FINDEX NOTE 6

SUB-SAHARAN AFRICA SERIES: FINANCIAL RISK MANAGEMENT IN AGRICULTURE: ANALYZING DATA FROM A NEW MODULE OF THE GLOBAL FINDEX DATABASE

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Financial Risk Management in Agriculture: Analyzing Data from a New Module of the Global Findex database*

Throughout Sub-Saharan Africa, innovation is transforming how people conduct financial transactions and live their lives. Mobile phones and the availability of new digital technologies are at the forefront of this change, helping to draw more and more people into the formal economy, potentially mitigating gender and income inequality, and stimulating development in areas ranging from agriculture to education.

The Findex Notes: Sub-Saharan Africa *series summarizes data compiled by the Global Findex from nationally representative surveys of more than 150,000 adults in over 140 economies in 2017, including more than 35,000 adults in 35 economies in Sub-Saharan Africa. The Global Findex is the world's most comprehensive data set on how adults save, borrow, make payments, and manage risk. The full dataset and methodology are available at https://globalfindex.worldbank.org/.*

**Based on Klapper, Leora, Dorothe Singer, Saniya Ansar, and Jake Hess. 2019. Financial Risk Management in Agriculture: Analyzing Data from a New Module of the Global Findex Database. Policy Research Working Paper 9078, World Bank, Washington, DC.*

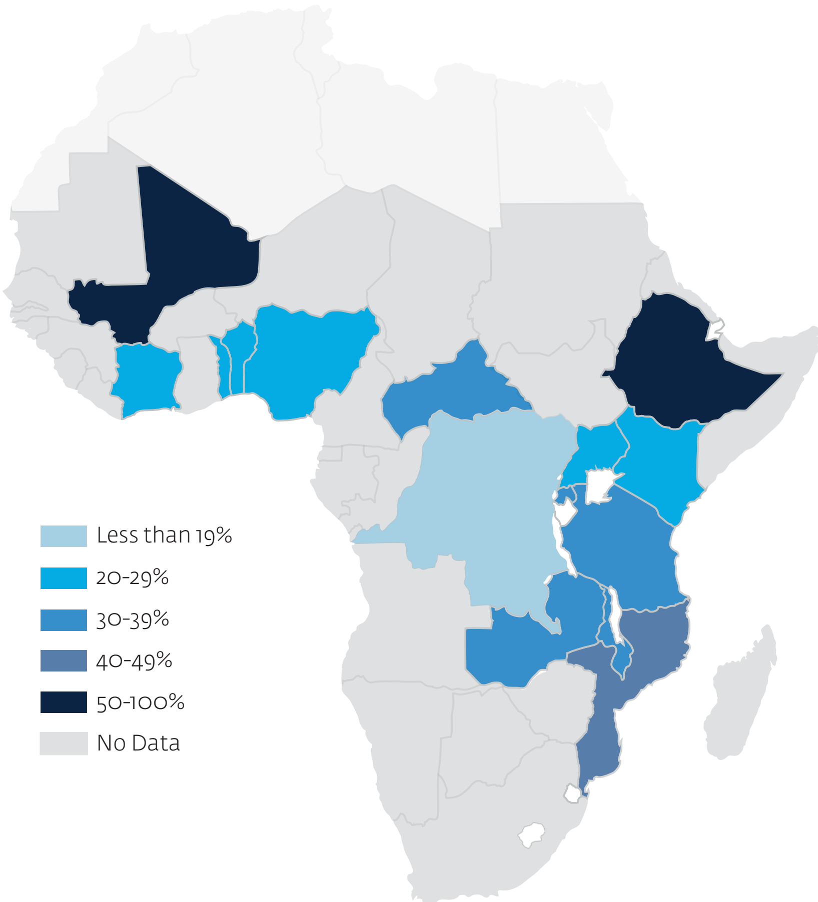
Financial inclusion can help drive development by helping people escape poverty.

Financial services can facilitate investments in health, education, or businesses and make it easier to manage financial emergencies. The ability to manage financial risk is especially important for people earning their living through agriculture. Many farmers only get paid once or twice a year and households need to stretch their earnings across the year by saving or borrowing money. Moreover, agricultural production faces a variety of risks related to both production and markets because of their exposure to weather and disease shocks. Households engaged in agriculture may thus especially benefit from financial inclusion – access to and use of formal financial services.

This note explores the topic of financial risk management in agriculture – how adults who rely on growing crops or raising livestock as their household's main source of income manage financial risk and use financial services. The data draw from a module on agricultural risk management added in select economies to the 2017 Global Findex questionnaire.[1] Collected by the World Bank in coordination with Gallup, Inc., the data are based on a nationally representative survey of about 15,000 adults in 15 lower middle and low income Sub-Saharan African economies.[2] All averages, including for the 15 economies, are population weighted.

Map 1: A third of surveyed adults rely on agriculture by growing crops or raising livestock as the main source of household income

Adults living in a household where growing crops or raising livestock is the main source of household income (%), 2017



Source: Global Findex database. Note: Data are displayed only for economies in Sub-Saharan Africa.

In the 15 surveyed economies in Sub-Saharan Africa, on average 35 percent of adults reported that their household relied on agriculture by growing crops or by raising livestock as the main source of their household's income. But there is wide variation among economies (map 1). Ethiopia has the highest share of adults reporting relying on crops and livestock as their household's main source of income, at 63 percent. Mali is a close second at 55 percent. In Malawi, Mozambique and Tanzania, about 40 percent of adults reported agriculture to be their household's main source of income, followed by about a third to a quarter of adults in most other economies. The Democratic Republic of Congo has the lowest share of adults reporting relying on crops and livestock as their household's main source of income at 17 percent.

1 The Global Findex database measures how adults around the world save, borrow, and make payments.

2 Data were also collected in three additional upper middle-income economies in Sub-Saharan Africa – Botswana, Gabon, and South Africa. However, the low rate of adults who reported that their household relied on agriculture by growing crops or by raising livestock as the main source of their household's income does not allow for meaningful analysis because of the small number of relevant observations. For data see Klapper, Leora, Dorothe Singer, Saniya Ansar, and Jake Hess. 2019. Financial Risk Management in Agriculture: Analyzing Data from a New Module of the Global Findex Database. Policy Research Working Paper 9078, World Bank, Washington, DC.

While growing crops or raising livestock is the reported main source of household income for about one-third of adults in the sample of Sub-Saharan African economies, many others engage in agriculture to supplement their main income or to provide food for household consumption. An additional 25 percent of adults reported that growing crops or raising livestock accounts for a small source of household income, 4 percent reported it is half of their household income, and 7 percent reported that growing crops or raising livestock is only used for household consumption or other needs. In total 72 percent of adults reported that they were engaged in crop farming or raising livestock.

Because the potential financial risks are most pronounced for households for which agriculture is the main source of household income, the analysis in the following sections will focus on adults in the households where growing crops or raising livestock is reported to be the main source of income.

The majority of adults living in households where agriculture is the reported main source of household income rely on crop growing. On average 30 percent of adults reported living in households relying primarily on growing crops while 5 percent of adults reported living in households relying primarily on raising livestock. This pattern holds among all 15 economies.

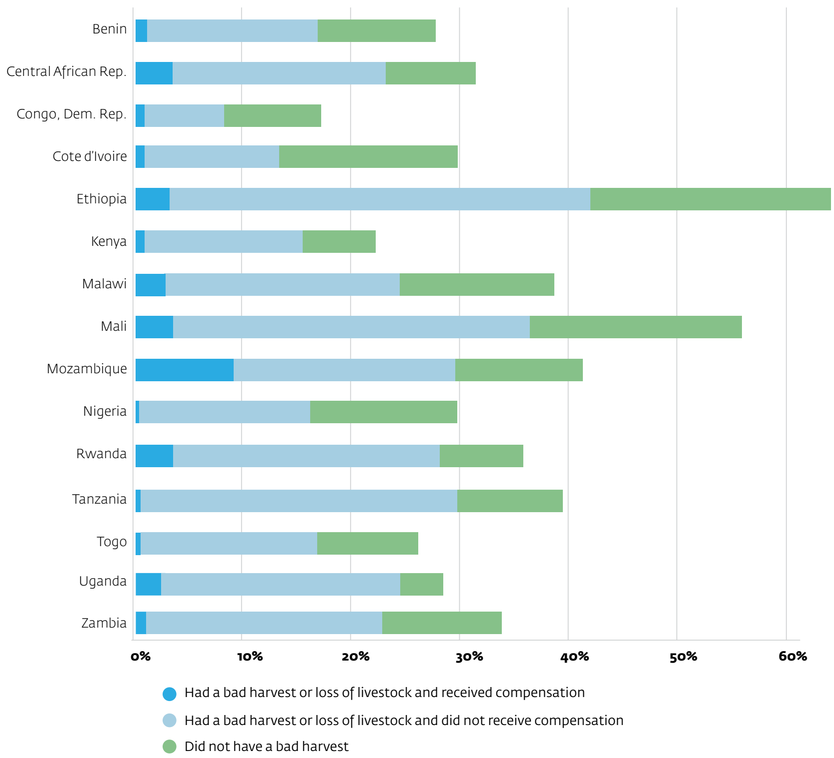
Financial risk, compensation for loss, and insurance

Households that earn their main source of income in agriculture by growing crops or raising livestock face potential financial risks because of their exposure to extreme weather and disease shocks. In 2017, 64 percent of adults living in households earning their main source of income in agriculture reported that their household experienced a bad harvest or significant livestock loss in the past five years; this share ranges from 86 percent in Uganda to just under half in the Democratic Republic of Congo and Cote d'Ivoire.

Most of the households facing agricultural loss bear the entire financial risk of such a loss, receiving no compensation through either an insurance payout or government assistance. Among the surveyed economies, on average fewer than 10 percent of adults living in households that experienced a bad harvest or significant livestock loss in the past five years reported that their household received compensation (figure 1).

Figure 1: Among agricultural households experiencing a bad harvest or significant loss of livestock, most bear all the financial risk themselves

Adults living in a household where growing crops or raising livestock is the main source of household income (%), 2017



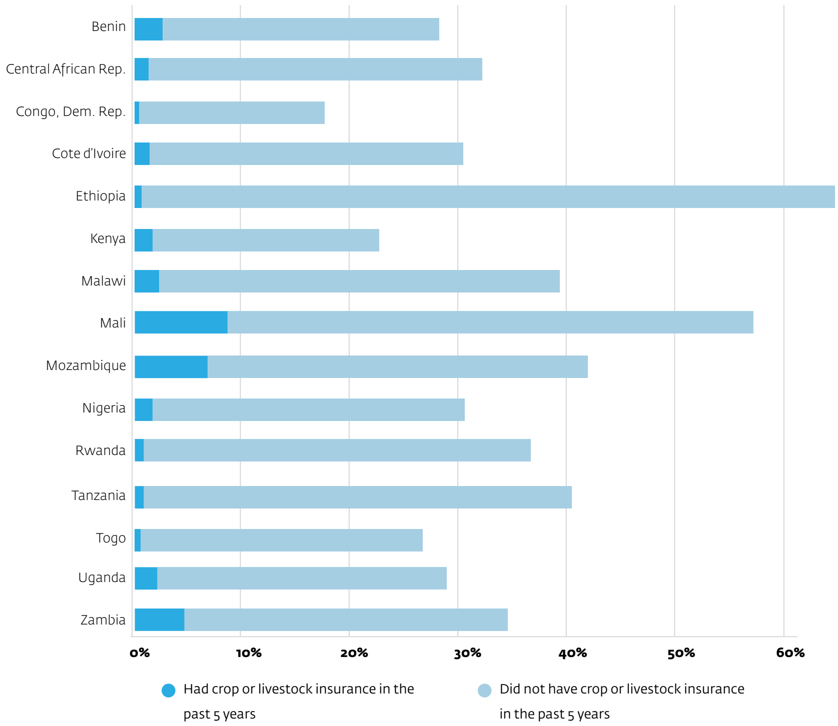
Source: Global Findex database. Note: The total length of the bar represents the share of adults living in a household where growing crops or raising livestock is the main source of income. The survey asked respondents if their household had a bad harvest in the past five years.

In Mozambique, about a third of adults living in households that faced an agricultural loss reported that their household received compensation – the highest share among the surveyed economies.

Insurance is one way for households to manage the financial risk of a bad harvest or loss of livestock and to receive a potential payout in the case of a loss. However, the use of insurance products is low across surveyed economies. On average, 5 percent of those living in households engaged in agriculture as the main source of income reported that their household has gotten any crop or livestock insurance in the past five years (figure 2). Only in Mali and Mozambique is the share higher: 15 percent of those living in households engaged in agriculture reported that their household has gotten insurance in the past five years.

Figure 2: Use of crop or livestock insurance is low

Adults living in a household where growing crops or raising livestock is the main source of household income (%), 2017



Source: Global Findex database. Note: The total length of the bar represents the share of adults living in a household where growing crops or raising livestock is the main source of income. They survey asked respondents if their household got crop or livestock insurance in the past five years.

Financial inclusion of adults living agricultural households

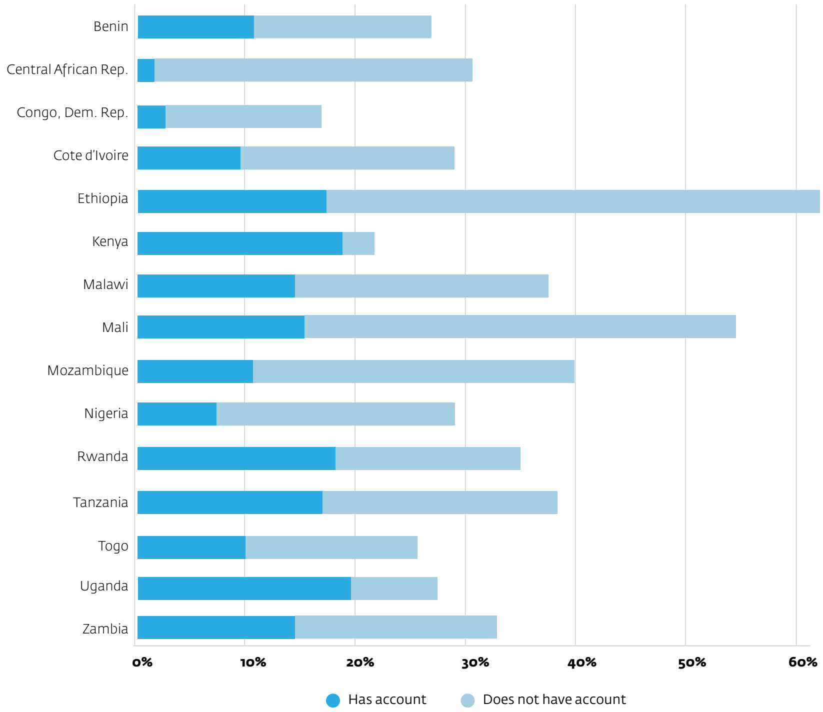
Receiving compensation through an insurance product is one way financial services can help address financial risk. How do households that rely on growing crops or raising livestock as their household's main source of income use saving or borrowing to manage their financial risks? The Global Findex database collects this kind of data. However, it is worth noting that the Global Findex questionnaire collects data at the individual-level, not at the household level. Because of that, we cannot say whether the household has an account, saves, or borrows – we only know whether the respondent who reports living in such a household personally uses the financial services discussed below. Nevertheless, the data provides some indicative insights.

An account provides adults with a safe place to store money and build savings. An account can also make it easier to receive or make payments, pay bills, and access credit from a formal financial institution. Account ownership is therefore used by the World Bank and others as a marker of financial inclusion.

Among the 15 surveyed economies, a third of adults living in a household whose main source of income is in agriculture reported having an account (figure 3). By contrast, on average 40 percent of all adults in these economies have an account. But account ownership varies widely across the surveyed economies. Adults living in households whose main source of income is agriculture were less likely to report having an account than all adults in 8 of the 15 surveyed economies. These include the Central African Republic, Cote d'Ivoire, the Democratic Republic of Congo, Ethiopia, Mali, Mozambique, Nigeria, and Togo, where fewer than a third of adults living in a household whose main source of income is in agriculture reported having an account. In Benin, Rwanda, Tanzania, and Zambia the share of account ownership among adults living in a household whose main source of income is agriculture is similar to the national average. In Malawi, 39 percent of adults living in households whose main source of income is agriculture reported having an account – 5 percentage points higher than all adults on average. Kenya and Uganda, where mobile money has taken off and helped previously under-served adults get access to financial services, stand out with high shares of account ownership among adults living in households whose main source of income is in agriculture. In Kenya, 86 percent of these adults have an account; in Uganda the share is 70 percent, higher than the national average (59 percent).

Figure 3: One-third of adults living in agricultural households have an account

Adults living in a household where growing crops or raising livestock is the main source of household income (%), 2017



Source: Global Findex database. Note: The total length of the bar represents the share of adults living in a household where growing crops or raising livestock is the main source of income.

The Global Findex database also provides data on whether and how adults receive money for the sale of agricultural products, crops, produce, or livestock in the past 12 months. We use this to explore how adults living in households whose main source of income is in agriculture receive their agricultural payments. In most surveyed economies, cash is the most common way to receive agricultural payments. On average, only 9 percent of adults living in households whose main source of income is in agriculture and reported receiving agricultural payments received them into an account.

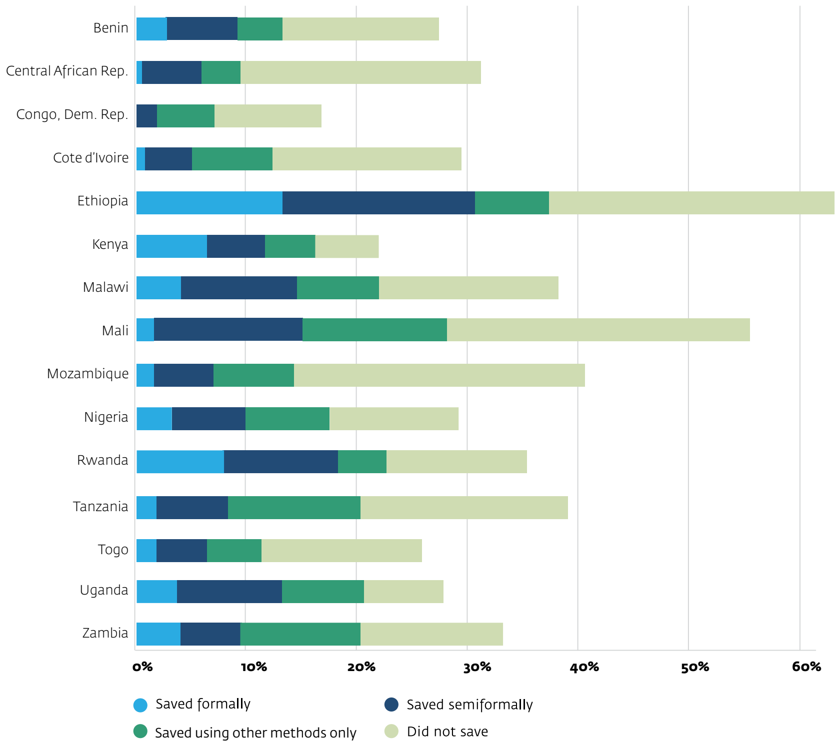
But the share of adults living in such households who receive agricultural payments into an account is much higher in some economies: in Kenya such adults are equally likely to receive agricultural payments into an account or in cash. And in Uganda and Zambia about third or more of adults living in such households reported receiving these payments into an account. In all three of these economies, most adults who reported receiving agricultural payment into an account did so into a mobile money account.

Saving patterns of adults living in agricultural households

Saving money is a key aspect of managing financial risk and adults save in a variety of ways. Among the surveyed economies, 13 percent of adults living in households whose main source of income is in agriculture reported having saved formally in the past 12 months, at a bank or another type of financial institution (figure 4).

Figure 4: Most adults living in agricultural households use informal ways to save

Adults living in a household where growing crops or raising livestock is the main source of household income (%), 2017



Source: Global Findex database. Note: The total length of the bar represents the share of adults living in a household where growing crops or raising livestock is the main source of income. People can save in multiple ways, but categories are constructed to be mutually exclusive. Saved formally *includes all adults who saved any money formally.* Saved semiformally *includes all adults who saved any money semiformally but not formally.*

A common alternative to saving at a financial institution is to save semi-formally, by using a savings club or a person outside the family. About 23 percent of adults living in households whose main source of income is in agriculture reported doing so and another 21 percent reported saving using other methods only. This may include saving in cash at home or saving in non-monetary ways including jewelry or real estate.

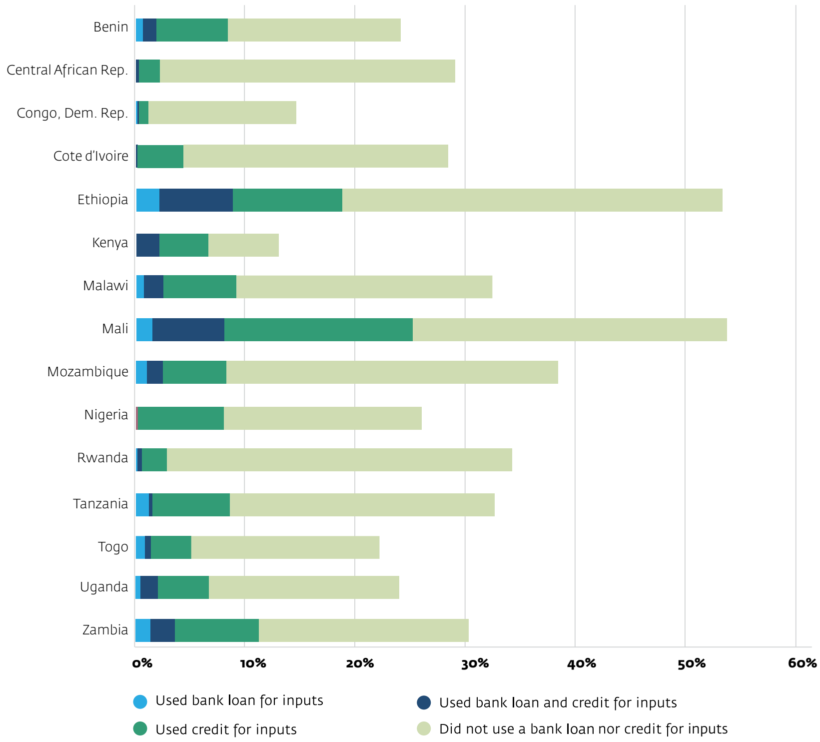
About a third of adults living in households whose main source of income is in agriculture reported not saving any money. This replicates the overall pattern of savings in Sub-Saharan Africa where on average 15 percent of adults saved formally, while about another 19 percent saved semi-formally and 21 percent saved using other methods only. Only in Ethiopia, Kenya, and Rwanda, in line with national averages, did more than 20 percent of adults living in households whose main source of income is in agriculture report having saved formally. By contrast, and again in line with national averages, more than 60 percent of adults living in households whose main source of income is in agriculture in the Central African Republic and Mozambique reported not having saved at all.

Use of loans from financial institutions or supplier credit for purchasing agricultural inputs

Some households engaged in agriculture borrow to purchase agricultural inputs. Using a loan from a financial institution or buying inputs and paying in full later ("supplier credit") are two common ways to do so. For adults living in households that rely on crops as the main source of income, the survey asked if their household purchased agricultural inputs such as seeds and fertilizers using a loan or supplier credit. On average, 30 percent of adults living in households where growing crops is the main source of household income reported having borrowed for agricultural inputs in the past five years (figure 5). About half of adults living in crop farming households in Kenya and Mali, and about a third living in Benin, Ethiopia, Nigeria, and Zambia reported having done so. But among the surveyed economies, the vast majority (70 percent) of the crop farming households reported not having used a loan from a financial institution nor supplier credit for purchasing agricultural inputs in the past five years. In the Central African Republic, the Democratic Republic of Congo, and Rwanda fewer than 10 percent of crop farming households reported having used either method in the past five years. Among households that borrowed to purchase agricultural inputs, more than 90 percent relied on supplier credit across surveyed economies in the past five years. The share of borrowers using a loan from a financial institution to purchase agricultural inputs in the past five years is low in most economies. Exceptions to that general observation are Ethiopia, where almost half of crop farming households that borrowed did so using a loan from a financial institution, and Mali and Zambia, where about a third that borrowed did so. Use of both a loan from a financial institution and supplier credit only stands out in Ethiopia where about 36 percent of borrowers made use of both methods in the past five years.

Figure 5: Among crop farming households borrowing for agricultural inputs, most relied on supplier credit in the past 5 years

Adults living in a household where growing crops is the main source of household income (%), 2017



Source: Global Findex database. Note: The total length of the bar represents the share of adults living in a household where growing crops is the main source of income. The survey asked respondents their source for purchasing agricultural inputs in the past five years.

Do some agricultural households borrow in other ways? Combining data on crop farming households borrowing to purchase agricultural inputs with individual-level borrowing behavior from the Global Findex data provides some suggestive answers. Three percent of adults living in crop farming households reported borrowing from a financial institution in the past 12 months but reported that their household did not borrow for the purchase of agricultural inputs (figure 6). However, 25 percent of adults living in crop farming households borrowed semi-formally such as from a savings club, through family or friends, or from other sources. This category of borrowing is especially important in Rwanda, where about half of adults living in crop farming households did so. It is also the most common source of credit among borrowers living in crop farming households in the Central African Republic, the Democratic Republic of Congo, and Cote d'Ivoire, although the overall share of those borrowing is small.

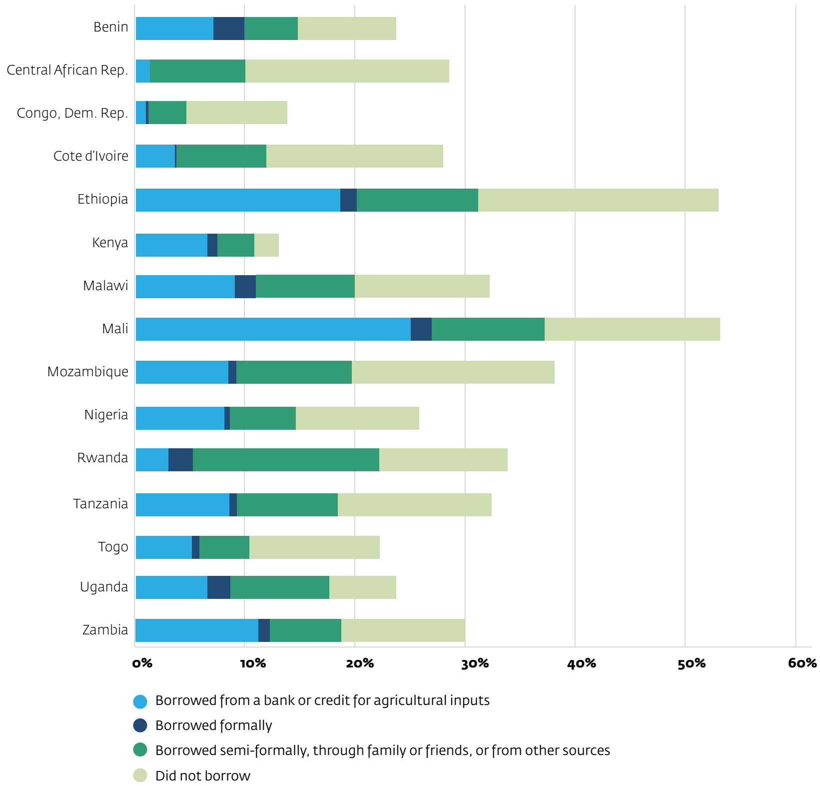
Opportunities to expand financial inclusion

On average in the 15 surveyed economies in Sub-Sharan Africa, roughly 1 in 3 adults live in households where agriculture, as defined by growing crops or raising livestock, is the main source of income. The majority of these adults reported suffering a bad harvest or significant livestock loss in the past five years—but few of them said they received financial compensation. Most adults in agricultural households lack the financial tools—such as insurance, accounts, savings, and credit—that could help them manage market fluctuations. One way to help these adults get financial services is to increase the use of digital payments in agricultural supply chains.

Digitizing payments for the sale of agricultural products offers opportunities for increasing the use and thus the potential benefits of accounts for those who already have an account. At the same time Global Findex data show that digitizing agricultural payments is also a proven way of increasing account ownership. According to the 2017 edition of the database, 40 million adults with an account in developing economies opened their first one to receive payments for the sale of agricultural products.

Figure 6: Adults living in agricultural households use various sources for credit

Adults living in a household where growing crops is the main source of household income (%), 2017



Source: Global Findex database. Note: The total length of the bar represents the share of adults living in a household where growing crops is the main source of income. People may borrow from multiple sources, but categories are constructed to be mutually exclusive. Borrowed from a bank or used credit for agricultural inputs *includes all adults whose household purchased agricultural inputs using a loan or supplier credit in the past five years.* Borrowed formally *includes all adults who borrowed any money from a financial institution or through the use of a credit card in the past year but did not borrow from a bank or used credit for agricultural inputs in the past five years.* Borrowed semiformally, through family or friends, or from other sources *includes all adults who borrowed any money semiformally (from a savings club), through family or friends, or from other sources in the past year but not from a bank or used credit for agricultural inputs and not formally. The survey on financial risk management asked respondents about their source for purchasing agricultural inputs in the past five years. The Global Findex database asked respondents about their method of borrowing in the past year. The figure above combines the two responses.*