure of manufacturing to grow in Africa is caused by a variety of factors, including poor infrastructure, but the high cost of food also plays a role by keeping wages high in relation to the level of development.

Prospects for African agriculture

With a few outliers such as South Africa and Botswana, agriculture continues to be a major source of GDP in most African countries. The mean contribution to GDP is low at 14% but that is dragged down by the outliers as they contribute a substantial share of SSA GDP. In the rest, the contribution agriculture makes to GDP varies from 10% in Zambia to 45% in Ethiopia with most countries in the 20% -30% range. The share of agriculture in GDP is declining but there are reasons to believe that the share may remain high for some time.

Africa contains 60% of the uncultivated arable land in the world¹⁴. Agricultural productivity is low: with 20% of the land under cultivation, the continent produces just 10% of agricultural output. Thus the potential to supply more food and agricultural commodities is substantial. The McKinsey Global Institute estimates that the value of African agricultural output is set to rise from \$280 billion today to \$500 billion by 2020 and \$880 billion by 2030 with a further \$275 billion worth of output originating in the upstream supply of inputs and the downstream processing of commodities by that date.

This supply potential is juxtaposed with growing demand for agricultural produce within Africa and to serving other emerging economies of the world. Increasing consumer purchasing power, increased urbanisation and growth of population are expected to increase expenditure on food and beverages by \$175 billion to reach \$544 billion by 2020. Worldwide, the rate of increase in the demand for agricultural products is slowing as markets in the developing and emerging countries mature. But it is still expected to rise at 1.5% p.a.¹⁵. With countries such as Indonesia and Malaysia running out of surplus land and concerns over deforestation, that has established an opportunity for Africa to supply the growth in demand.

The opportunity for Africa to become a major supplier of agricultural products has been recognised already. Although the amounts of land involved are often exaggerated, it is reported that governments concerned with food security and access to agricultural commodities (China, Singapore, South Korea), transnational corporations (Sime Darby, Olam, Borel) and smaller investors from the Middle East and Asia have acquired huge tracts of land in Africa. The more reliable estimates would suggest some 50 million hectares in total¹⁶.

¹³ The Nexus of Economic Growth, Employment and Poverty Reduction, Islam R, 2004.

¹⁴ Lions on the Move: The progress and potential of African economies. McKinsey, 2010

¹⁵ World Agriculture, Towards 2015/30. FAO, 2015.

¹⁶ Transnational Land Acquisitions. Nathan Associates, 2013.

On this land, the major transnational corporations have developed modern estates to grow commodities such as oil palm, rubber, sugar, cotton and other biofuels. National governments are incentivising agricultural firms to grow food and agricultural commodities. Several African and international agribusinesses and impact investment funds specialising in agriculture have developed a business model where they develop nucleus estates and link farmers to them through out-grower schemes. Frequently, these are larger commercial farmers or, at best, semi-commercial farmers. These major investors will serve to boost agricultural productivity and output.

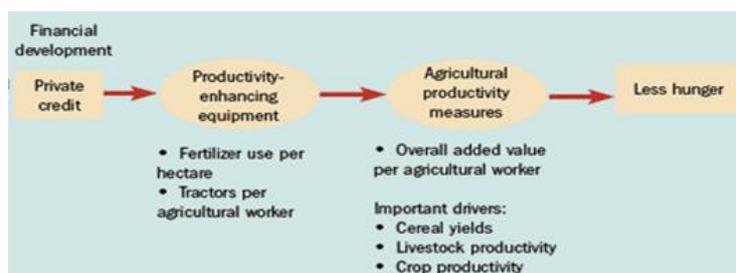
However, this need not trigger a green revolution. With the vast majority of land held in very small holdings of less than 2 h.a., the fate of African agriculture rests with smallholder farmers who are semi-commercial or subsistence farmers. It is increasing their productivity that will trigger a widespread green revolution covering not only valuable agricultural commodities for export but also food staples that are necessary for economic transformation and inclusive growth. It is the ability to provide pathways out of poverty for these small farmers that will dictate the pace at which rural poverty is reduced.

That is what has prompted initiatives such as CAADP and the Alliance for the Green Revolution in Africa (AGRA). Whilst there are grounds for optimism, this is a massive undertaking that will require huge resources and some time to realise. The attempt however must be made. Without it, the outcome will be a very large number of people stuck in poverty in the rural areas of Africa, the failure to transform economies and no hope of formal employment for Africa's huge number of young people waiting to enter the workforce.

1.3 THE ROLE OF AGRICULTURAL FINANCE

Finance has a vital role to play in increasing agricultural productivity and incomes from agriculture, in helping the poor to diversify their source of livelihoods, helping the poor reduce hunger, become more resilient to periodic shocks and preventing them from falling into poverty traps and promoting a green revolution through financing agribusiness. The green revolution in Asia was enabled by policies to subsidise inputs, invest in rural infrastructure and to increase the availability of financial services in rural areas. A recent cross country study found a causal link between financial development and increased use of modern inputs, agricultural productivity and the reduction of undernourishment¹⁷. Studies using randomised controls have found that access to financial services helps to promote innovation¹⁸, reduce reversion to child labour after agricultural shocks¹⁹, promote employment and reduce poverty²⁰.

Figure 2. The Pathways from Credit to Productivity and Less Hunger



Source: IMF: *From Credit to Crops*

What is important, however, is to view the provision of financial services in the wider context of helping rural households manage their money by delivering a broad suite of financial services, not just finance for investing in agriculture. For rural households, the distinction between agriculture, other

¹⁷ From Credit to Crops; Claessens S & Feiejn E, Finance for Development, 2007.

¹⁸ Gine, Xavier & Klonner, Stefan, 2005. "Credit constraints as a barrier to technology adoption by the poor : lessons from South Indian small-scale fishery," 2005

¹⁹ Child Labour and Agricultural Shocks, Beegle K Daheja R and Gatti R, JDE, 2006

²⁰ Expanding Credit Access: Using Randomized Supply Decisions to Assess Impact. Karlan D & Zinman J, 2007.

livelihood activities and calls on their money to pay for education, health and other household expenditures is artificial. Evidence suggests that the poor may value savings more than credit²¹.

The roles finance plays are explored further in the sections below.

Increasing agricultural productivity

The use of modern inputs is costly and often out of reach of small farmers, especially those that have to wait several months to plant during the next rainy season: they are likely to have consumed all the proceeds of the previous crop and so have no cash to pay for inputs. Credit to buy inputs, hire labour or mechanised services throughout the crop cycle can play a crucial role in providing the means to improve agricultural productivity. The evidence supporting this comes from various sources:

- At a cross-country level, evidence supports a causal link between financial development (private credit/GDP) and the use of fertilizer and agricultural equipment such as tractors, allowing for differences in levels of poverty and per capita incomes.
- At a cross country level, there is a causal link between financial development and agricultural productivity. A 1% increase in private credit/GDP increases value added per agricultural worker by 1%-1.7%;
- Cross country analysis shows a causal link between agricultural productivity and less hunger;
- In-country studies show a causal relationship between credit and input use; for example, fertilizer use increased with access to credit across the provinces of Ethiopia²².

However, micro evidence shows that the provision of credit alone may not be enough, bearing in mind the risks involved in small scale agriculture and an understandable aversion to increasing them. Firstly, farmers need to be convinced that the use of modern inputs will result in a good return to the investment. Good extension services have a role to play in this but the critical issue is the ratio of the price of inputs and the value of the additional output produced. A favourable ratio may only exist in some high value crops and in markets where there is good competition amongst buyers to promote efficiency and prevent exploitation of small farmers.

Further, getting the full potential increase in yields may only be possible if the full complement of inputs is available including high yielding varieties of seed, appropriate fertiliser, irrigation, mechanical planting and harvesting equipment, pesticides and weedicides. Without the full complement, farmers may not find it profitable to buy one input alone.

Hence, the study in Ethiopia²³ found that, whilst credit increased the use of fertilizer, only in the case of teff did it result in higher incomes. In maize and wheat, the lack of high yielding varieties of seed resulted in low increases in productivity for a comparatively low value crop.

Another crucial factor in the rate of adoption of new technology is risk. If farmers are unfamiliar with new varieties and uncertain that they will find a market for them, they are less likely to try them. Knowledge alone is not sufficient to convince them as extension agents and NGOs working with farmers have found over the years. The more reliant the farmer on the crop to feed the family, the more risk averse they are likely to be. This is why early adopters are usually the larger, commercial farmers and farmers who have other non-farm income sources. Poor subsistence farmers need to see the results or be assured of an income before they adopt even if they do have access to credit. They are more likely to try new technologies if they receive social protection or insurance and/ or are included in contract growing schemes organised by reputable businesses.

Increasing income, diversifying livelihoods

Though most agricultural products are commodities, the prices farmers receive for them varies greatly. Access to finance can help them increase the value of their crops in several ways:

²¹ The Poor & Their Money, Rutherford S and Arora S, 2009

²² The Impact of Fertilizer Credit on Crop Production and Income in Ethiopia: Matsumoto T Y Yamano T. in Emerging Developments OF Agriculture in East Africa.

²³ ibid

1. **Finding the best market.** Prices vary between the farm gate, the nearest main road and particular markets. It can pay farmers to invest time and money taking their produce to where it will fetch better prices. For perishable produce, using a cold chain to take the produce in good condition to the major town can pay large dividends. Access to credit can facilitate the investment needed.
2. **Taking advantage of better storage and seasonal variations in prices.** The seasonal nature of agriculture means that prices are usually much lower at the time of harvest. Farmers with access to safe storage are less likely to go hungry late in the season and to benefit from higher prices. However, most still sell at harvest because of the pressing need for money. Access to credit, secured against the produce, can make a difference. Warehouse receipts, based on physical storage or sophisticated paper based systems, have a role to play in improving incomes.
3. **Adding value through standards and certifications.** Many buyers place a premium on produce that meets particular standards in terms of weight, moisture content, cleanliness, degree of broken or damaged produce. The ability to meet standards can result in a net financial gain to farmers. Better still is gaining the certification required to access more attractive segments of the market, such as organic or fair trade, which pay better prices. Such certification is costly but represents an investment that is likely to pay dividends over time. Credit can help to enable the investment.
4. **Adding value through processing.** Better off farmers often add value through family members investing time and effort in processing the produce into a product that consumers value. Hence, simple grinding, mixing, pressing and cooking can help to increase the money earned per kilo of produce.

As noted earlier, a critical distinction between the better-off and the poor is that the former have far more diversified sources of income. Greater diversity of incomes may come by adding assets such as livestock or developing new land for a new, high value crop to grow alongside food staples.

A natural progression for the smaller commercial and semi-commercial agricultural households is to trade in the commodities they produce. Performing the simple function of consolidating produce increases the bargaining power of the farmer/trader and they are able to capture the margin traders earn between the farm-gate and the market, be it an intermediary market between the farmer and processor or wholesaler. In addition, the better off farmers can become retailers or wholesalers of agricultural inputs or provide mechanical services to smaller farmers. The household may also start or scale up processing activities to make that a significant additional source of income.

All these means of diversifying livelihoods require investment so access to credit has an important role to play. However, providing credit alone may not be sufficient. The farmer may not have the information or skills required to become a successful entrepreneur. There is good evidence that credit is more effective in cradling entrepreneurs if it is provided alongside entrepreneurship training and business services. Best of all, if the budding entrepreneur can be made part of the supply chain of a large business (input supplier, processor, wholesaler) that is willing to train, mentor and exercise oversight, the provision of credit is likely to have far greater impact than on a standalone basis.

Promoting resilience, avoiding poverty traps

Many studies have found that the poor value savings more than credit. The ability to save provides them with the means to invest without bearing the cost of interest, helps to smooth consumption especially during the hungry season, acts as a buffer against shocks and so helps avoid poverty traps. The importance of savings has now been recognised, especially by micro finance institutions (MFIs), but many still view it as a way of avoiding moral hazard rather than providing a valuable service to their clients and a way of financing the growth of their asset base²⁴.

The banks are even further behind in understanding the needs of the poor to save. Minimum deposit requirements and high cost of withdrawals make their services attractive only to the better-off savers.

²⁴ In countries such as Bangladesh, the authorities cap the ratio of deposits to assets

Better savings products could do much to promote investment in agriculture and help make the poor more resilient.

The need to smooth consumption and to cope with shocks does, however, require access to affordable credit. Traditional sources, such as credit given by buyers or informal money lenders run the danger of causing poverty traps whereby low prices paid for their produce or high interest payments condemn the poor to a growing mountain of debt. To avoid such borrowing, the poor may be prepared to let their children provide child labour depriving them of the education they need to escape poverty. Credit is needed at affordable prices to prevent the poor from falling into poverty traps.

However, the amount of credit on offer has to be carefully controlled to match the ability to service it. As the recent crisis in microfinance in India shows, farmers can an easily end up in poverty traps by being burdened with too much credit

A potentially very useful way of promoting resilience is to insure against the risk inherent in agriculture. Insuring against the weather, the yields of individual crops and the mortality of livestock would help to secure incomes from agriculture. Along with insuring the health and lives of household members, this would contribute to resilience and avoiding poverty traps. Hopefully, it may contribute to also reducing risk aversion and facilitating credit markets.

In practice, the actual take up of insurance is low. Less than 6% of households in the poor countries buy agricultural insurance and just 3% have health insurance. The reasons lie in a lack of understanding the product on the part of rural households offer and the cost of premiums.

Financing agribusiness for economic transformation

Increasing agricultural productivity and the incomes and resilience of small farmers need not involve providing financial services directly to them. Farmers form part of an eco-system of input providers, suppliers of information and knowledge and buyers of output. Very often, they rely on supplier or buyer credit to finance agriculture. Actual experience on the ground shows that buyers credit, given by local traders, is the largest source of finance for farmers. It works through the relationships established over the years between local farmers and traders. Where the buyer is able to exercise market power, because of a lack of competition, the implied rate of interest of buyers credit can be high, but there are many examples of good, mutually beneficial relationships.

A minority of farmers are included in the value chains of buyers who are very keen to secure supplies of raw materials and are willing to train farmers, provide inputs and buy back output at attractive prices. Where such out-grower or contract growing schemes work, financing the agribusiness can help to ensure that large numbers of farmers are able to increase productivity and escape poverty. In practice, contract growing schemes run by outsiders for crops for which there are many buyers are problematic, subject to side selling by farmers. Structured finance, which leverages formal financial transactions, such as letters of credit and invoices, and relationships in the value chain, can prove a good half way house between formal contract growing and informal buyer's credit.

Financing input suppliers, traders and processors can help to create more efficient, competitive markets for farmers helping them to increase productivity and incomes. And, it can help to provide opportunities for productive non-farm employment. They can deliver the combination of rising agricultural productivity and productive non-farm employment needed to reduce poverty rapidly and promote economic transformation.

Many of the large agribusinesses are able to access finance from local and international banks. SME agribusinesses however struggle to produce the financial records and collateral banks require. Once, again, by itself, finance may not be enough. SMEs may need mentorship and business development services alongside credit to succeed.

SECTION 2. THE CHALLENGE OF PROVIDING FINANCIAL SERVICES FOR THE RURAL POOR

Given the importance of agriculture and the vital role that financial services play in reducing rural poverty and spurring economic transformation, governments, NGOs, donors and academics have long championed policies and initiatives to increase the supply of formal financial services in rural areas. Despite decades of attention, as documented in the following section analysing demand, the progress made to date in the developing countries current is underwhelming.

In part, this lack of progress reflects poor progress in providing access to formal financial services in these countries generally. But there is a marked and adverse difference in access to formal financial services in rural areas, as evidenced in Uganda (figure 8). Financial institutions have been reluctant to extend their portfolios to the agricultural sector and rural population. The characteristics of the operating environment in these areas causes low risk-adjusted rates of return. These characteristics can be broadly separated into two categories that affect the demand for financial services namely the characteristics of the rural population and the challenges relating to agricultural activities. A further two affect the cost and risk of supply namely information asymmetry and the cost of operating in the rural areas.

2.1 CHARACTERISTICS OF RURAL POPULATIONS

Rural populations are poor and sparsely-distributed. The lack of income restricts their ability to purchase financial products and makes them unattractive customers for financial institutions to commit the additional financial and human resource needed to serve them. The low density of population means that, even if there is a percentage of the population that can afford financial products, servicing them is more costly.

Sections of the rural poor may be illiterate, may not have documents to prove their identity and most are financially illiterate. Despite progress in school enrolment, illiteracy is still rife in the rural areas of developing countries, especially if they have experienced conflict. Even those who have attended school for a few years can do little more than write their names. Almost all struggle with financial literacy failing to comprehend the implications of the financial products they use and new products on offer such as insurance. Unless there has been a national campaign, most are challenged to prove their identity and proof of address. Traditional approaches of filling in forms, requiring identity documents and utility bills are unsuited to this environment. New approaches are needed to work with the poor many of which require investment in new technology or considerably more time and effort from specially trained agents.

There has been little investment in understanding the financial needs of the poor. Because they are not attractive customers, financial institutions have not invested in understanding their needs. Even in countries with strong MFIs, such as Bangladesh and Ethiopia, they continued to offer the well tried group loan product for many years before realising that there was a huge, pent up demand for crop and enterprise loans with varying maturities and interest payment schedules. As a result, even when the rural poor have access to financial services, they may not use them. **Account dormancy is a significant problem for financial service providers.**

The rural poor lack suitable collateral. These may be simply because borrowers are too poor to have assets or property rights are not secure or poorly developed. Few farmers, even the better-off, have documented title to their land, their main asset, as land registries are poorly developed giving rise to the problem of dead capital²⁵. In particular, in some countries, women farmers have often limited access to finance because they are legally not allowed to own land and face the danger of losing their lands when their husband dies, or are not allowed to borrow without their husbands' permission.

²⁵ De Soto

High level of informality and few or no financial records, often found among farmers or other agricultural and agribusiness SMEs, means that the cost of credit worthiness assessments may outweigh returns from these relatively small loans for financial institutions

High risk of fund diversion. Poor rural households, struggling to make ends meet, find it difficult to compartmentalise the sources and uses of funds. Finance for agriculture or other livelihood activities are treated as part of the household's overall needs. As a consequence, increased access to finance may lead households to increase consumption, pay for children's school fees etc. rather than invest in new inputs to increase the productivity of their lands, which ultimately increases the risk of defaulting their loans – the moral hazard problem. Financial institutions, aware of such behaviour, may regard them as too high risk and not offer credit.

2.2 CHALLENGES RELATING TO AGRICULTURAL ACTIVITY

Agricultural activity, more than most, is subject to **exogenous shocks** that are beyond the control of borrowers. Farmers and other participants of the agricultural value chain face two types of exogenous shocks. First, there are **natural risks**, such as flood or drought and other adverse weather conditions, damage from pests (insects, pests and animals) and the spread of diseases that affect crops and livestock. Second, agricultural products are especially **vulnerable to price fluctuations**, with supply likely to under or overshoot as planting is done on the basis of demand conditions that prevailed many months ago, the classic cobweb theorem. Some commodity prices are especially volatile as the world buffer stocks for them are low. When weather conditions are adverse, supply collapses. Farmers are usually price takers and so are particularly affected by price variations.

One of the key challenges of financing the agricultural sector is that these environmental as well as market risks are systematic, meaning they usually affect whole regions or crops, thus whole agricultural finance portfolios simultaneously. Such **covariant risk** may cause farmers to default their credits and withdraw savings at the same time. As noted earlier, poorer smallholder farmers are usually entirely reliant on agriculture for incomes and so are especially hard hit by natural or market risk. Covariant risk makes insurance expensive as everyone is affected at the same time and risk cannot be offset by premiums paid by those who are unaffected.

Low returns to agriculture cause demand rationing. The returns to farmers from growing some crops, especially local food staples, are often low. For instance, a farmer growing maize on 2 h.a. of land is unlikely to earn more than \$500. In single crop regimes with one rainy season that sum is meant to feed a family of 5-6 for one year and pay for household essentials. With such low returns, farmers cannot afford to pay much by way of interest. If financial institutions price credit at anything like the commercial rates adjusted for the higher risk, many farmers simply choose not to borrow. This results in a rationing of demand.

Extended and intensive cash flow management requirements. Agricultural activity occurs over a long period of time; a crop season from planting to harvest and re-planting may extend over 12 months or longer. Cash is required at discrete intervals over the crop cycle. The proceeds of the harvest also have to last for a few months. Cash flow needs to be managed carefully and effectively. The lack of financial records makes this difficult to achieve so that many farmers fail to budget properly, taking into account also other household needs. The result is a high risk of default. The fact that the same financial products are likely to be required by lots of farmers at the same time also strains the cash flow of financial institutions, leading to alternating spikes in demand for credit and for saving products at post-harvest.

Need for long term credit. In the developing countries, there is usually a shortfall in the supply of long term savings which constrains the ability of financial institutions to lend long term. Many agricultural products have long gestation periods including all the tree crops, livestock and forestry. The financial sector finds it difficult to meet the needs of farmers needing long-term finance.



2.3 INFORMATION ASYMMETRY

In economics and contract theory, the classical constraints in regular financial markets are broadly discussed and generally well-understood. Financing the agricultural sector, however, comes along with even greater challenges, with many of them still not sufficiently understood and addressed by academia, international donors as well as the private financial sector.

The first path-taking academic papers that addressed the specific challenges of rural credit markets and financing the agricultural sector were written by Hoff and Stiglitz, and Besley. Hoff and Stiglitz show that the **classical information failures that exist in regular financial markets are even greater in rural and agricultural markets**. They distinguish between three problems:

1. First, the lack of information on borrowers leads to the screening problem whereby lenders find it very difficult to determine good from bad borrowers. Lenders are as likely to lend to bad borrowers who are not able to service their debts as to good. (i.e. **adverse selection**) which results in high risk. The (transaction) cost of finding good borrowers is so high it depresses returns or results in high interest rates that result in demand rationing;
2. Second, it is costly for lenders to ensure that borrowers take the action that make repayment likely. This is known as the incentives or **moral hazard** problem. A common underlying cause of this in developing countries is policy directed lending to agriculture coupled with political patronage and cronyism. State-owned agricultural banks were often directed to lend to particular farmers based on referrals by powerful politicians. Borrowers feel little incentive to repay as they think access to credit is a reward for their social capital and feel no moral suasion towards the debt. The thinking extends to lending from commercial banks.
3. Third, difficulties to compel repayment build a strong **enforcement** problem. The absence of collateral and very poorly developed legal systems mean that lenders find it difficult to enforce repayment. MFIs use peer pressure as a substitute but the group lending methodology works best for small sums of money that can be repaid regularly. Larger crop and enterprise loans need different approaches.

There are other information failures too that affect the profitability or sustainability of lending. The main formal lenders in rural areas are MFIs and they are not covered by **credit information bureaus or credit registries**. In addition to contributing to adverse selection, this may enable over-borrowing with households obtaining credit from several sources.

Information failures make consumers vulnerable to exploitation. A corollary of financial illiteracy is that it is very easy for unscrupulous financial institutions to take advantage of the rural poor, especially where financial regulators have not put in sufficient safeguards to protect consumers of financial services. Such behaviour causes the rural poor to distrust all service providers, including the more responsible.

2.4 THE COST OF OPERATING IN RURAL AREAS

The combination of a **sparsely distributed population and poor infrastructure** makes for a difficult, high cost environment. The cost of opening a branch able to meet regulatory requirement (c \$100,000-\$150,000 excluding staff) is high. Operating costs are also high with staff requiring some compensation for being posted to rural areas and the bank likely to need security and a generator. Such high costs are likely to be justified only if it is able to attract a sufficiently high customer base.

That is made difficult by the comparatively low numbers of people able to walk to the bank easily. Poor roads and transport services mean that the cost of transport service is high, over \$1 in India which has a higher density of bank branches than most. Further, the business environment is likely to be much worse than in urban areas. So the cost of registering liens over property and enforcing contracts is likely to be much higher.



In most African countries, the density of branches is less than 5 per 100,000 population. The density is much lower in rural than urban areas. That means that loan officers have to travel long distances to get to know and monitor their clients making the whole operation costly.

SECTION 3. THE ENABLING ENVIRONMENT

Given the above challenges, combined with the importance of agriculture in the economy and in particular in the livelihoods of the majority of rural poor majority, the financing of agriculture has been a popular area for government intervention. This makes sense; market failures are many and pervasive, interventions are likely to have pro-poor impact and economic spillovers can be considerable – all of this can justify government involvement. The question is: what are the features of an enabling environment that can support finance in contributing to a new green revolution?

In order to set the conditions for a new green revolution, governments need to get agriculture working and they need to get agricultural finance working. The channels through which governments influence agricultural finance can be complex and competing, and include:

- Agricultural and rural development policies & institutions
- Financial sector policies & institutions
- Agricultural finance policies & institutions

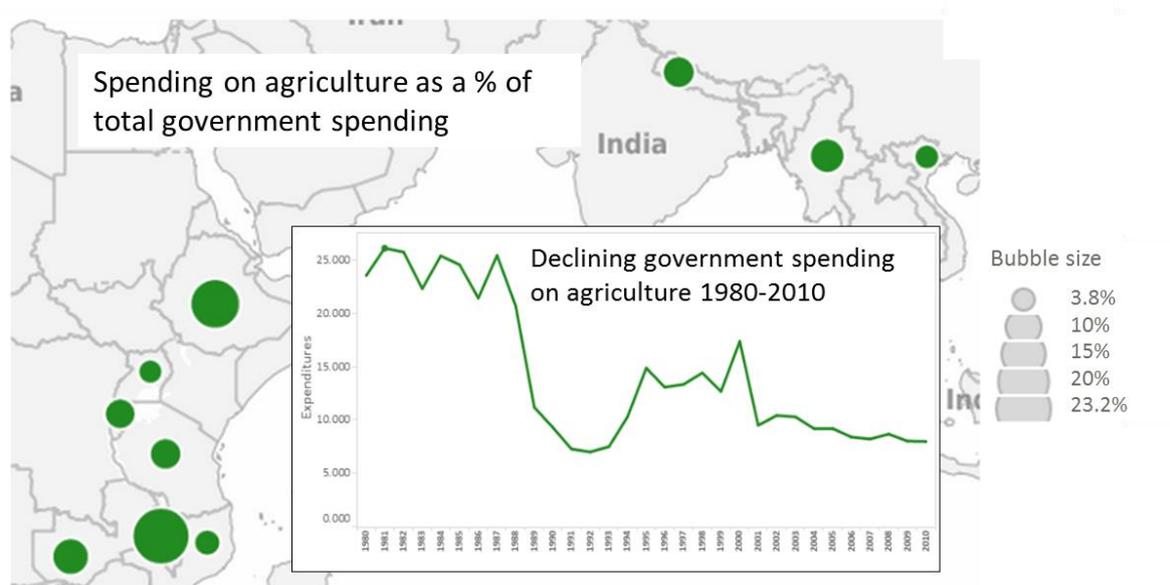
It is some combination of these that lay the foundations for an enabling environment for agricultural development and rural finance. In this role, government can be both an enabler and a problem for market development. Policies and institutions can be market enhancing, helping to overcome market failures and push forward the frontiers of access and usage to serve the needs of the rural poor progressively. Or, they can be market substituting, replacing the functions of the market by state provision or imposing administered solutions that may reduce the incentives for the private sector to serve the needs of the poor. There are examples of both in agriculture and finance, and in the overlap of the two.

Agricultural and rural development policies & institutions

In the past, policies towards agriculture can be best described as schizophrenic. On the one hand, macro policy resulted in adverse terms of trade for agriculture as part of an elite bargain in favour of modernising the economy through industrial development. On the other, the political imperative of being seen to be doing something for the poor led government into heavy subsidies for agriculture, grandiose, integrated rural development schemes or administered prices for key commodities.

The policy stance tended to work across the board, where the macro policies were more benign (export led), favouring agricultural exports (East Asia) or, selectively in particular crops and regions, when prices were liberalised for particular crops and agricultural subsidies enabled the take up of new technology (India, China). Elsewhere, where the terms of trade for agriculture were particularly adverse and institutional weaknesses led to high diversion of subsidy (much of SSA), they largely failed. Structural adjustment policies undid this policy stance by liberalising markets and ushering in market determined exchange rates.

After structural adjustment, there was a general trend of developing country governments to move out of the agricultural sector and leave market forces to operate more freely to support rural development. As demonstrated in Figure 3, since the late 1980s there was a general decline in government investment in agriculture as a proportion of total spending.

Figure 3. Government spending on agriculture

Source: IFPRI SPEED Public Expenditure Database

In most developing countries this proportion fell well below ten per cent (the target set by the Maputo Declaration). Recently, through the Comprehensive Africa Agriculture Development Programme (CAADP) of the Africa Union's New Partnership for African Development, African governments have increased their expenditure on agriculture. However, policies continue to be misconceived with large amounts of money spent on subsidising inputs meant for small farmers which often end up benefiting better off farmers or are wasted because subsidised inputs, such as seed and fertiliser, arrive too late for the planting season. The increased expenditure is not always targeted towards the areas that provide the highest impact for the poor. For instance, agricultural research has been shown to have the highest impact on the incomes of the poor of *all government expenditure*, including health, education and infrastructure²⁶. Yet expenditure on agricultural research remains neglected and governance over the work of the institutions is often weak. Public extension services continue to perform poorly and investment in irrigation is woefully short of what is required.

Moreover, poor policies result in the private sector often being crowded out by the public. Even if subsidised inputs don't arrive on time, the threat that they might put off private suppliers from serving the market. The fragmented nature of agriculture, with thousands of small farms, combined with poor infrastructure, make it costly for privately owned suppliers of inputs and buyers of produce to do business with farmers.

In addition to putting more resources into agriculture, what is needed is good institutions. Better targeted subsidies, with the private sector responsible for delivering them, better governance over research and extension that makes them accountable to farmers and agribusiness, private sector partnerships in the development and delivery of research, extension, irrigation schemes and rural infrastructure would all make a difference. More effective institutions to control diseases and pests affecting crops and livestock and enforcement of health and safety and standards would benefit farmers and consumers.

Better agricultural policies and institutions would also make it easier to deliver agricultural finance. In general, the better the agricultural institutions, the less costly it is to deliver financial products and the lower the risk. For instance, in countries such as Ethiopia and Kenya, not only do better agricultural institutions (including cooperatives and farmers associations) result in greater competitiveness of agriculture, they also result in a higher percentage of private credit flowing to agriculture. The two go hand in hand and are mutually reinforcing.

²⁶ Op cit.

Financial sector policies & institutions

For policies towards agricultural finance and access for the rural poor to succeed, a precondition is to have a stable, competitive financial sector that is increasing financial depth (measured by private credit/GDP). Policies to liberalise the financial sector are only a beginning, not sufficient to ensure this outcome. In addition, there is a need to ensure that fiscal policies do not crowd out the private sector or result in inflationary pressure that calls for tight monetary policies with high interest rates, that banks are adequately capitalised and supervised and there are plans in place to deal with possible bank collapses. Countries such as Nigeria have found that increasing minimum capital requirements not only helps to improve capital adequacy, it leads to fewer, stronger banks that are more capable of increasing private credit.

Despite liberalisation, in many countries of SSA, spreads remain high with a large risk premium attached to lending to SMEs. There is clearly a need also to improve information flows by establishing effective credit bureaus, developing collateral registries for fixed and movable assets and in improving creditor rights through contract enforcement and bankruptcy regimes²⁷. Policies and institutions to improve disclosure, compliance with standards and codes and improve corporate governance generally also have an important role to play.

In addition, it is important for policies and institutions to enable a joined up financial sector to develop with good policies and institutions governing the development of MFIs and SACCOs, a strong legal foundation for leasing, a competitive market for pensions and insurance (including micro insurance) and a stock market that is growing in both breadth and depth. The development of pensions and insurance and the stock markets is especially important for mobilising long term finance.

Governments are increasingly using financial inclusion strategies to drive the development of financial systems that work better for the poor. Signatories to the Maya Declaration (including most SSA countries but not those in Southeast Asia) are mandated to develop strategy and explicit policies for promoting financial inclusion, often linked to achieving increased levels of financial inclusion in the next FinScope report.

Agricultural finance policies & institutions

The critical issue with respect to finance for agriculture and the rural poor is to crowd in rather than crowd out the private sector. In most countries today, the vast majority of the assets of the financial system are likely to be in privately owned financial institutions. Without their involvement, agriculture and the rural poor will continue to be inadequately served.

The instruments that governments and central banks use to promote agricultural finance vary and include:

- Establishing state owned rural or agricultural development banks
- Credit guarantees – covering some of the risk for banks and other institutions lending to agriculture e.g. Nigeria's ACGSF
- Credit lines – providing funds designated for on-lending to agriculture
- Policy-directed lending – using the regulatory regime to direct credit to the agricultural sector e.g. in India 18% of Adjusted Net Bank Credit must be to agriculture
- Capping interest rates on lending to agriculture e.g. in Bangladesh.

These traditional approaches can crowd out the emergence of market-led, sustainable financial services. Credit lines provided by the state can become subject to political patronage and moral hazard. Credit guarantee schemes are also subject to moral hazard or can be rendered ineffective by cumbersome bureaucracy or failure to ensure additionality. Policies and regulations aimed at helping the rural poor can often ensure that nobody has the incentives to lend to them as evidenced by several schemes to cap interest rates for lending to agriculture which makes their spreads unattractive.

²⁷ Creditor Rights, Enforcement and the Bank Loans, Kee-Hong Bae and V.K. Goyal, 2007

Though some high profile exceptions remain (notably Ethiopia and Vietnam, where agricultural finance remains dominated by state enterprises), banks and other FSPs in priority countries are increasingly looking to develop new markets. With agriculture and the rural economy making up such a large potential market, many are showing interest in developing delivery mechanisms and new products for these markets. The dominant view from these institutions is that the role of government is to get the enabling environment and the incentives right to allow them to provide agricultural financial services sustainably. There are a few things the enabling environment can do to achieve this, and these are documented in Figure 4²⁸:

Figure 4. Lessons in developing an enabling environment for agricultural finance

Only use state subsidy to correct failures of the market, not to achieve political outcomes. There may be a role for subsidies in early stages of a new service to build a critical mass, but interventions must be properly thought through and time-bound.
Build systems to ensure financial stability and consumer protection. Market failures don't just exist in the under-provision of financial services. Over-provision is also a risk, as evidenced by the microfinance crisis in Andhra Pradesh. Policy makers should also be vigilant of un-intended consequences of new financial products, for example greater usage of warehouse receipts systems negatively impacting short term food supply, or of the displacement effects of greater formalisation.
Strengthen property rights for collateral and contract enforcement. This is particularly important for agricultural MSMEs looking to borrow. Redress mechanisms such as petty claims courts can help support consumer protection.
Provide the infrastructure and databases for information sharing to allow FSPs to better manage risk. Traditional support services like credit bureaux are less effective in a rural environment. Meso-level infrastructure needs to be designed for agricultural finance and based on the specific needs on the market.
Develop the training systems and financial sector processes to get enough bankers to understand agriculture. Staffing dedicated units with credit officers who understand what makes a good borrower in a particular agricultural product can dramatically improve the performance of agricultural finance. Skills training at the meso-level is a big gap in a lot of countries.

In addition to these, social protection programmes can influence outcomes through their impact on the livelihood strategies of smallholder farmers, for example, altering their risk profile so that they can move from subsistence to semi-commercial agriculture. They can also connect the poor to the financial system.

The main lesson learned from decades of government interference in this space is that government has as considerable role to play as an enabler of markets that work for the rural poor, but not as an agent itself that crowds out sustainable, market-based solutions. New innovations are needed and the most effective way for governments to extend out the innovation frontier is not to push it themselves but to facilitate the creativity of the private sector to do so. To get agriculture to work better, and to get finance to work better for agriculture, governments and the private sector need new approaches and innovations, and these need to be based on the needs of the market. And to understand the needs of the market, they need to study the rural poor and analyse not just their agricultural and financial behaviour but also their requirements and the opportunities for new solutions to support their livelihood strategies.

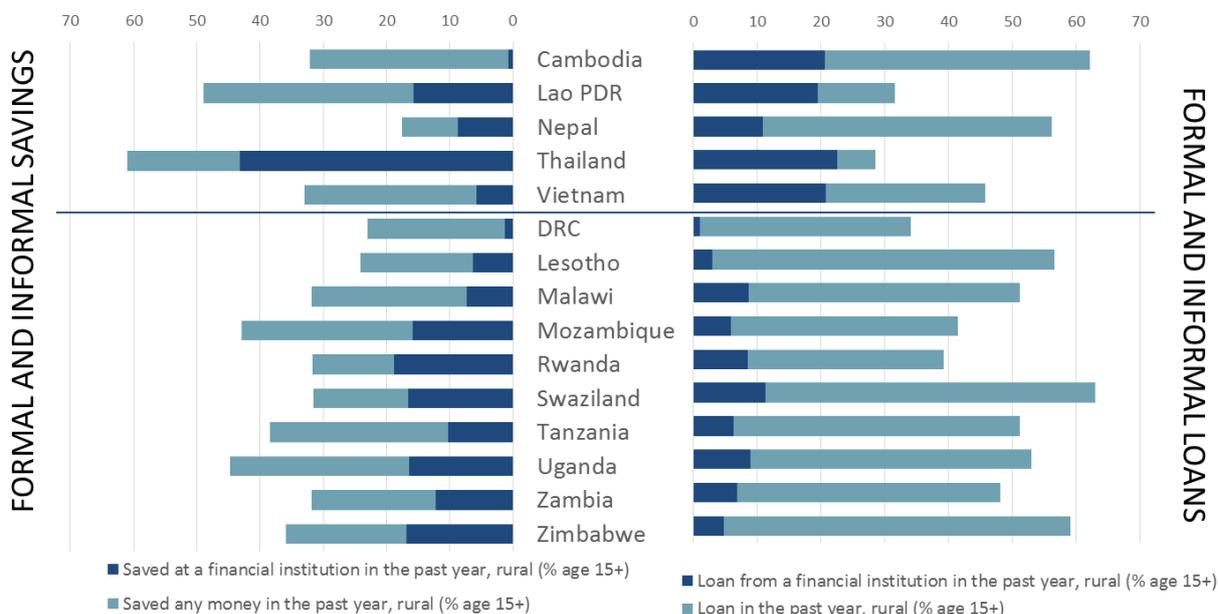
²⁸ Based on the World Bank's Global Financial Development Report 2014

SECTION 4. DEMAND SIDE ANALYSIS

It is widely recognised that there is a gap in understanding the demand for financial services in many countries with low-financial inclusion. While good data exists on financial access, this does not always reflect demand for or even usage of services. This is particularly acute when considering the need for agricultural financial services. FinScope and MAP publications have been commissioned to address this gap in understanding the needs for financial services and both have made great strides in furthering our understanding of the financial inclusion landscape; however these publications do not always explicitly address agricultural finance. In some instances, FinScope and MAP reports differentiate between urban and rural demand, but this does not accurately identify agricultural finance demands. A summary of the available evidence on rural and agricultural financial inclusion, country by country, is included in Annex 2.

In addition to FinScope and MAP reports, there are also occasional studies that can provide information on demand for agricultural finance, as well as the Global Findex database. Global Findex, released in 2012, is a good data source for financial inclusion and demand for financial services, with nationally representative and randomly selected survey groups that are globally comparable. Unfortunately, the data set does not include any specific modules on agricultural finance demand, but does provide some information on rural finance demand. Within the Global Findex dataset, all priority countries are covered, with the exception of Ethiopia and Myanmar. Notwithstanding the lack of focus on agricultural demand, this information does give us an insight into the level of formalisation of products in rural areas, as well as the demand for services, as the graphs below demonstrate.

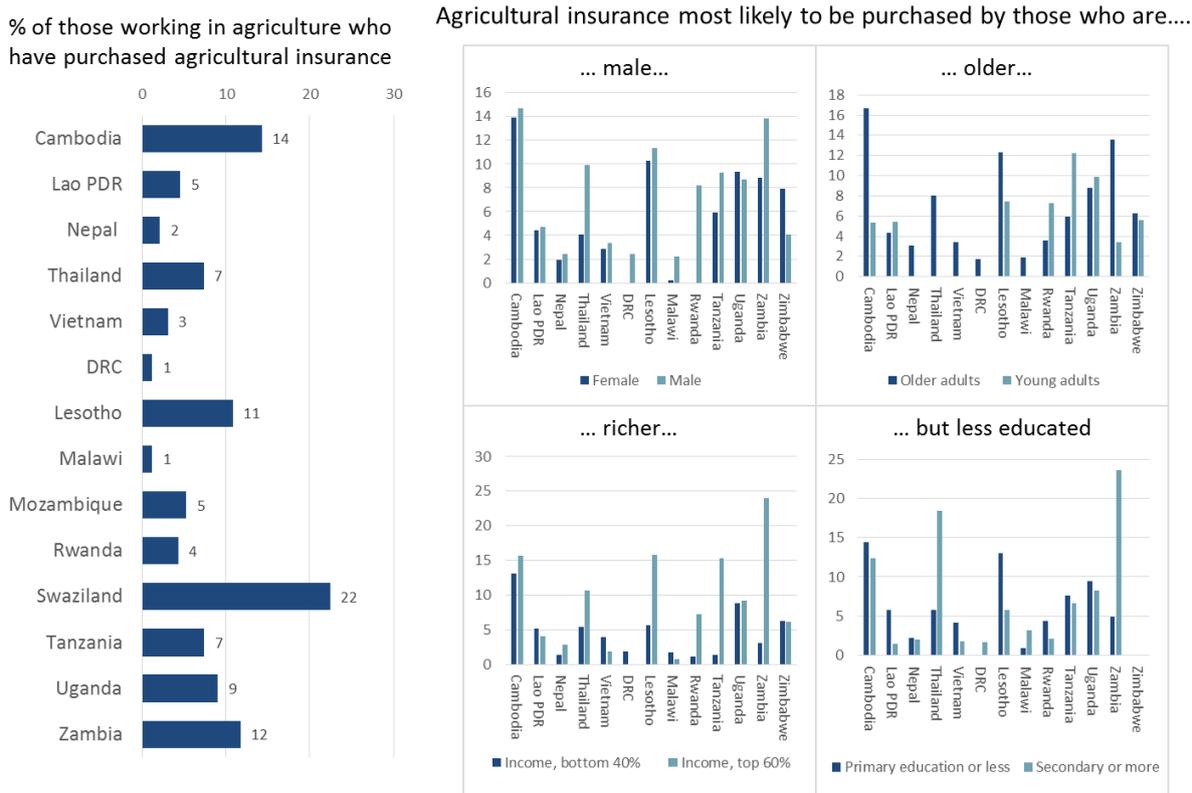
Figure 5. Usage of formal and informal savings and loans



The global data from Findex illustrates that rural financial inclusion is informal and driven by access to loans, not savings products (contrary to evidence on demand). From a regional perspective, formal savings are higher than formal credit in Africa, but generally lower in Asia. Access to formal loan products is far higher in Asian countries than African ones.

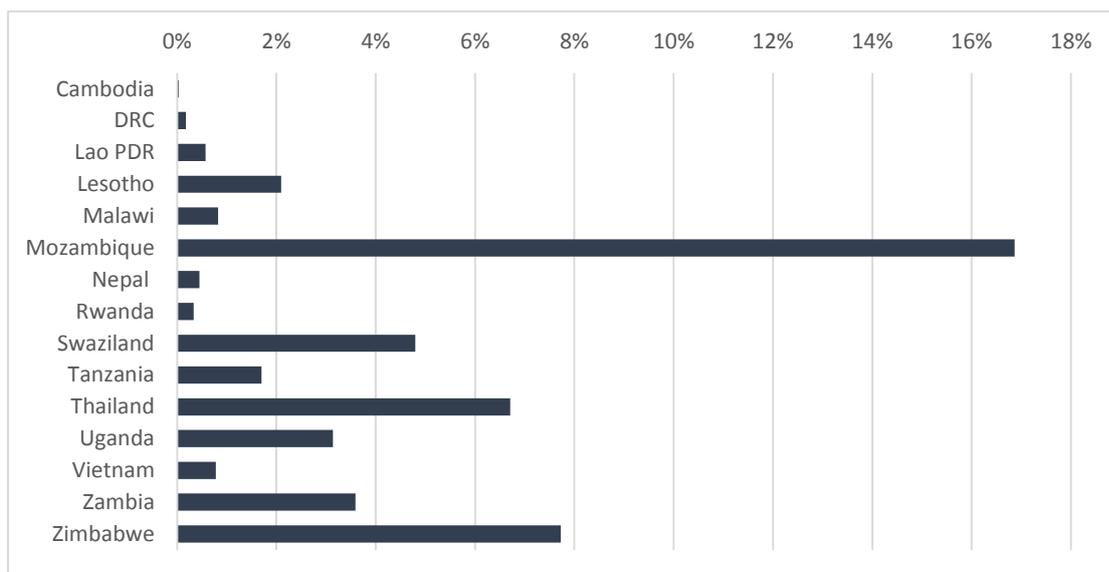
In addition to the information that is rurally disaggregated, the Global Findex dataset provides information on the purchase of agricultural insurance, as presented below.

Figure 6. Percentage of population who purchased agricultural insurance



The same dataset also contains information on the use of electronic payments in rural areas, demonstrated in Figure 7 below. It is important to note that the definition of this indicator is based on usage, but a very broad definition of usage. To be counted as active under this indicator, a participant must have only used an electronic means to make a payment once in the last year.

Figure 7. Electronic payments in rural areas



This demonstrates that, though mobile financial services have driven financial inclusion in countries like Kenya, they have a long way to go in other countries and in particular to reach rural areas. Though the situation is likely to have changed in many of these instances since 2011, there is still a

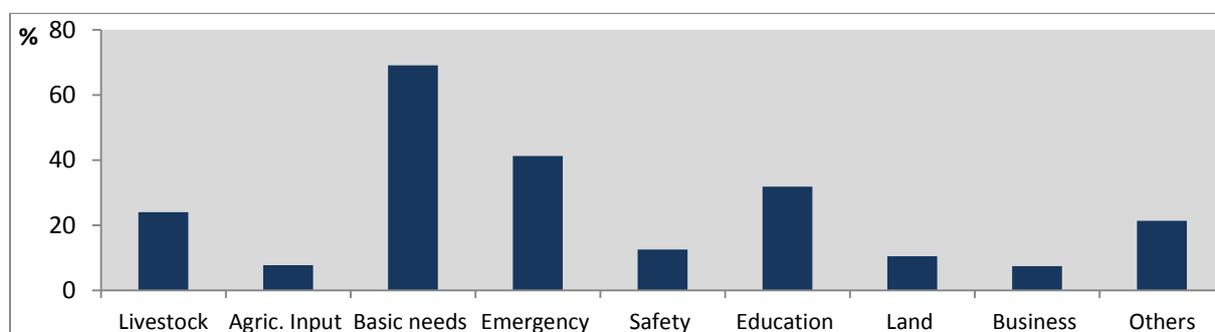
long way to go for technology to provide the diverse and idiosyncratic range of financial services that are required by rural and agricultural populations.

4.1 KEY FINDINGS FROM DEMAND SIDE ANALYSIS

It is difficult to compare country level findings, not only due to the diverse political, economic and cultural factors at play, but also because of the broad range of methodologies used to collect and analyse agricultural finance demand. Annex B presents individual country findings and summaries of key information. However, key findings do emerge from these analyses.

Financing needs are complex and overlap between household and agricultural needs. An investment in enhancing agricultural productivity competes with an investment in a child's education. Savings designated for buying inputs can be drained if there is a medical emergency. Insuring against crop failure is about not just protecting the value of a harvest but also the ability to feed a family. Everyday expenditures and money-management incorporate any number of decisions. This is demonstrated by the following data on reasons for currently saving/investing for rural Ugandans.

Figure 8. Reasons for currently saving/investing for rural Ugandans



Here, investments range from short term (basic needs, agricultural inputs) to long term (education, land, livestock); they may be for increasing productivity (livestock, education), building resilience (safety, land) or managing day-to-day requirements (basic needs, emergency). This diversity is typical of poor agricultural households the world over.

Demand for financial services varies widely across the agricultural cycle. The ways in which financial services link into agricultural process changes considerably through the agricultural cycle, and is linked to the need for information at each point, as demonstrated in Figure 9. In Uganda, 54% of agricultural credit is for inputs (e.g. seeds, fertiliser) which are required at the seeding and planting stages. 29% of agricultural credit is for farm labour, which is more likely to come later on in the cycle, for harvesting. In between, the farmer requires risk management products, such as crop insurance, to manage risks such as poor rainfall or disease. And at the end of the cycle, the farmer needs the facility to manage and save harvest income and maximise value of the yield (by having the flexibility to sell at the top of the market not the bottom). The tenor of the financial products also varies considerably – loans may be for short term working capital or farm machinery or land; savings products can be high frequency deposit accounts or longer term commitment products.

Figure 9. Financing and information needs across the agricultural cycle

	Deciding	Seeding	Planting	Growing	Harvesting and storing	Selling
Finance	Money-management	Working capital, input financing	Investment in fertiliser, machinery, labour	Resilience against shocks – insurance, savings	Investment in machinery, labour, storage	Savings, payments.
Information	Market prices, yield info, crop diseases	Best farming practices	Best farming practices, water availability, machinery	Crop management., use of pesticides	Info on buyers and storage, current and expected market price	Buyer and trader info, current and expected market price

There is evidence of demand-side credit rationing, driven by lack of need, risk aversion and the relatively high price of credit. In Myanmar, 57% of those not borrowing did so simply because they didn’t need to. 30% did so because of fear of indebtedness and 22% were worried about their ability to repay. Fear of indebtedness was the largest barrier to credit in Uganda (for 31% of non-borrowing adults) and Lesotho (66%). Among adults in rural Rwanda, 67% avoid borrowing money if possible and 86% would prefer to save for something than borrow to pay for it. Where credit is made available, it is often at a higher price than the expected benefit to the borrower (the risk adjusted rate of return of an agricultural investment). In Cambodia, 31% of agribusinesses said that they could not afford the high interest rates set by banks. An additional factor that varies considerably is the stigma attached to borrowing: 48% of Basotho adults consider it embarrassing to borrow money, which is another form of demand side rationing.

Demand side rationing is not limited to credit – there is also evidence that rural and agricultural populations select not to use other financial products even where they are available. In Mozambique, by far the most common reason for not saving among agricultural workers is that there is no money left after living expenses. In Myanmar, the second most common reason for not having insurance is that they do not need it, and the fourth most common is that it is too expensive. This is evidence that even when a product is available, its utility may be lower than the cost of accessing and using it.

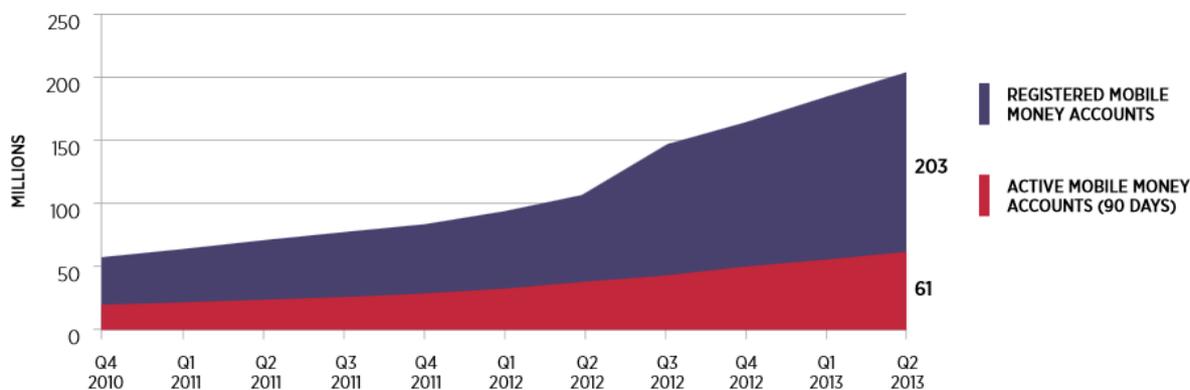
Family and friend networks are hugely important in currently managing the financial needs of rural and agricultural populations. Among agribusinesses that have taken credit in Tanzania, the largest proportion (48.6%) borrowed from friends and family. Family and friends are the most common source of borrowing in Myanmar. Family and friends may simply be filling a gap formed by the absence of financial institutions, but they also offer greater flexibility with fewer information asymmetries than a bank-client relationship.

Although access has risen, true inclusion remains low due to limited usage and dormancy. In Rwanda, though 42% of the population has access to a financial product or service, only 23% had used it in the last month. Studies in India have shown that there is a huge problem of account dormancy even in no-frills accounts (NFAs)²⁹. People open them to access social protection, but then do not use them as the bridgehead to access the suite of financial products that could help transform livelihoods, smooth consumption or mitigate periodic shocks. This applied in Tamil Nadu even when an MFI was used as a business correspondent by banks. Similarly, disappointing outcomes have been noted for mobile banking. 66% of all mobile money accounts globally are inactive, indicating no

²⁹ Exploring Reasons for Dormancy in No-Frills Savings Accounts in Tamil Nadu, Microsave

usage in the past 90 days³⁰. As demonstrated in Figure 10, the growth of mobile money access as grown at a far higher rate than active usage.

Figure 10. Number of active (90 days) and registered mobile money accounts globally



Source: *State of the Industry 2013 Mobile Financial Services for the Unbanked*. Claire Penicaud and Arunjay Katakam. GSMA, 2013.

Financial inclusion is credit-led, though evidence from financial diaries and FinScopes strongly suggests that for most people in or close to poverty, **savings and insurance products are more valuable than credit**. In Rwanda, 95% of the rural population believe that one has to save for difficult times even when income is low, and 86% are willing to go without certain things to be able to save (though among those who derive their main income from farming, financial exclusion remains at 30%). In Swaziland, over 30% of adults save cash at home. In Malawi, 75% of rural adults save in some form but only 11% of these save with a bank or a SACCO, implying large untapped demand for rural savings. While only 8% of agricultural workers in Mozambique save through banks or informal schemes, 45% save money at home.

Financial consumer protection is important: in Uganda, 16% of borrowers did not read the terms and conditions of the loan. Anecdotal evidence (particularly in highly competitive markets like Cambodia) suggests that predatory lenders have been aggressively competing for clients, placing risk both on the borrower (and a wider risk of non-repayment, evidenced by the microfinance crisis in Andhra Pradesh) and a reputational and systemic risk for the financial system as a whole.

A needs-based assessment of financial usage suggests a different classification of financial products than is conventionally used. The existing demand side literature tends to analyse financial products based on a standard categorisation of products (credit, savings, insurance, transactions). Within agricultural livelihoods, these distinctions can break down. Savings are most likely to be to build resilience but are also used for investment. A loan may be used to invest in farm machinery but may also be used to smooth consumption against temporary income shortfalls, or to invest in pesticide or income diversification for resilience. Payments services are mostly used for money-management but also facilitate investment and resilience. To demonstrate this, Figure 11 was taken from Rwanda's FinScope 2013 report, in response to a question about sources of money for farming inputs.

³⁰ Results from the 2012 Global Mobile Money Adoption Survey, GSMA.

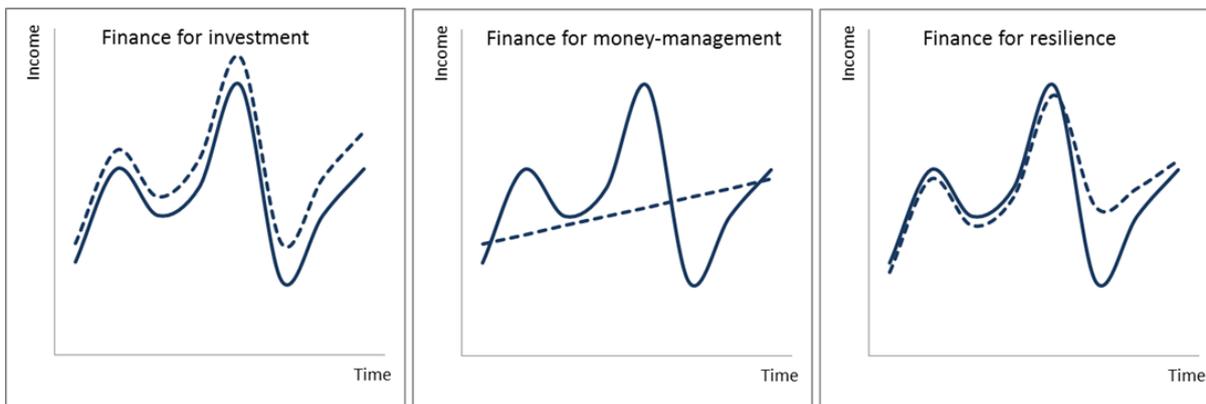
Figure 11. Sources of money for farming inputs from FinScope Rwanda 2013

- 26% of adults who needed farming inputs did not buy these as they kept seed from their own harvest for the next season.
- 25% sold produce or livestock to get money for inputs.
- 12% used money from other sources of income.
- 6% used savings they put aside specifically for this purpose.
- 3% got money in advance from a buyer to whom they sold their products.
- 2% got these inputs from a supplier or distributor on credit.
- 2% borrowed money from a savings group.

A classical understanding of agricultural finance assumes that credit is the most important financial product for investing in inputs but by studying the livelihood strategies and complexities of life in rural areas, we can get a better, more user-centred perspective of financial transactions. If the financial sector is to develop the products that work for smallholders, they need to be based on an understanding of how they will be used, and why they are needed. Figure 12 below presents a typology of financial usage, grouping the various financial needs of rural and agricultural populations into three categories: investment, money-management and resilience.

Figure 12. Agricultural financial usage typology

Investment	Money-management	Resilience
Investment in on-farm productivity (e.g. farm inputs, labour) across the agricultural cycle	Payments – within value chain (buyers, suppliers)	Retain harvest and other income against downside risks
Investment in off-farm productivity (e.g. processing)	Transfers within social and other networks to manage liquidity	Managing and reducing exposure to risk (e.g. weather, disease)
Household investments (e.g. education, housing)	Cover temporary income shortfalls	Diversification of income sources



Source: Based on The World Bank’s New Microfinance Handbook

What follows is an analysis of the data that we have on demand, access and usage based on categorisation closer-linked to the financial needs of rural populations.

4.1.1 INVESTMENT

Investment is a hugely important aspect of the financial requirements of agricultural households. In addition to the household investments, agricultural households must also invest in farm inputs, land, livestock and off-farm production in preparing of the planting season. In Uganda for example, 53%

indicated that they invested in 2013, with many agricultural investments: 52% in farmland and 41% in livestock. Within those investors, only 10% used credit to invest.

Despite the common conception that credit is should be used for productive purposes, in many priority countries, savings and interest-free loans from family and friends drove a large portion of investment in both farm and off-farm activities. Statistics from Malawi show that the biggest reason for rural savings was for farm inputs. Credit is often viewed as a product of last resort for investment purposes; in Malawi for example, 79% of rural adults stated that they would avoid borrowing if possible. In Lesotho, a strong preference for savings products within farmers indicates that for agricultural investment, it is used to replace credit.

Perhaps unsurprisingly, investment – either through savings levels or savings usage – tends to be positively correlated with the level of income or negatively correlated with rural populations, as evidenced in Myanmar’s MAP data.

4.1.2 MONEY MANAGEMENT

Money management, particularly the consumption smoothing aspect, is also very important for agricultural households to bridge the household expenses in between the planting and harvesting seasons, notably through savings and credit. Given the rural and dispersed characteristics of those households, convenience and accessibility are very important factors in selecting money management products. Over a shorter time horizon, payments and money transfer services are required to manage cash flow and liquidity.

In Mozambique, saving for living expenses when you would not have money at the time was the second most common reason for saving amongst agricultural workers. In Myanmar, lower income groups, such as farm workers, piece or casual workers and farmers have a higher uptake of credit products than higher income groups, suggesting it is being used for consumption smoothing rather than production or investment, and was being used in the absence of savings. The most common reason for taking a loan in Myanmar is for living expenses when needed, rather than any farm investment.

In highly dollarized economies such as Cambodia, money exchangers also provide money management financial services, for enabling B2B and B2P transactions.

While ICT can offer many solutions to overcoming some constraints in rural and agricultural finance, it can be particular useful here, first offering mobile money products in simple transactions before combining mobile money with more sophisticated financial services. In Malawi for example, there was a strong signal from a 2011 survey among the rural population for demand for a variety of mobile money products, ranging from 65-90% of participants responding that they would ‘definitely or probably use’ these services.

4.1.3 RESILIENCE

Resilience against high and covariant shocks is essential in agricultural households. Resilience typically has taken place through savings, either in cash or in kind. The choice of product to increase resilience mirrors other product preferences for accessibility and convenience; in the case of a shock, money must be quickly mobilised. In Malawi for example, rural adults indicated a savings pattern of 74.5% either in cash or in kind, but with a high degree of informality, with 48.9% saving at home. Only 8.7% and 2.6% saved at banks or SACCOs respectively. This shows the importance of convenience and accessibility when dealing with household shocks. Furthermore, a survey in Mozambique showed that in rural areas, the most common means of coping with an unanticipated event was to liquidate in-kind savings and sell assets. The use of loans from family and friends was the second most common means, with almost no reliance on formal financial products.

For emergencies, credit is also sometimes used to fill a gap in savings. In Mozambique, medical expenses or emergencies were cited as top reasons for both taking a loan and to save.

Insurance, while showing high potential with new technologies and weather-based indexing, still has not experienced widespread uptake in most developing countries. In a 2006 pilot in Ethiopia for example, only 28 farmers purchase the product, showing very low demand and perhaps a low understanding and trust of the product. Likewise in Zambia, a focus group showed very little understanding of insurance as a product in 2009, but once explained, most participants expressed a willingness to pay for the product. Evidence suggests that price is a key factor, but the dynamics of microinsurance markets are still not well understood.

Resilience isn't isolated to savings and insurance products. A loan taken out for the purposes of diversifying into a new crop as a hedge against risk is done so primarily to build resilience. Similarly payment products tend to be most useful to transfer funds to family and friends at times of need.

4.2 MARKET SEGMENTATION

As the market demand analysis shows, it is necessary to segment the market by consumer type in order to correctly respond to the needs of agricultural finance and to create the most appropriate products for the different usage types. Targeting more successful 'aspirational farmers' with greater financial services can generate production and investment promotion, resulting in increased commercialisation. Offering the same products to subsistence smallholders will have little impact.

We propose five categories of farmer segmentation, following the Table below, profiled by land size, gender, labour inputs, production, technology and access to markets. These characteristics represent a stylised and more general representation of market segmentation; in each country they could be adapted to be more specific to market and cultural norms. The confluence of these characteristics creates very different risk appetites and product demand, which must be fully understood if these markets are to be tapped by financial service providers.

Table 1. Farmer Segmentation

	Land	Gender profile	Labour	Production	Technology	Access to markets
Commercial farmer	> 100 ha	Mostly men	Hired and skilled labour	Cash crops, often for export	Fully mechanised, good storage facilities	Access to regional and international markets, good logistics and reliable information
Medium-sized farmer	20-100ha	Mostly men	Hired and family labour	Mostly cash crops, few staples	Mostly mechanised, some access to storage	Reasonable market access but limited market information
Commercial smallholder	5-20ha	Men in cash crops, women in staples	Mostly family, limited hired labour	Mix of cash and staples	Partially mechanised, some access to storage	Good access to informal and some formal markets
Semi-commercial smallholder	1-5ha	Mix of men and women	Family	Mostly staples, few cash crops	Non-mechanised, very limited access to storage facilities	Some surplus, mostly sold informally through local markets
Subsistence smallholder	0-2ha	Mix of men and women	Family	Staples, no surplus	Non-mechanised, no storage capacity	No surplus

Based on the three financial usage types identified above, we have identified some initial needs of farmers in a stylised economy in Table 2, while as above we note that these needs will vary widely by context and livelihood strategy. In order to fully meet demand in agricultural and rural markets, it is



necessary to understand the specific demands and risk profiles of agricultural consumers in order to develop appropriate products, leveraging developments in ICT, innovative partnerships and big data in order to overcome the constraints identified in Section 2. As was highlighted already in the previous section, financing needs are complex and overlap between household and agricultural needs. The more financial service providers understand how and why finance services are demanded by agriculture households, the better they can design products that meet those service requirements, lowering risk of default.

Table 2. Various financing needs of different farmer groups

	Investment	Money-management	Resilience
Commercial farmer	Term finance, asset finance, working capital, structured finance, leasing	Payments to and from buyers and suppliers, current account, Forex	Insurance, income diversification
Medium-sized farmer	Term finance, asset finance, working capital, leasing	Payments to and from buyers and suppliers, current account	Insurance, income diversification
Commercial smallholder	Savings, small loans, micro-leasing, boosting farm and non-farm income	Savings and borrowing for consumption smoothing, personal and business payments	Micro-insurance, income diversification
Semi-commercial smallholder	Savings, small loans, micro-leasing	Savings and borrowing for consumption smoothing, payments to friends/family	Micro-insurance, income diversification, savings against downside risk
Subsistence smallholder	Savings for farm investment, saving for household investment (e.g. education)	Savings and borrowing for consumption smoothing, payments to friends/family	Savings against downside risk, micro-insurance

While a number of demand side studies, led by FinScopes, now exist in the market, they tell us more about usage and access than they do about actual demand. Very little can be drawn from them as to the kind of products and services that people want and need based on their varying livelihood strategies. Regarding the demand for agricultural financial services, there are a number of research questions outstanding. Specifically, we need a better understanding of:

- The specific financing needs and demands of people working at different points of agricultural value chains
- (Context-dependent) willingness to pay for different financial services
- Account dormancy and what works to take access to usage
- How big data on existing and potential customers can be used to develop better products
- Linkages between financial and non-financial lives
- How to effectively promote financial literacy

These topics are entering the research agenda and new studies are emerging that aim to fill some of these knowledge gaps. These include studies by CGAP³¹, Innovations for Poverty Action³², the World Bank³³ and GSMA³⁴ as well as others.

Given the lack of general, let alone financial, literacy in many poor, rural areas, an understanding of how this capability can be increased is vital if agricultural financial services are to reach the scale required for profitability. Thankfully an increasing amount of resources are investigating questions in this area; Figure 13 below summarises some of the conclusions that are being drawn.

³¹ <http://www.cgap.org/blog/series/diaries-tool-understanding-smallholder-families>

³² <http://www.poverty-action.org/financialinclusion>

³³ “Global Financial Development Report 2014: Financial Inclusion” included a good synopsis of the latest best practice on financial education

³⁴ For example GSMA Mobile for Development Impact – Mobile Agriculture: Taking Full Advantage of Your User Data, May 2014

Figure 13. Recent evidence on what works for financial education**Targeted trainings work better than broad literacy and education**

Learning through traditional approaches like public education systems has been shown to fade quickly and have little long term impact on financial inclusion.

More effective when linked to products and services

People tend to respond better to education when they are also provided with an opportunity to practice it. Linking these allows education to be tailored to the product, making it more likely to be absorbed.

Rule of thumb advice can help avoid information overload

For smaller businesses, simple rule-of-thumb training has been shown to lead to considerable improvements in business practices, while standard accounting training does not.

Financial education is likely to be most effective at the lower end of the market

Support for financial literacy has been seen to be particularly beneficial for people with below-average education and limited financial skills

Look for teachable moments

People tend to be more receptive to financial education when reached during times of change, like starting a new job, migrating or purchasing a major financial product

Leveraging social networks can help

Family and friends tend to be a major source of information on financial products; leveraging these social networks (for example, including both parents and children) tends to enhance the impact of financial education

Edutainment can hit high numbers, but effect might be short-lived

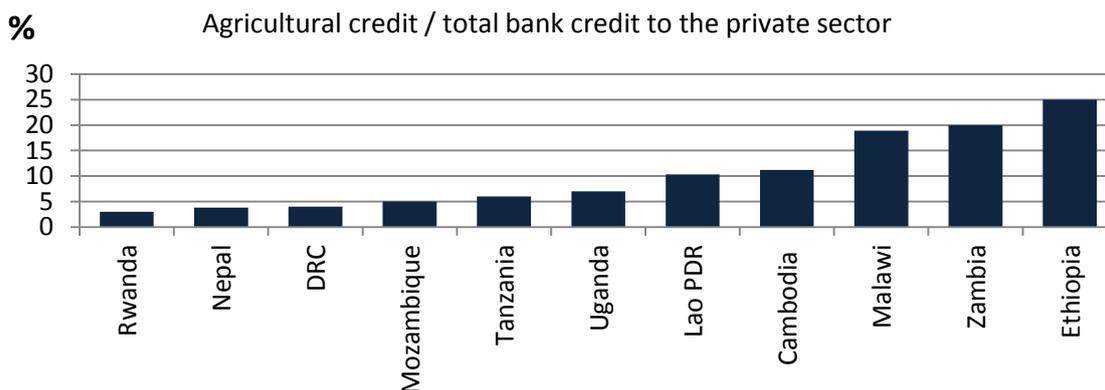
Makutano Junction, a soap opera in Kenya, has helped deliver messages around financial education and farming techniques to 5 million rural Kenyans. Popular radio shows have also achieved similar numbers. The depth of knowledge transfer, how this leads to changes in attitude and practices and how long the impact lasts for is as yet not well understood.

Source: Based on the World Bank's Global Financial Development Report 2014

The challenge is to improve how this works within agricultural livelihoods and link this knowledge to the design of better and cheaper products that work for the farmer. Within agricultural livelihoods, teachable moments are likely to be the most active points of the agricultural cycle, around planting and harvesting. Existing networks exist that can be leveraged to transfer relevant financial information and knowledge – these can be vertical (along the value chain) and horizontal (within a village or cooperative). Only by developing a better understanding of the channels and processes through which farmers source and ingest information can donors and financial service providers develop better approaches to nudge agricultural populations towards changing financial behaviour.

SECTION 5. SUPPLY SIDE ANALYSIS

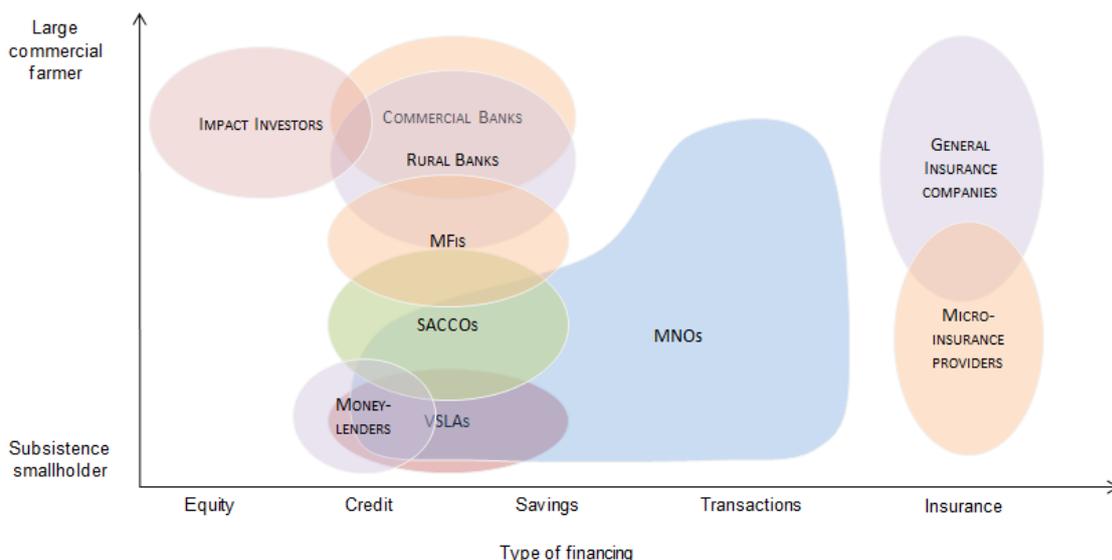
For most developing countries, even when a financial sector develops, it fails to do so in a way that works for agriculture. Banks tend to focus on intermediating the savings and balances of government, corporates, high net worth individuals into credit products for government, corporates and high net worth individuals. These activities are low risk and highly profitable. Agriculture on the other hand is seen as high risk with long lag periods for any profitability to arise. The result is that for most low income countries, the ratio of lending to agriculture within total credit to the private sector is below ten per cent.



The purpose of this chapter is to explore the supply side perspective – who are the providers of financial services for agriculture, what services have they innovated to overcome the challenges of agricultural finance, and what are their major constraints going forward?

5.1 PROVIDERS

As noted earlier, the vast majority of financial services for rural households are currently provided informally by family and friends, informal money lenders and through buyers and suppliers credit. Many formal agricultural financial services are provided by traditional FSPs, such as banks, MFIs and insurance companies. Larger commercial banks tend to provide banking services to commercial agribusinesses and large farmers, while rural banks (and state banks, often called rural development banks) offer banking products further downmarket. For smallholder farmers, services may be provided by semi-formal savings and loans associations or more formal cooperatives or MFIs. Increasingly, mobile network operators are playing an important role.

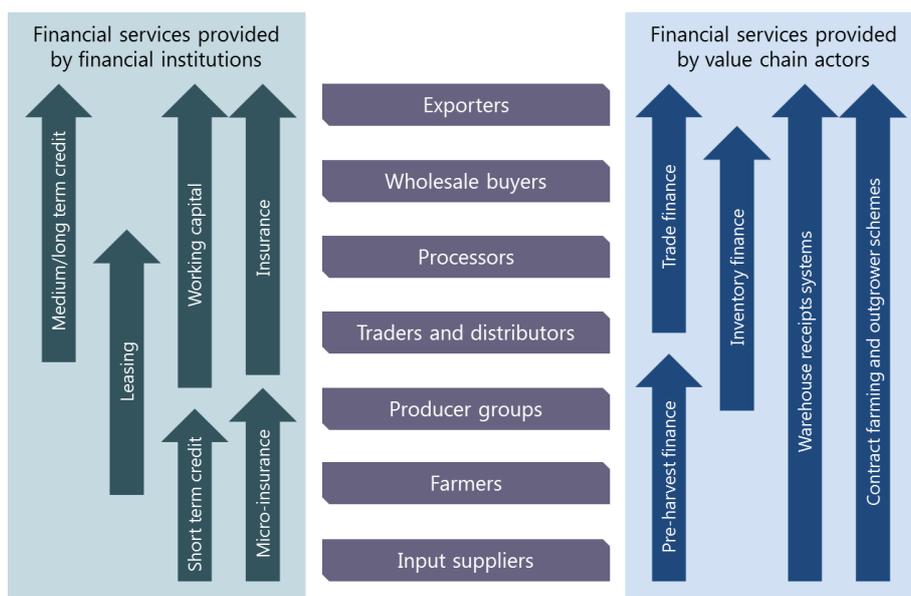


There exists a fundamental problem in the structures of financial sectors for effectively serving agriculture and the rural poor. This is a mis-match between those with the assets – the large, usually international or regional commercial banks – and the institutions with the effective outreach channels and services for agriculture and the rural poor.

The challenge is to build the mechanisms and relationships that can channel the funds and services to where they are needed. A common way of achieving this for agricultural clients is through the value chain, in which existing buying, selling and service relationships are leveraged to channel financial services. In many cases the most capable actors in the value chains are the input suppliers or the buyers – those with an understanding of the agricultural dynamics and the role that finance plays.

For financial service providers, finding ways of channelling finance through the value chain can reduce information asymmetries and take a lot of the risk out of financing decisions, as well as reducing transaction costs. Some of the different ways in which the financial sector can work through the value chain, as opposed to serving actors directly, are outlined in Figure 14.

Figure 14. Parallel services provided by financial sector and value chain actors



5.1.1 WHAT HAS (AND HASN'T) WORKED FOR AGRICULTURAL FINANCE PROVIDERS?

The following is a synthesis of primary and secondary research on successful (and unsuccessful) institutions in the provision of agricultural financial services.

- Explicit focus and high level buy in

Most financial service providers that effectively serve agricultural clients explicitly focus on agriculture and rural households. Many of the largest lenders to rural areas combine some blend of social and commercial interests. The traditional model for this was state-sponsored rural development banks (and still is in countries like Ethiopia and Vietnam) but increasingly this non-commercial funding is through development assistance or social impact funds that can provide patient capital willing to bear greater risk and accept a longer time horizon for investments.

Some of the biggest banks lending to agriculture, such as Zanaco in Zambia, are in fact former state owned institutions or have entered the market for reasons of corporate social responsibility or to cement their license to operate. The more progressive of these are driven also by a recognition that the market segment holds for their business and have made it a strategic focus.

The commercially driven institutions with a strategic focus on rural and agricultural clients see a long term business case driven by decreasing profitability in high end customers and the potential of a large unbanked population (typically 70-80% of the population in developing countries). The buy in comes from shareholders and management and permeates through the institution's outlook and activities.

Not all financial institutions can (or should) serve agricultural clients, and for it to be done effectively there needs to be top-down commitment, and structures in place that allow for a different kind of finance. When Rabobank bought into Mozambique's Banco Terra, they launched a complete reorganisation of the bank to facilitate a strategic focus on agriculture. This involved restructuring credit and management processes and introducing a range of new products. It also required a high tolerance for NPLs and low revenue growth in the short term. These investments require a longer term horizon, than many competitors, seduced by short term profitability, are willing or able to make.

- Separate agricultural finance department to manage product innovation and delivery

The organisational structure of a FSP is relevant for how the institution manages innovation. Some of the most impressive banks at boosting rural outreach have separate line departments for rural banking (see box opposite³⁵). These departments are expected to make profits but provided with enough flexibility to develop and distribute differentiated products based on a deeper understanding of market needs. Hiring bankers who understand agriculture, providing training in agricultural finance and installing MIS that is fit for purpose increases capacity to develop good portfolios and manage risk. The separation of this channel from other banking lines can formalise the role of agricultural finance and provide more freedom for product development and innovation.

- High quality relationships with aligned incentives

Innovating within a large institution – The Castle and the Sandbox

Developing the right incentives for banks and other large financial institutions to innovate requires an understanding of the internal innovation processes of the institution. In his book *The Castle and the Sandbox*, Kosta Peric uses the example of a castle to represent a conservative institution in an established industry that, as part of its success, has developed systems to withstand risk and change. The sandbox is where innovation happens – where employees are encouraged to experiment, take risks and test new ideas. The location of the sandbox within or outside of the castle is critical for innovation. Progressive rural-focused banks such as Equity (in Kenya) and ICICI (in India) have consciously and effectively developed separate units for development of inclusive banking products outside of the core banking operations.

³⁵ Gateway Financial Innovations for Savings (GAFIS), December 2013, "Big Banks and Small Savers – A new path to profitability"

Where partnership models exist between FSPs, value chain actors and providers of non-financial services, a key success criterion is the quality of these relationships. For the relationship to work incentives have to be aligned and there has to be a viable business case for all parties. In Rwanda, a partnership between Tigo, two tea factories and a number of SACCOs, in which Tigo facilitates the transfer of payments and information, is based on the premise that the relationship boosts profitability for all parties. Kilimo Salama reached scale quickly with its micro-insurance products by building mutually beneficial partnerships and aggregating downwards through NGOs like One Acre Fund.

- Invest in deep understanding of market segments

In order to understand the complex livelihood strategies of rural and agricultural households and how financial services can link in with and support these, FSPs need to invest in the research and market information that will allow them to tailor products. For example, Equity Bank, which operates across East Africa, found from market testing that though Kenyans and Ugandans were will to pay a similar overall price for a basic current account, Ugandans were happier to pay a single annual or monthly fee for the account whereas Kenyans were more willing to pay a marginal fee per transaction. Centenary Bank, also in Uganda, from their own market research identified the key constraints for rural populations to be distance, trust and cost, in that order. This information on client needs has helped instruct their product offerings.

Research can be expensive and competes internally for funding with other investments with lower lag time to realising results. But the institutions that have consistently developed good products for agriculture tend to employ people that understand agricultural markets and how financial products can work for differentiated populations.

- Look for opportunities for cross-selling to increase profitability

While low cost banking for poor agricultural households is a low margin business with considerable economies of scale required for profitability, FSPs can also increase revenue per customer by leveraging existing client relationships for cross-selling additional products. This can make sense for the farmer by opening up access to a range of products for different financial needs that are often mutually complementary, such as an insurance product that reduces risk for a loan. For the FSP, or a partnership between FSPs, it is a chance to develop new revenue streams and build a deeper relationship with the client.

Lessons from an unsuccessful weather index insurance project

Having launched a weather index based insurance product in Rwanda, MicroEnsure made a strategic decision to withdraw from the market. The reasoning behind this provides some insight into the difficulty of insuring smallholder farmers:

- There is a lack of adequate reinsurance. European reinsurers are very expensive and regional reinsurance markets are very small (though growing)
- Rwanda's farmers are poorly organised making it hard to reach scale
- Smallholders have very low disposable income and were only able to pay very small premiums. Even with over 30,000 farmers, the total sum insured was not enough to cover operational costs
- Basis risk was found to be higher than expected, mainly due to the range of microclimates in Rwanda
- High taxes put even more pressure on profitability

For some providers, offering a gateway product (at a low cost, free or sometimes even at a loss) that anchors the client relationship, such as a basic current account or mobile wallet, provides the entry point to a broader relationship. Centenary Bank in Uganda aims to not charge for certain products but to seek alternative revenues based on that relationship. Rural MFIs in Cambodia use very simple savings and small loan products to learn about customer behaviour and graduate better clients to a wider range of higher-value products. Equity Bank in Kenya has a policy of developing cross-selling opportunities through incentivising balance growth and relationship deepening. On a larger scale, the emerging availability of big data on customer characteristics and usage provides a significant opportunity for FSPs to develop these existing relationships for greater profitability.

- Look for diverse income sources



AMK microfinance in Cambodia provides credit lines to farmers planting new crops only when the farmer has an alternative income source, such as an established alternative crop, or livestock. This is common practice in the market. Lenders can hedge default risk by identifying clients with some other income source beyond their main crop. This may be an alternative farm product, such as livestock, or it may be earning potential through part time employment. The lower the risk covariance, and therefore the chances of an exogenous shock impacting both income streams, the better the hedge.

- Insuring agricultural activity, particularly at the smallholder level, poses diverse and different challenges to more conventional insurance markets

While the case for weather-index based was made based on some successful pilots, experience of implementations has taught us more about the difficulties and risks involved. In Rwanda, MicroEnsure found it impossible to reach the scale needed for profitability (see boxed text). In Zambia, Swiss Re found that the maximum premium that farmers were willing to pay for an insurance product was \$3, and estimated that 300,000 signups were required to a product sustainable at this rate. This number decreases in more favourable conditions such as tight value chains and potential for cross-selling – among tobacco farmers in Malawi for example, MicroEnsure estimate that a sustainable micro-insurance product may be possible with only 10,000 farmers. In Vietnam, Groupama found the main challenges in reaching farmers to be getting appropriately trained internal capacity and developing the distribution channels to reach large numbers of farmers at sufficiently low cost.

New models for agricultural insurance

Farmers can use insurance to manage the risks associated with agriculture. There are four main types of agricultural insurance (based on the World Bank's New Microfinance Handbook):

- Damage-based insurance – payments triggered by a specific damaging event e.g. hail, death of livestock
- Yield-based insurance – based on the actual yield against a pre-defined level, regardless of what caused the low yield
- Crop-revenue insurance – similar to yield-based but including the price of the commodity
- Index-based insurance – payments triggered when a certain variable on which the yield is reliant – such as rainfall – falls below a pre-defined level

Most of the innovative models of the past five years have focussed on weather index insurance, driven by some positive pilot studies. This may have taken some attention away from alternative models which could now justify greater examination.

5.1.2 WHAT INNOVATIVE DISTRIBUTION MODELS ARE SERVICE PROVIDERS DEVELOPING?

The issue of cost of distribution lies at the core of the problem of providing access to financial services in rural areas. Fortunately, developments in technology and the building of alliances is spurring an era of evolution that offers considerable promise:

- The use of ICT, especially the mobile networks that have now penetrated most rural areas, offer relatively low cost of operations though capital investment in developing new services is still costly;
- Financial institutions with the assets are forming alliances with financial institutions that have the outreach and low cost distribution models. At its simplest, the banks are simply providing wholesale finance for MFIs leaving it to the latter to on lend profitably. On occasion, it is the banks or insurance firms that are taking the lead in product development using the MFIs or MNOs as agents to serve rural customers.
- Alliances between financial institutions and agribusiness whereby the banks or an MFI forms a partnership with a large agribusiness to provide savings or credit to their suppliers in one or other form of value chain financing. Occasionally an MNO may also be involved in providing payment services and the wallet into which payments are made.
- Alliances between FSPs and farmers associations or well founded cooperatives whereby the representatives of farmers help the bank to finance input, helping with client referral and



exerting peer pressure to facilitate repayments. The alliance may also involve input suppliers or buyers.

Our field research unearthed examples of all these types of innovative distribution model as set out in Figure 15 below.

Figure 15. Examples of innovative distribution models

Company/Product	Country/countries	Which challenge does this overcome?	How does it do this? What is the innovation?
Kilimo Salama, agricultural micro-insurance	Kenya, Tanzania, Rwanda	High and covariant exogenous risks, poor infrastructure. High cost of distribution.	Insurance product whereby farmer receives a payout against some measure of a lower than expected rainfall or yield; payments made through M-Pesa accounts to reduce cost.
GSMA mAgri Programme – mFarmer Initiative	India, Kenya, Mali, Tanzania	Low financial capability and general literacy, Lack of reliable client information sources, high cost of distribution	Providing smallholder farmers access to affordable agricultural information services provided via mobile phones
Zanaco value chain financing	Zambia	Poor infrastructure, lack of reliable client information sources, seasonality and uneven cashflows, poorly functioning markets with bad access	Providing finance to smallholder farmers through District Farmer Associations, linking to input suppliers and buyers
Tigo value chain payment processing	Rwanda, Ghana	Poor infrastructure, high levels of informality, poorly functioning markets with bad access	Tigo works with buyers at top of value chain, processes payments to farmer groups, SMS farmer when money available, pays into mobile SACCO who deducts their costs and pays into mobile wallet (saving or withdrawal through Tigo agents)

5.1.3 WHAT TYPES OF INNOVATION IS HELPING TO MANAGE RISK MORE EFFECTIVELY?

Alongside cost, risk is a major factor in dissuading service providers to serve farmers and rural households. Here too, a combination of improvements in technology, alliances and the development of new products offers promise:

- New biometric technology helps to overcome issues arising from lack of literacy and proof of identity. Fingerprint recognition is now very affordable and has been used at large scale to provide access to financial services for the rural areas. In India, FINO serves over 25 million customers and the technology is being rolled out by large innovative banks such as ICICI.
- Use of big data. The fact that mobile phone penetration is so advanced has offered a new source of data on potential customers so FSPs are partnering with MNOs to correlate phone usage with credit worthiness, a model pioneered by M-Shwari. They are also interrogating the financial records of big business.
- Using attractive products to build credit histories. By offering cheap bank accounts and attractive interest on savings, FSPs are attracting customers and using their usage of financial behaviour to assess credit worthiness.
- Increasing agricultural leasing to minimise the cost of contract enforcement.

Figure 16 provides some examples from our research of innovative ways of managing risk for a financial service provider.



Figure 16. Examples of innovative risk management models

Company/ Product	Country/ countries	Which challenge does this overcome?	How does it do this? What is the innovation?
NMB Kilimo Account	Tanzania	Lack of reliable client information sources, low financial capability and general literacy, poor and sparsely-distributed populations	Building on extensive mobile finance network, offering interest-bearing savings accounts and mining available mobile phone data to make credit decisions
Biometric Technology in Rural Credit Markets	Malawi	High levels of informality, information asymmetry, lack of appropriate collateral	Introduces biometric technology to verify or analyse identity and therefore address identity theft and identity fraud, to improve access to credit and insurance markets and improve enforcements, thus increase repayment rates
Go Finance	Tanzania	Lack of reliable client information sources, lack of record keeping, cost of monitoring cash flow	Lending to rural retailers based on the records of mobile phone usage provided by an MNO and data provided by big FMCG firms on sales to retailers. Tablets used to capture point of sales data.
African Leasing Company	Zimbabwe	Few assets to be used as collateral, lack of reliable client information sources, seasonality and uneven cashflows	Agricultural machinery provided to farmer but remains property of company, paid off over up to 3 years, repayments linked to agricultural cycles

5.2 DRIVERS OF PRODUCT INNOVATION

The products that are provided by these financial service providers vary considerably across markets. The innovation frontier – the most innovative financial products that currently exist in any given market – varies to a surprising degree between priority countries. There are a number of factors behind this, including the accommodativeness of the enabling environment, the level of competition between rural-focussed financial institutions and the innovation frontier in neighbouring countries. East Africa, led by Kenya’s highly innovative financial sector, tends to lead the way in new products while most products available to agricultural clients in Southeast Asia remain quite traditional.

Innovative products are being developed essentially through a better understanding of what makes for success in agriculture and a more user-centered approach to design. The most promising innovation is the ability to match the tenor of the loan, interest and repayment schedules to the agricultural cycle. Examples of such innovation, found through primary research, are listed in the table below.

Figure 17. Examples of innovative financing models

Company/ Product	Country/ countries	Which challenge does this overcome?	How does it do this? What is the innovation?
Proximity Designs asset finance and working capital loans	Myanmar	Poor infrastructure, interconnectedness of agriculture with household activities, seasonality and uneven cashflows	Micro-leasing and small asset finance for irrigation and energy products with small regular repayments; credit provided around farmer cash flows with bullet repayments; user-centered design
ECOM, Africa & Asia — Capital Improvement Loan Facility	Africa, Asia & South America	Seasonality and uneven cashflows, Poorly functioning markets with bad access	Providing farmers with medium-term funding and short-term crop advances, gives certificates, including assessment of product quality and economic, social, and environmental sustainability of farm practices, and incorporates farmers in tight value chains
Dunavant & Mobile transactions Zambia limited (mTZI)	Zambia	Low financial capability and general literacy, Lack of reliable client information sources, poor and sparsely- distributed populations	Finance farmers through a structured loan package, providing input credit and extension/education services, ensuring careful farmer selection, strict controls on the quality and variety of seed, prompt payment systems with account monitoring for all contract farmers, and HIV/AIDS workplace and family outreach programs; Uses out-grower management system to pay farmers electronically into accounts on their mobile phone “m-wallets” and uses mobile online outgrower management system, which serves as the core of the information system to support the outgrower agricultural operations (big data).
Bai-salam (Islamic agriculture finance product)	Various (South Sudan, Bangladesh, e.g.)	Information asymmetries, Islamic restriction on interest- bearing financial products	Shari’ah compliance contract/investment between a buyer and a seller, which agrees in advance the sale of a product as per set specifications, size, quantity, quality as appropriate. The price is paid in advance, but the delivery of goods is deferred. It is also permissible under the product to obtain a collateral security from the seller, or indeed to for the seller to obtain a mortgage or personal guarantee for security.
Opportunity International Bank	Ghana, Rwanda, Mozambique, Malawi, Uganda	Information failures, Poor and sparsely-distributed populations, Poor infrastructure – roads, electricity, ICT connectivity	Applies a parametric lending/scoring model, conducting exact mapping of borrower farm’s plots, diagnostic of household profile, and crop profile; Reaches remote costumers though mobile banking in form of custom-equipped vehicle designed to meet the unique needs of its rural clientele.
AMRET crop loans	Cambodia	Low financial capability, seasonality and uneven cashflows, high levels of informality	Payment schedule linked to agricultural cycle, bullet repayments, credit officers trained in agriculture can better manage the client relationship
Microfinance Opportunities (MFO) – Financial education	World-wide	Low financial capability and general literacy	Developed global curriculum, partners with MFIs with potential for scale; facilitates financial education through MFIs; leverages technology e.g. mobile phones and television soap operas



5.2.1 WHAT HAS DRIVEN PRODUCT INNOVATION?

- Profitability

FNB in South Africa indicated that the most important criteria for agriculture product investments is that they fit the profitability profile of the bank for its shareholders. This speaks to a very basic issue for financial service providers – that there has to be a plan for long term commercial viability for an agricultural product. The paths to profitability include customer development through loss-leaders, customer retention strategies and cross-selling, but there needs to be a strong argument to justify the (often large) upfront investment costs. In Cambodia, ACLEDA offers discounted or free money transfer in rural branches at a loss in order to build usage and customer financial literacy, with a long term view at profitability.

- Based on thorough understanding of the needs of the rural poor

Proximity Designs is one of the more innovative providers of agricultural finance in Myanmar in part because it started in agriculture and moved into finance. Staff tend to begin with an understanding of agricultural and rural inclusion and be trained in finance, rather than vice versa. Products are thus built up from the needs of the market, and linked in to the livelihood strategies of the rural poor.

A common theme among products that have gained traction in the market is that they have been based on a comprehensive understanding of the market they serving and more specifically the problem they are trying to solve for rural households. Though market research is expensive, it is crucial. In particular, understanding the interactions and the flow of funds and products in a value chain is important for a financial service provider to build a full picture of the risk profile of a client.

- Not necessarily disruptive – work within existing structures to find niches

Much of the conversation around financial inclusion is around disruptive innovation – “finding the next M-Pesa”. For many financial service providers this is not the goal, rather their strategy is to tweak existing products that are shown to work and test different variations on different markets. A lot of information is gained by launching a new product and, put to good use, this can be used to drive the evolution of a product into new niche areas that are identified by market research.

- Leveraging mobile and other technology

The penetration of mobile phones into even very remote rural areas provides a huge opportunity for financial service providers to reduce their transaction costs in reaching smallholder farmers. This is well understood and a number of MNOs and banks are now delivering products through mobile. However, despite the early success of M-Pesa, a lot of subsequent products have failed. Those that have worked have used mobile intelligently to directly overcome a challenge in the market (for example M-KOPA uses mobile money to bring repayments down to a level that is manageable for rural households). Technology-driven innovation is also not limited to the second and third generation of products built on top of a mobile payments infrastructure. With increasing internet and smart phone penetration, particularly in Southeast Asian economies, new pathways will open up to provide financial services in rural areas³⁶.

Effective product development for agriculture

AMRET is one of Cambodia's most innovative MFIs in the agricultural space. Their product development process, outlined below, is based on the principle of user-centred design.

1. Market survey lasting approximately one month, assessing the real demand and needs in the field for target clients and identifying gaps
2. Product development taskforce containing credit department, agriculture expert, branch manager, auditor, risk department, marketing department given one month to draft the products
3. Draft goes to the Product Development Committee chaired by CEO
4. Product is piloted in target areas, usually for 4-12 months; refinements are made based on field analysis
5. Product is prepared for wider roll-out

³⁶ For more info see Mas, Ignacio and Porteous, David, November 2014, “Pathways to smarter digital financial inclusion”

- Flexible to alternative risk management processes

With the shortage of adequate collateral and weak enforcement mechanisms, agricultural credit providers have had to develop alternative risk management tools. This has been one of the more innovative areas of the sector, particularly within value chain finance. Rapid technological advance providing new opportunities manage risk, for example using big data for credit scoring (the approach pioneered by M-Shwari).

- Bundled with non-financial services

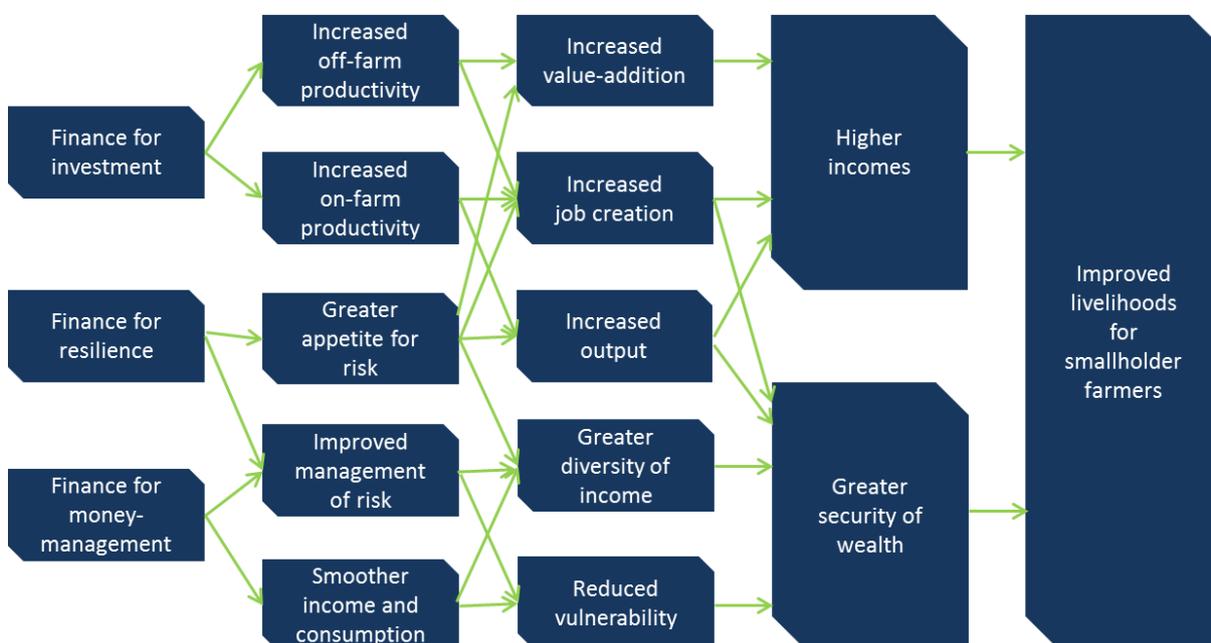
Non-financial services, such as extension services or financial education, often offer large complementarities with financial services. A number of financial service providers recognise that the chance of a farmer repaying a loan is highly correlated with his farming ability and his ability to find a market. Finding the complementarities, identifying partners with aligned incentives and forging the partnerships is a key, while other providers offer the services in-house.

SECTION 6. SYNTHESIS OF FINDINGS

At the intersection of financial and agricultural systems there are hundreds of millions of smallholder farmers in or on the edge of poverty. These smallholder farmers rely on agriculture for their livelihoods and the pathways out of poverty that exist for them – through farming, employment, non-farm trading and processing or migration – are all linked to agriculture too.

Financial services can help to unlock some of these pathways. Finance has a vital role to play in helping the poor to diversify their source of livelihoods, helping the poor reduce hunger, become more resilient to periodic shocks and preventing them from falling into poverty traps. Broader and deeper financial services are also needed to finance the investment in agricultural productivity that is a major catalyst for job creation, higher incomes and increased productivity across the economy as a whole. Figure 18 below sketches out some of the impact pathways to describe how the livelihoods of smallholder farmers can be improved by increasing financial inclusion in rural areas.

Figure 18. Poverty reduction impact pathways for financial services for agricultural clients



Serving the rural poor with the financial services that can improve their livelihoods is difficult. Rural populations are poor, sparsely distributed, poorly literate and mostly engaged in informal activities. Agricultural activity, mostly smallholder farming, has low returns and is subject to high and covariant exogenous risks. Information failures that exist in all financial markets – moral hazard, adverse selection, poor enforcement and danger of exploitation – are particularly prevalent in agricultural contexts. For suppliers of financial services, the cost of operating in rural areas is often extremely high which, when combined with the low and risky returns available, leads to a large under-supply of financial services.

Due to the many unique challenges associated with agricultural finance, and the importance of it in most (and particularly poorer) economies, this has traditionally been an area for heavy government involvement. Here, there is an overlap between policies and institutions for agricultural and rural development (such as rural development banks and social development policies), policies and institutions for the financial sector and financial inclusion (from India’s government-driven no-frills accounts to Maya Declaration commitments) and policies and institutions specifically for agricultural finance (such as policy-directed lending and credit guarantee schemes). The main lesson learned from decades of government interference in this space is that government has as considerable role to

play as an enabler of markets that work for the rural poor, but not as an agent itself that crowds out sustainable, market-based solutions. New innovations are needed and the most effective way for governments to extend out the innovation frontier is not to push it themselves but to facilitate the creativity of the private sector to do so.

The demand for financial services within the context of agriculture and rural populations is not well understood. Financial service providers, governments and donors do not have a good understanding of the financial behaviour, usage and needs of rural populations and this restricts the effectiveness of rural outreach. There are also large weaknesses in financial literacy, and the ability to build financial capability of rural households and enterprises. Even though the access frontier has been pushed out, driven by technology, usage remains low and there is a big problem with dormancy. Better understanding of the customer, and the feeding through if this to products designed for the user, is very important to move the financial inclusion frontier in rural areas.

On the supply side, we are seeing increasing amounts of innovation, driven by a combination of declining profitability and saturation in more attractive markets and the huge potential of serving unbanked rural populations. Innovation is taking place: in delivery models led by technology and building alliances between those who have assets and those who have low cost outreach; in risk management enabled by big data and forging partnerships with those who have relationships of trust within the value chain (buyers and sellers, farmers associations, co-ops); in products driven by a better understanding of what farmers need, matching tenor and interest and repayment schedules to agricultural cash flows and addressing agricultural development with finance.

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ANNEX 2 SUMMARY OF DEMAND SIDE STUDIES

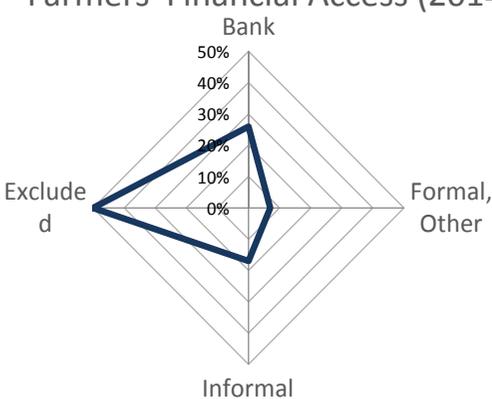
	FinScope		MAP		Occasional Studies
	Year	Farming or Rural	Year	Farming or Rural	
DRC	None		In progress		
Ethiopia	None		None		<i>Opportunities and challenges for micro-insurance in Ethiopia. Access to Insurance Initiative, 2010</i>
Lesotho	2011	Rural	2014	Farming	
Malawi	2014	Farming	In progress		Chemonics/ Open Revolution/ Kadale, 2011
Mozambique	2014	Farming	In progress		<i>Status of Agricultural and Rural Finance in Mozambique</i> FinMark Trust, 2012
Rwanda	2012	Rural	None		
Swaziland	2011	Rural	2014	Rural	
Tanzania	2013	Rural	None		<i>Agricultural Finance Markets Scoping (AgFiMS), 2011; Tanzania Diagnostic. Access to Insurance Initiative, 2010</i>
Uganda	2013	Rural	None		
Zambia	2009	Farming	None		<i>Towards a strategy for microinsurance development in Zambia. A market and regulatory analysis. Cenfri, 2009</i>
Zimbabwe	2012	Farming	None		<i>Status of Agricultural and Rural Finance in Zimbabwe</i> FinMark Trust, 2012
Cambodia	None		None		<i>Study on Access to Financial Services for Small and Medium Agribusiness Enterprises in Cambodia. World Bank, 2013</i>
Laos	None		None		<i>Rural Finance in Laos: GIZ Experience in Remote Rural Areas. GIZ, 2012.</i>
Myanmar	2013	Farming	2014	Farming	
Nepal	None		None		
Thailand	2013	Non-municipal	2014	Farming	
Vietnam	None		None		<i>Climate Change Impacts on Microfinance Case Study: the Mekong Delta in Vietnam. Vietnam Microfinance Working Group, 2013.</i>

ANNEX 3 INDIVIDUAL COUNTRY ANALYSES

Country and Financial Access Graphic	Key facts:	Synthesis	Source(s)
DRC	<ul style="list-style-type: none"> • Agriculture is 43 % GDP (2009). • Agriculture is 70% (2009) of the total work force. 	N/A	N/A
Ethiopia	<ul style="list-style-type: none"> • Agriculture is 47% (estimated, 2013) of GDP³⁷. • Agriculture is 85% (estimated, 2013) of the total work force. 	<ul style="list-style-type: none"> • The World Council of Credit Unions worked in Tigray, Oromia and Amhara regions from January 2010 to January 2014, building capacity of rural savings and credit cooperatives (RuSACCOs) and providing direct TA to farmers. By helping to develop the RuSACCOs ability to develop and administer agricultural finance products, membership in 165 RuSACCOs grew by 350%, and savings increased at a rate of 3,100% (2014). • The WB supported a pilot project for weather-based index insurance in 2006. The Ethiopian Insurance Corporation provided the underwriting, and marketing was coordinated by cooperatives in the region. Only 28 farmers purchased the product, showing very low demand for insurance (2010). 	<p>World Council of Credit Unions news release (August 18, 2014) at www.woccu.org/releases?id=2009</p> <p><i>Opportunities and challenges for micro-insurance in Ethiopia</i> Access to Insurance Initiative, 2010</p>

³⁷ For percentage of agriculture in GDP and share of agriculture in workforce, CIA World Fact Book unless otherwise cited.

<p>Lesotho</p> <p>Farmers' Financial Access (2014)</p> <p>Legend:</p> <ul style="list-style-type: none"> Regulated Unregulated (only) Family & Friends (only) Excluded 	<ul style="list-style-type: none"> • Agriculture is 7.4% (estimated, 2013) of GDP. • Agriculture is 86% (estimated, 2013) of the total work force. • 140,000 of surveyed engaged in farming • 90% of adults engaged in farming reside in rural areas. • 53% of adults engaged in farming are male. • 78% of famers have either no formal education or only primary education. 	<ul style="list-style-type: none"> • Evidence in average income and financial inclusion from suggests that farmers, or at least a portion of them, have the potential to become more commercial and have greater capacity to absorb financial agriculture. They have different needs for credit than less commercial farmers, and prefer formal to informal credit, as long as the products reflect agricultural needs in terms of repayment and tenor. Targeting these 'aspirational farmers' can generate production and investment promotion. • Smaller farmers have more need for lower-value input financing. • The Financial Access radar chart (left) shows a strong uptake of savings products. This implies that savings are used not only for consumption smoothing, but also agricultural investment purposes replacing credit. • That 90% of farmers reside in rural areas reflects the widely understood challenge of providing financial services to a dispersed population. Farmers currently take the largest amount of credit from unregulated suppliers, overcoming distribution and product design constraints. • Working with the private sector can encourage more targeted market information, tailored product design and leverage existing channels of distribution. 	<p>MAP 2014</p>
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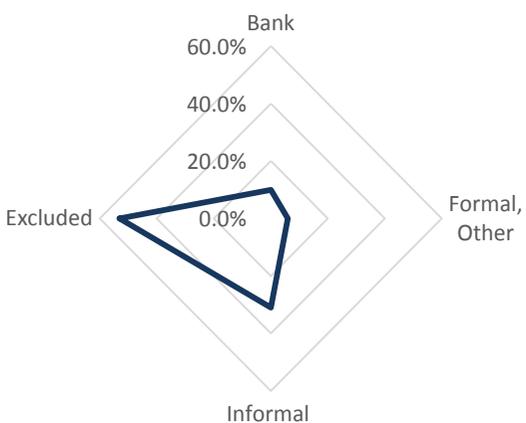
<p>Malawi</p> <p>Farmers' Financial Access (2014)</p> 	<ul style="list-style-type: none"> • Agriculture is 29.4% (estimated, 2013) of GDP. • Agriculture is 90% (estimated, 2013) of the total work force. • 43% of the population cites farming as a source of income (2014). • 43% of the population also cite ganyu (piece-work or farm labour) as a source of income (2014). 	<ul style="list-style-type: none"> • Rural adults indicate savings patterns of 74.5% either in cash or in kind, but with a high degree of informality, with 48.9% saving at home. Only 8.7% and 2.6% saved at banks or SACCOs respectively (2008). • The largest reason for savings in the rural populations was for farm inputs, 17.8%(2008). • Following the trend for saving, the most frequent stated reason for borrowing was for farming activities, 5.5% (2008). • Convenience and accessibility are very important factors in determining savings methods in rural populations. • Only 3% of the population in Malawi has insurance, and as of 2008 there were almost no pilots in agriculture insurance (2008). • 22.1% of rural adults borrowed, but a large percentage, 40.6%, of those loans were interest free and from family or friends (2008). • 79% of rural adults stated that they would avoid borrowing if possible (2008). The main factors for choosing a lender included convenience of access, interest rates and reputation of the lender. • There was a strong signal from a 2011 survey among the rural population for demand for a variety of mobile money products, ranging from 65-90% of participants responding that they would 'definitely or probably use' these services (2011). • The same 2011 survey also examined the demand for agency banking services, with another very high response of 86% stating they would use the service 	<p>FinScope Brochure 2014</p> <p>Chemonics/ Open Revolution/ Kadale, 2011</p> <p>FinScope 2008</p>
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		<p>if available. The most commonly answered agency location was within supermarkets (2011).</p>	
<p>Mozambique</p> <p>Farmers' Financial Access (2009)</p> <p>Legend: — Credit — Savings</p>	<ul style="list-style-type: none"> • Agriculture is 28.7% (estimated, 2013) of GDP. • In the 2007 census, 75% of workers reported being involved in agriculture, forestry or fishing. • In the 2009 FinScope study, 28.4% and 7.5% of the population reporting agriculture being the primary source of income for rural and urban geographies respectively. 	<ul style="list-style-type: none"> • In rural areas, the most common means of coping with an unanticipated event was to liquidate in-kind savings and sell assets. The use of loans from family and friends is the second most common means, with almost no reliance on formal financial products. • 45% of agricultural workers save money inside their home, with only 6% and 2% of agricultural workers savings through informal schemes or banking products respectively. • The three top reasons for savings amongst agricultural workers included medical emergency (29%), living expenses when you do not have money at the time (27%) and to increase income (26%). • The top three reasons agricultural workers cited for taking a loan included an emergency other than medical (52%), medical expenses (38%) and farming expenses (11%). 	<p><i>Status of Agricultural and Rural Finance in Mozambique</i> FinMark Trust, 2012</p>

<p>Rwanda Rural Financial Access (2012)</p> <p>Legend: Credit (light blue), Savings (dark blue)</p>	<ul style="list-style-type: none"> • Agriculture is 31.9% (estimated, 2013) of GDP. • Agriculture is 90% (2000) of the total work force. • Farmers and agricultural labourers are most likely to be financially excluded, 30% and 23.5% respectively. • Farmers have limited access to products other than credit and savings. 	<ul style="list-style-type: none"> • Non-bank financial institutions are filling the financial inclusion gap, for example the GoR-established Umurenge Savings and Credit Cooperatives (SACCOs). 40% of the SACCO members are farmers, who would be likely otherwise be excluded. 	<p>FinScope 2012</p>
<p>Swaziland Rural Financial Access (2014)</p> <p>Legend: Regulated (light blue), Unregulated (only) (dark blue)</p>	<ul style="list-style-type: none"> • Agriculture is 7.6% (estimated, 2013) of GDP. • Agriculture is 70% of the total work force. • 65% of adults are in some way involved in agriculture. • Only 8.3% of people involved in farming also sell the crops. • 2.3% of Swazi adults with credit use it for farming expenses. • 1.3% of Swazi adults with credit use it for farming equipment. • 0.5% of Swazi adults with 	<ul style="list-style-type: none"> • Agriculture lending is widely linked to the agricultural value chain. • Despite the prevalence of agriculture in the population, the majority of agricultural loans are made to large commercial players. • Like other countries, rural distribution is a problem, which can be overcome through locating channels in existing agricultural players. • Land rights can be a major impediment to unlocking agricultural or rural finance, given the fact that 46% of the land is designated as Swazi Nation land and cannot be used as collateral by private individuals. • Insurance product uptake is very low. Given the prevalence of those without a regular income source in rural areas (irregular earners, private dependents and state dependents), they are unlikely to offer enough demand to service 	<p>MAP 2014</p>

	<p>credit use it to buy livestock.</p>	<p>providers for a viable and sustainable insurance market.</p>	
<p>Tanzania</p> <p>Farmers' Financial Access (2011)</p> <p>Legend: — Subsistence farmers — Agribusiness</p>	<ul style="list-style-type: none"> • Agriculture is 27.6% (estimated, 2013) of GDP. • Agriculture is 80% (estimated, 2002) of the total work force. • 20.6% depend on farming as their main source of income (2013). • 15.8% depend on agribusiness as their main source of income (2013). • Of the financially excluded, 26.7% are subsistence farmers and 18.7% involved in agribusiness (2013). 	<ul style="list-style-type: none"> • 78.5% of agribusiness owners save (2011). • Credit for agribusiness is usually taken for cash flow and investment in the business (2011). • Agribusiness owners consider interest rates and repayment terms when choosing a credit provider, unlike consumers who listed quick access and simple application processes as the main selection criteria in the FinScope survey (2011). • Among those agribusiness that borrowed in 2011, 48.6% borrowed from friends and family. 16.5% borrowed from SACCOs and only 13.1% borrowed from banks (2011). • Within the banked population of agribusinesses, 90% use savings products, and only 10% rely on bank credit (2011). • 80% of businesses that use SACCOs/MFIs and 95% of businesses that use informal mechanisms only use them for accessing credit, not any other products/services (2011). • Only a few pilot schemes in agriculture insurance existed in 2010. An exception is the weather index insurance scheme, implemented by MicroEnsure and the Gatsby Foundation, underwriting performed by Golden Crescent (2010). 	<p>FinScope 2013</p> <p><i>Agricultural Finance Markets Scoping (AgFiMS), 2011</i></p> <p><i>Tanzania Diagnostic Access to Insurance Initiative, 2010</i></p>

<p>Uganda</p> <p>Rural Financial Access (2013)</p> <p>Legend: Credit (light blue), Savings (dark blue)</p>	<ul style="list-style-type: none"> • Agriculture is 23.1% (estimated, 2013) of GDP. • Agriculture is 82% (estimated, 1999) of the total work force. • 65% of the adult population in rural areas claim agriculture as their largest income source, with 23% in urban areas. 	<ul style="list-style-type: none"> • A majority of the population, 53%, invested in 2013, with many investments taking place in agriculture: 52% in farmland and 41% in livestock. • Despite the important in total employment, only 10% of borrowers used loans for agriculture production. Those borrowers used funds to: purchase inputs (54%); hire farm labour (29%); purchase livestock (15%); purchase agricultural land (8%); and purchase farm equipment (6%). • Those with higher levels of education tended to borrow more for agriculture production than their less educated counterparts. • Those in Northern Uganda tended to borrow more for agriculture production than other regions. 	<p>Finscope 2013</p>
<p>Zambia</p> <p>Farmers' Financial Access (2009)</p> <p>Legend: Credit (light blue), Savings (dark blue)</p>	<ul style="list-style-type: none"> • Agriculture is 19.8% (estimated, 2013) of GDP. • Agriculture is 85% (2004) of the total work force. • 52% of households rely on farming as the main source of income (FinScope). • 8.6% of adults in rural areas use formal financial services (FinScope). 	<ul style="list-style-type: none"> • Farmers' income is highly lumpy, with high seasonality variances (Cenfri). • From a 2009 focus group, concentrating on low formal employment respondents, spending follows high priorities of food, clothing and education. Savings occurs, most commonly through informal rotating groups called <i>chilimbas</i>, or at home (Cenfri). • The 2009 focus group also revealed a low understanding of insurance as a product, but once explained, most participants expressed a willingness to pay (Cenfri). 	<p>FinScope 2009</p> <p><i>Towards a strategy for microinsurance development in Zambia. A market and regulatory analysis</i> Cenfri, 2009</p>

<p>Zimbabwe</p> <p>Farmers' Financial Access (2012)</p> 	<ul style="list-style-type: none"> • Agriculture is 20.1% (estimated, 2013) of GDP. • Agriculture is 66% (1996) of the total work force. • 43% of MSMEs were related to agriculture. • Only 7% of MSMEs who borrowed did so for agriculture. 	<ul style="list-style-type: none"> • The smallholder segment forms 98% of the agriculture population and 75% of agricultural land. • The small-medium segment forms 2% of the agriculture population and 7% of agricultural land. • The medium-large segment forms 0.4% of the agriculture population and 10% of agricultural land. 	<p>FinScope 2012</p> <p><i>Status of Agricultural and Rural Finance in Zimbabwe</i></p> <p>FinMark Trust, 2012</p>
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<p>Cambodia</p>	<ul style="list-style-type: none"> • Agriculture is 34.8% (estimated, 2013) of GDP. • Agriculture is 55.8% (estimated, 2010) of the total work force. 	<ul style="list-style-type: none"> • Agribusinesses in Cambodia reflected the below uptake of financial services: take a loan, 62%; send money transfer within the country, 58%; receive money transfer within the country 53.7%; save, 23.3%. • Agribusiness do use a mix of financial service providers, but most rely on commercial banks, 51%. The increasing size of the agribusiness is positively correlated with using a commercial bank. • Money exchangers were the second most popular financial service provider used by agribusinesses, reflecting about 21% of the surveyed group. • MFIs are not used much by agribusinesses of any size. • Deposit services are not that highly demanded; only 46% of agribusinesses keep deposits with commercial banks, and none deposit at an MFI. • Survey findings indicate the financial sector does not bias its lending to larger agribusinesses in terms of loan value over revenue. However, large agribusinesses take 63% of total agriculture lending. • Perceptions of financial service providers are generally very good or good for input suppliers, rice millers, money lenders and exchangers and family and friends. Commercial banks score about 55% good rating, while development banks rate much lower. MFIs and insurance companies score in a neutral zone. • Access to finance is not generally viewed as a major constraint to future growth- only 31% listed it as the biggest constraint. However, many people listed no-response or 'don't know' to this survey question, indicating a lack of knowledge or information on the demand side of agricultural finance. • Obstacles for finance included the lack of business plans, accounting systems and audited statements, rather than collateral or assets. • Interest rates are the most important factor of selecting a loan from a financial service provider. 	<p><i>Study on Access to Financial Services for Small and Medium Agribusiness Enterprises in Cambodia</i> World Bank, 2013</p>
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<p>Laos</p>	<ul style="list-style-type: none"> • Agriculture is 24.8% (estimated, 2013) of GDP. • Agriculture is 73.1% (estimated, 2012) of the total work force. 	<ul style="list-style-type: none"> • Within rural MFIs, demand for agricultural investments represents 50% of loans. • Depending on the ethnic background of rural villagers, preferences for savings varied between cash, gold and silver, the village bank and other banks. • Credit sources show strong uptake of the GIZ village bank products, providing 78% of loans; however, loan sizes are smaller as they only represent 19% of the total credit provided. 	<p><i>Rural Finance in Laos GIZ Experience in Remote Rural Areas GIZ, 2012.</i></p>
<p>Myanmar</p> <p>Farmers' Financial Access</p> <p>Legend:</p> <ul style="list-style-type: none"> Regulated Unregulated (only) Family & Friends (only) Excluded 	<ul style="list-style-type: none"> • Agriculture is 38% (estimated, 2013) of GDP. • Agriculture is 70% (2001) of the total work force. • 19.8 million Adults (6.97 million households), representing 50% of the population, are involved in farming. • 12.1 million adults report that their main income results from farming. 	<ul style="list-style-type: none"> • Agriculture is the most important economic activity, both in terms of number of participants and also livelihood diversification. • Lower income groups, such as farm workers, piece or casual workers and farmers have a higher uptake of credit products than higher income groups, suggesting it is being used for consumption smoothing rather than production or investment. • In agricultural, credit is very important and used to fund agricultural inputs, as well as to smooth consumption between harvests. • Credit usage is positively correlated to rural geography. • Savings usage is positively correlated to income and negatively correlated to rural geography. • Savings levels are much higher in higher income economic groups (enterprises and salaried workers), than in lower income economic groups (farm workers, piece or casual workers, remittance receivers and farmers). • Farmers have a large usage of regulated credit (37% have regulated credit), but there is still a gap between supply and demand. Farmer also use unregulated sources (14%), and also reported use a mix of both regulated and unregulated services (11%). • They indicated a demand for regulated insurance products which has not been met to date. 	<p>MAP 2014</p>

<p>Nepal</p>	<ul style="list-style-type: none"> • Agriculture is 36.8% (estimated, 2013) of GDP. • Agriculture is 75% (estimated, 2010) of the total work force. 	<p>N/A</p>	<p>N/A</p>
<p>Thailand</p> <p>Non-Municipal Financial Access</p> <p>Legend: Credit (light blue), Savings (dark blue)</p>	<ul style="list-style-type: none"> • Agriculture is 12.1% (estimated, 2013) of GDP. • Agriculture is 38.2% (estimated, 2011) of the total work force. • 28% of adults rely on farming activities for their main source of income. 	<ul style="list-style-type: none"> • Farmers take almost back-to-back loans to cover consumption and input expenses. • There is an agricultural insurance scheme available to all paddy crop farmers. 	<p>MAP 2013</p>
<p>Vietnam</p>	<ul style="list-style-type: none"> • Agriculture is 19.3% (estimated, 2013) of GDP. • Agriculture is 48% (2012) of the total work force. 	<ul style="list-style-type: none"> • Reasons for taking a microfinance loan in Vietnam are mostly for agriculture-related (3 MFIs in the Mekong Delta). 	<p><i>Climate Change Impacts on Microfinance Case Study: the Mekong Delta in Vietnam</i> Vietnam Microfinance Working Group, 2013</p>