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Drivers of Youth Engagement in Agriculture

Insights from Guatemala, Niger, Nigeria, Rwanda, and Uganda

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ABSTRACT

Engaging burgeoning youth populations in developing country agriculture is seen as an important strategy toward effective, efficient, and sustainable food system transformation. Yet the policy, institutional, technological, and capability barriers and ways to overcome them for successful participation of youth in agriculture are not fully understood. We use a conceptual framework that identifies key pathways to prosperity for youth and classifies contextual and driving factors that contribute to the success of youth engagement in agriculture. The framework comprises four broad categories of strategic interventions: policy and socioeconomic environment; institutional; technological/business infrastructure; and individual skills and capacities. In the context of this framework, we then present insights from cases of youth participation in agriculture in five countries: Guatemala, Niger, Nigeria, Rwanda, and Uganda. The countries and cases were purposively selected as part of ongoing research on youth engagement in agriculture.

Policies and strategies play an important role in creating an enabling environment for youth engagement in agriculture, including by fostering transparency and accountability in the policy system and promoting youth engagement in the private sector through agricultural extension and other services. Institutions and intermediaries provide financial support, training, and access to market for youth entrepreneurs. Support in these areas should be strengthened. Systems approaches, such as multi-stakeholder platforms, provide holistic support to young agripreneurs (entrepreneurs in agriculture), but require effective coordination. Similarly, information and communication technologies can play a facilitating role by providing platforms to network and receive updated market information but need to be significantly scaled up. Individual capacities can drive youth engagement in agriculture and agripreneurship but must continue to be built up through expanded education and training on technical and functional skills.

As policymakers and program managers search for interventions that can promote youth involvement in agriculture in their own countries, the insights from the five countries examined that are presented in this paper may be useful for identifying context-specific challenges and pathways to successful youth engagement in agriculture in their own countries. The framework presented here can be applied to study youth engagement issues in any country or in sub-national, decentralized contexts to generate evidence to guide the design of youth-in-agriculture development programs. There is a need to support, strengthen, and implement the driving factors identified in this paper for expanding youth engagement in agriculture.

Keywords: youth, engagement, agripreneurship, extension, agriculture, capacity

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I. INTRODUCTION

Promoting strategic interventions that effectively engage rural youth¹ in agriculture is recognized as a quick and effective way to mainstream youth participation in economic transformation in developing countries (Mueller and Thurlow, 2019). In addition, youth engagement in agriculture is a vehicle to address problems of rural unemployment, poverty, and food insecurity. Given an enabling policy, institutional and technological support and the right capabilities, youth could effectively engage in agricultural enterprises through several pathways. Rural youth with some access to land and the right skills could become more resilient farmers. Youth producers with market access and financing could integrate smallholder subsistence farming systems into commercial value chains. In addition, youth with access to credit and financing could be empowered to become “agripreneurs” (entrepreneurs in agriculture) within value chains. Rural youth migration to urban centers could be reduced. Finally, unemployed and underemployed urban youth could be reengaged in agricultural value chains if adequate opportunities are made available to them. Yet, it is not clear what conditions are needed to effectively engage youth and empower them through agricultural and rural entrepreneurship development.

In this paper, we use case studies from five developing countries to develop a synthesis of strategies to successfully engage rural youth in agriculture. In the rest of this section, we provide a brief review of the issues facing youth in the context of economic development processes, agricultural transformation, and the need for developing effective strategies for youth engagement in agriculture. In section two, we present a conceptual framework for analyzing the pathways to prosperity for rural youth and link them to the driving factors that contribute to the successful engagement of rural youth in agriculture. This process is shown to be mediated through a set of strategic interventions relating to policy, institutions, technologies, and individual capabilities. Section three discusses results organized by these driving factors from case studies from Guatemala, Niger, Nigeria, Rwanda, and Uganda. The programmatic implications of these case studies are presented in section four. Concluding remarks form the last section.

This paper is targeted at global policymakers, country governments, and program implementers who are interested in engaging youth in agriculture, fostering improved youth livelihoods and greater employment, and strengthening extension and advisory services (EAS). EAS can be defined as activities that provide information and services needed and demanded by farmers and other actors to assist them in developing their technical, organizational and managerial skills and practices for improved well-being (Christoplos, 2010; GFRAS, 2011).

Youth are recognized as a reservoir of human capital for the economic transformation of developing nations (ILO, 2020). According to the International Labor Organization’s “Global Employment Trends Report 2020,” the global youth population was 1.3 billion in 2019. Nearly one billion of the global youth population (aged between 15 and 24 years) reside in developing countries, of which 494 million live in rural areas (IFAD, 2019). Between 1999 and 2019, the global youth population increased from 1 billion to 1.3 billion, but the total number of young people engaged in the labor force decreased from 568 million to 497 million (ILO, 2020). While this trend reflects in part a rise in enrollment in secondary and tertiary education, it also reflects large numbers of youth not gaining experience in the labor market, receiving an income, or

¹ Youth are defined by the United Nations as individuals between 15 and 24 years of age (UN, 2018). However, each of the five study countries defines youth differently, as noted in the Case Study Selection Section in Chapter II Analytical Framework and Methods.

enhancing their education and skills. The ILO report highlights that, at present, one-fifth of young people are currently “not in employment, education, or training” (ILO, 2020).

The United Nations (UN) World Youth Report 2018 reported that, globally, youth face several challenges. High costs of education, job insecurity, low wages, and limited chances for on-the-job learning restrict their ability to leverage more secure jobs and entrepreneurship opportunities. In Africa South of the Sahara alone, more than 10 million new jobs per year are needed in rural areas in the next twenty years to absorb young entrants (FAO, 2019). Some common approaches to tackle the problem of youth unemployment include education and skills training, behavioral change interventions, and entrepreneurship promotion (Flynn et al., 2017).

Creating opportunities for rural youth is not just about increasing their productivity. For sustainable solutions, youth also need increased connectivity, so that they can be more fully integrated with their society, and greater agency, so that they have the power to make decisions in their own best interests (IFAD, 2019). ‘Productivity’ includes factors like education, skills, productive assets, and natural resources, ‘connectivity’ includes markets, information, and social networks, and ‘agency’ includes civic and political participation, skills and education, and empowerment (IFAD, 2019).

In the context of Africa, Fox et al. (2020) argue that the structure of African economies has brought about a “missing jobs” crisis in the region, i.e., people across all age groups have difficulty finding work that provides a satisfactory livelihood. There are three dimensions to this crisis: i) ‘risk’ arising from high prevalence of nonwage-earning employment; ii) ‘instability’ as many people work in activities on farms and in informal businesses which are temporary or affected by seasonality; and iii) lack of adequate labor and social protection. They suggest four policy interventions which can help address the issue of youth unemployment in Africa. These are: i) comprehensive structural change and transformation of the economy to create jobs; ii) focus by government and development partners on programs that do not only target youth, but rather address the structural issues that constrain the creation of quality jobs; iii) broadening access to and reforming secondary education (including assessment) to develop skills valued by employers and useful for life; and iv) developing social protection measures to safeguard the welfare of those who are unemployed.

Beyond being a producer, there are other ways for youth to engage in agriculture throughout the value chain. One specific pathway is creating self-employment in agriculture or becoming an agricultural entrepreneur. The term “agripreneurship,” referring to entrepreneurial activities in agriculture (Narendan and Ranganathan, 2014), has appeared in the literature over the last five or six years. Agripreneurs can play a number of roles in rural areas – for instance, as input providers, transporters, brokers, or “village agents” (Franzel et al. 2020).

Youth agripreneurship may have a positive impact on food security, as there is evidence that increasing entrepreneurship is associated with increasing expenditures on food consumption (Sinyolo & Mudhara, 2018). In the context of what factors affect youth agripreneurship, Yeboah et al. (2020) argue that there is a critical role for family and broader social relations to play in providing young people with initial access to key resources, including capital, land, and work opportunities. According to a study by Magagula and Tsvakirai (2020), socio-economic factors and perceptions play an important role in influencing youth to be

interested in agripreneurship, because the entrepreneurial environment is often characterized by imperfect markets and incomplete information. The study found that economic perceptions – e.g., agricultural remuneration is attractive, agriculture is a profitable business, there are opportunities for promotion in agriculture, farming is a business, and agriculture creates employment – strongly influence the intentions of youth to participate in agripreneurship. Availability of technological innovations, including information and communication technologies (ICT), provide new opportunities for youth in the agriculture sector, since the youth are more likely than adults to own mobile phones and to adopt financial, training and extension services which use these digital platforms (USAID, 2019). ICT can connect young farmers to markets, provide them with updated information, and reduce their transaction costs.

II. ANALYTICAL FRAMEWORK AND METHODS

Youth engagement in agriculture

Literature on the factors driving youth engagement in agriculture is limited but growing. There are several drivers which influence the transition from subsistence to commercial agriculture, which, in turn, affect youth engagement in agriculture. According to Pender et al. (2006) and Hagos and Getta (2016), these include both external and internal factors. The external factors include demographic change, technological change, the introduction of new commodities, the development of new infrastructure and market institutions, and the development of the nonfarm sector through macroeconomic, trade, and sector policies. Other external factors are the development of input and output markets, strengthened property rights and land tenure, improved market regulations, changes in the significance of cultural and social factors affecting consumption preferences, changes in production and market opportunities and constraints, changes in agro-climatic conditions, and enhanced or reduced production and marketing related risks. Internal factors include the resource endowment of the farmer, including land, human capital, and labor. Pingali et al. (2019) find that the ability of a smallholder producer to transform from subsistence and semi-commercial farming to commercialized farming requires strengthening linkages to factor markets through access to credit, land, technology, and inputs, such as seeds, fertilizer, and pesticides. Nguyen et al. (2019) found that the key factors affecting entrepreneurial intentions among youth were a desire for success and to overcome challenges, a positive attitude toward entrepreneurship, perceived behavioral control, positive experiences with entrepreneurship, and creativity.

Mabiso and Benfica (2019) developed a stylized framework on economic opportunities for rural youth that identifies factors that affect the availability of such opportunities and the ability of youth to take advantage of them. They group the factors into three major pillars: (i) connectivity enhancements; (ii) enabling environment; and (iii) access to productive resources and technologies. The connectivity pillar includes infrastructure that allows rural youth to connect to major centers of economic activity, e.g., through transport or telecommunications; access to essential resources, such as energy, e.g., electricity, fuels; water and sanitation services; and access to social and professional networks. The second pillar focuses on governance, institutions, and policies, which have a bearing on the level and quality of economic activity and output. These can be at the national and local community levels, including household-level rules or community norms pertaining to youth activities and behavior. The third pillar looks at access to productive assets, including land, water, finance and capital, factors of production, such as seeds and fertilizers, and labor. The authors also include in their framework cross-cutting issues, such as climate change and resilience, gender, equity and inclusion, and security.

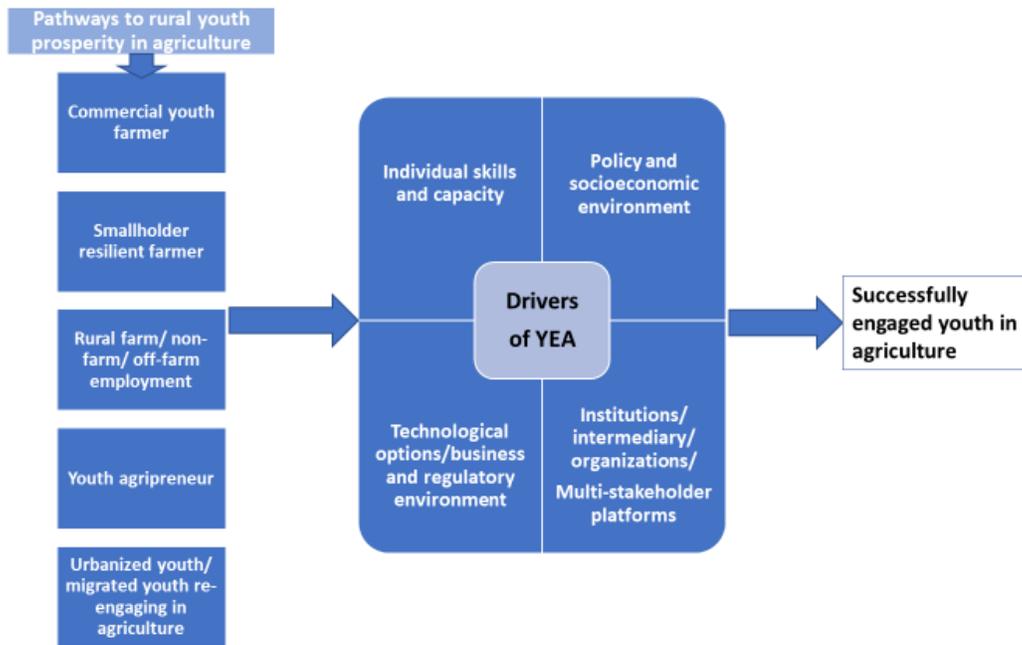
To analyze the case studies presented in this paper, we are guided by a similar framework that brings together these various factors—or drivers—of youth engagement in agriculture. Babu et al. (2020) developed a broad analytical framework for identifying the contextual and driving factors for youth entrepreneurship in agriculture. Saab and Shakhovskoy (2019) proposed a broader perspective on the engagement of youth in agriculture to identify pathways through which youth could be effectively engaged in agriculture in developing countries. For the purposes of this paper, we bring these various frameworks together to identify how the opportunities that exist in the rural sector for the youth can be connected to strategic interventions that could help them successfully engage in agriculture. This conceptual framework provides a structure for presenting the results of the case studies from Guatemala, Niger, Nigeria, Rwanda, and Uganda.

Youth engagement in agriculture can occur successfully through several pathways, including various paths as producers or by youth taking up other roles within agricultural value chains. The pathways adopted depend on geographic, farming system, and market factors, as well as on the characteristics of the youth themselves.

Rural youth with limited education who are not able to move out of rural communities largely depend on agriculture-related activities and enterprises, particularly when off-farm and nonfarm opportunities are limited. The immediate option for them is to engage on their parents' farm, on land inherited from their parents, or on other land made available from the community or rented by the youth. Strengthening these youths' skills to cope effectively with the risks and uncertainties of smallholder agriculture is a first step to making them resilient farmers. This will require designing context-specific, on-farm and value chain interventions that can help them to take up climate-smart agriculture practices and take advantage of market opportunities that value chains provide. For youth who have skills or can be trained to become business-oriented farmers or employed in rural off-farm enterprises, skills building, credit, and market intelligence will offer attractive options for them to stay in agriculture, particularly where they could be easily integrated into domestic and global supply chains.

Figure 2.1 presents a framework for identifying the drivers of youth engagement in agriculture. It begins with the specific pathways that a rural youth who is untrained and unemployed could follow to move toward prosperity. These possible pathways include working on building a current farming system into a more resilient one; further developing the commercial potential of existing farming operations; engaging in rural entrepreneurial activities that involve both agriculture and non-agriculture rural enterprises; employment in other farm, non-farm, or off-farm enterprises in rural areas; and, finally, reengaging youth who have migrated out of agriculture and rural areas back into agriculture (Saab & Shakhovskoy, 2019). Yet, these pathways can only lead to the successful engagement of youth in agriculture if adequate opportunities are created for them through the right type of interventions. We identify in the framework four strategic intervention areas that facilitate successful rural youth entrepreneurship: the policy and socioeconomic environment; institutions and intermediary organizations; technological options and business infrastructure; and individual skills and capacity.

Figure 2.1. Framework for achieving successful youth engagement in agriculture (YEA)



Source: Adapted from Babu et al. (2020) and Saab and Shakhovskoy (2019)

Note: YEA = youth engagement in agriculture

The contextual factors and the drivers of youth engagement in agriculture are further developed in Table 2.1 for each of the four strategic intervention areas. These drivers were used in the case study evaluations across the four strategic areas. The strategic areas, contextual factors, and drivers in the Table 2.1 apply to all the pathways identified in the first column.

From Table 2.1, it can be seen that for **policy and socioeconomic environment**, the key drivers include a harmonized policy system which supports an entrepreneurship ecosystem and empowers youth, contains effective national youth and agribusiness policies, and provides access to credit and insurance as well as market and trade opportunities. **Institutions and intermediary organizations** can also help youth in pursuing agribusiness opportunities. Drivers include institutional support for education, skill development, and access to credit and insurance. Support from multi-stakeholder platforms like Chambers of Commerce also helps in connecting youth to relevant stakeholders and related agribusiness opportunities. **Technological options, business infrastructure, and a regulatory** environment support youth entrepreneurship. The drivers associated with this strategic area are access to infrastructure, technology, information, and other key inputs as well as regulatory support to run a successful agribusiness business venture. **Individual skills and capacity** also impact the success of youth in pursuing agribusiness opportunities. For instance, skills, aptitude for learning, and incentives and motivation to pursue entrepreneurial opportunities are all important drivers of youth entrepreneurship.

Table 2.1 Selected key factors and drivers for rural youth engagement in agriculture

| Pathways to Youth Prosperity in Agriculture | Strategic Areas or Intervention Areas | Contextual Factors | Drivers |
|---|---|---|---|
| 1. Smallholder resilient farmer | Policy and socioeconomic environment | Political environment development for youth and for youth migration | National youth policies; social investment; youth development fund |
| | | Public-private partnership opportunities | Harmonized policy system, including established entrepreneurship systems |
| | | Infrastructure for business and access to assets, such as land, markets, etc. | Agribusiness strategies/policies (across agribusiness value chains) |
| | | Governance and judicial system | Export/market/trade opportunities |
| | | Rural credit and financial system | Access to credit and insurance |
| | | Business environment | Ease of starting and operating business |
| | | Functioning land markets | Access to land |
| | | Gender and social inclusion | Policies focused on gender mainstreaming |
| 2. Commercial young farmer | Institutions and intermediary organizations or multi-stakeholder platforms supporting youth entrepreneurs | Enabling business environment/financial services | Multi-stakeholder approaches linking youth and market opportunities |
| | | Business environment | Access to finance and credit |
| | | Educational environment | Access to knowledge and skill development |
| | | Existence of chamber of commerce | Support from chamber of commerce for youth development |
| | | Technical institutions and skill development institutions building youth capacity | Civil society and farmer-based organizations promoting youth |
| | | Youth associations, networks, and mentorships institutions | Agribusinesses courses available at technical or post-secondary level |
| | | Market institutions | Access to markets |
| | | 3. Young agripreneur | Technological options or business infrastructure and regulatory environment |
| Telecommunication infrastructure/ICT and its adoption | Connectivity/access to internet / Cost of mobile/data | | |
| Availability of technology and innovation | Access to new technology and its adoption by youth | | |
| Value chain development opportunities and agribusiness incubators with academic and research linkages | Youth guided by multi-stakeholder entrepreneur eco-system | | |
| Regulatory environment | Regulatory support | | |
| Information and knowledge system supporting youth | Access to relevant and reliable information | | |
| Rural roads, storage/logistics infrastructure | Access to input and output markets/ processing and storage facilities | | |
| 4. Rural farm/ nonfarm/ off-farm employment | Individual skills and capacity | | |
| | | Professional incubator support for youth | Education and aptitude for learning |
| | | Access to knowledge and research | Ability/soft skills exposure |
| | | Mentorship in business, networking, and community support | Business attitude and professional outlook and skills |
| 5. Urban youth/ migrated rural youth reengaging in agriculture | | | |
| | | | |
| | | | |
| | | | |

Source: Adapted from Babu et al. (2020) and Saab and Shakhovskoy (2019)

Case study selection

The cases included in this report were purposively selected (Table 2.2). In 2019, the Feed the Future Developing Local Extension Capacity (DLEC) project conducted studies in Guatemala (Chaisson-Cardenas 2019), Niger (Djamen 2019), and Rwanda (Franzel et al. 2019) to analyze the inclusion of youth in EAS, both as providers and recipients of the services. The countries were Feed the Future countries that had ongoing activities related to youth in EAS as well as interest from the respective USAID country missions. DLEC conducted literature reviews, key informant interviews, and field visits to understand youth in extension programming in the three countries. The “5Rs Framework” (Gray et al. 2018) was used to analyze the roles of actors, the network of relationships, resources, and rules which produce results for youth in EAS.

In 2020, DLEC conducted an additional study on youth in private sector EAS in Rwanda and Uganda (Franzel et al., 2020); These additional countries were selected due to the interest of government and development partners in youth in agriculture and the richness of many youth-in-agriculture models to study in each of the two countries. These studies built on previous studies in the countries on youth in agriculture (FAO, 2017; Franzel et al., 2019; Scheer and Ariko, 2019).

Table 2.2. Case studies of youth engagement in agriculture used for this synthesis

| Country | Study Title and Reference | Number of cases | Methodology | Focus | Key Findings |
|-----------|--|-----------------|--|---|---|
| Rwanda | “Youth in Extension and Advisory Services: Rwanda” (Franzel et al. 2019) | 22 | Literature review and key informant interviews using the “5Rs” framework | Inclusion of youth in Extension and Advisory Services | <p>In the policy context and socioeconomic environment of Rwanda, a key success driver is a youth-in-agriculture strategy which can bring the topic of role of youth in agriculture to the forefront of overall government policies. Additionally, training is needed at different levels, but particularly the tertiary level.</p> <p>In terms of institutional support, youth, such as village agents, need support services, including training and credit, to enhance their performance. Youth groups are an important institutional support mechanism for accessing finance and inputs, exchanging information among members, and marketing products.</p> <p>In terms of the technological environment, there is little use of ICT in agricultural extension. Other extension approaches like use of videos is also not widespread.</p> <p>Individual capacity development has been constrained by no agriculture extension departments at university level and a lack of outreach programs for tertiary agricultural educational institutions to provide services to farmers.</p> |
| Guatemala | “Youth in Extension and Advisory Services: Guatemala” (Chaisson-Cardenas 2019) | 19 | Literature review and key informant interviews using the “5Rs” framework | Inclusion of youth in Extension and Advisory Services | <p>In the policy context and socioeconomic environment of Guatemala, there are significant partnerships between extension stakeholders and other entities, like NGOs and higher education institutions, for youth engagement in the agriculture sector. Some key weaknesses in the policy environment include there being no clear strategies to engage youth in agriculture and limited sustained coordination among relevant entities in the agriculture sector. Also, there are very few targeted</p> |

| Country | Study Title and Reference | Number of cases | Methodology | Focus | Key Findings |
|-------------------|--|-----------------|--|---|---|
| | | | | | youth development programs for those aged 13 to 25 years; and almost no activities for youth under 13 years. |
| Niger | "Youth in Extension and Advisory Services: Niger" (Djamen 2019) | Not available | Literature review and key informant interviews using the "5Rs" framework | Inclusion of youth in Extension and Advisory Services | <p>In Niger, there are policies on youth and food security, including in the National Youth Policy of 1998. However, policy barriers include the lack of youth representation in producer organizations, which are key to accessing extension services. This is due in part to differences in crop preferences between youth and the leadership of producer organization, who generally are older. Also, Extension and Advisory Service providers focus on supplying advice on production with only a limited focus on agripreneurship and business development.</p> <p>Collaboration with intermediary organizations, such as banks, has improved access by youth to credit. Extension and Advisory Service providers are requested by the Niger Agricultural Bank to provide technical advice to credit applicants. This improves the technical quality of funded projects and, thereby, their ability to generate the expected outcomes and impacts. The use of internet services, like WhatsApp messaging, has boosted e-extension and improved access to farm advisory services for youth.</p> <p>In terms of the business environment, youth in Niger consider agriculture to be risky, whether due to fear of poor management of contracted loans or climatic or market shocks. These could cause losses of investments and assets. Furthermore, existing subsidies for youth agripreneurs tend to focus on acquisition of equipment or initial inputs, while youth think that working capital support is most essential for running a sustainable business.</p> |
| Rwanda and Uganda | "Engaging Young Agripreneurs: Options to Include Youth in Private Sector Extension and Advisory Services in Rwanda and Uganda" (Franzel et al. 2020) | 37 | Case study approach with literature review and key informant interviews | Private sector "models" that engage youth as providers or recipients of Extension and Advisory Services | <p>In Rwanda and Uganda, a supportive policy environment is important for successful youth engagement in Extension and Advisory Services. This includes sufficient funding and adequate management of public sector extension services, promoting pluralistic services, facilitating multi-stakeholder regulation, coordination, monitoring and evaluation, as well as implementing reforms to adapt to changing priorities and circumstances. Because of strong policy support, donor agencies, the private sector, and youth are actively partnering and implementing initiatives to promote youth in agriculture. However, for effectively engaging the youth, appropriate investments and incentives are needed.</p> <p>In Uganda, intermediary support is available through companies which provide village agents to link farmers with input suppliers, produce buyers and other service providers. Youth are often employed as village agents by these companies.</p> <p>In Rwanda, institutional support for skill development for university graduates was very useful. Youth were able to strengthen skills, gain experience, enhance their marketability, and develop professional networks.</p> |

| Country | Study Title and Reference | Number of cases | Methodology | Focus | Key Findings |
|---------|---|-----------------|---|---------------------------------------|---|
| | | | | | <p>There are successful fee-based extension companies focusing on niche enterprises and services, including for youth. Private sector models have proven more financially sustainable in engaging young agripreneurs, as they are generally not dependent on subsidies.</p> <p>For developing individual skills and capacity of youth, there are training programs on agripreneurship. But few are integrated into a broader strategy of employment creation or link youth to other support services, like coaching or credit.</p> |
| Nigeria | <p>“Youth Entrepreneurship in Agribusiness: Nigeria Country Report” (Babu et al 2020)</p> | 7 | Case study approach with literature review and key informant interviews | Inclusion of youth in agripreneurship | <p>A key feature of the enabling environment for youth entrepreneurship in Nigeria is the National Youth Policy. This promotes improving access to credit/finance, land, capacity building services, education, and opportunities for youth engagement and employment in agriculture. Nigeria, however, lacks an effective entrepreneurship ecosystem to translate policies into tangible outcomes for the benefit of youth.</p> <p>Mobile and internet usage help youth access market information, network with relevant stakeholders, and advertise youth business ventures. Agribusiness incubation programs provide new technology to young entrepreneurs. Lack of regulatory mechanisms and adequate and affordable infrastructure, access to market, credit, insurance, and continuous training has been challenging for youth entrepreneurs.</p> <p>Individual factors contribute to the success of youth entrepreneurs – ambition, responsibility, mentorship, focus on serving customer needs, networking skills, and entrepreneurial education.</p> |

Source: Compiled by authors.

For the Nigeria study in 2020 (Babu et al., 2020), the design was determined through consultations with the national youth entrepreneurship units and their program managers. Other considerations in designing the seven Nigeria case studies included age of the entrepreneur, years in business operation, nature of agribusiness value chains, approachability, and main forms of support received, whether from the public, the for-profit, or the not-for-profit sectors.

The age range definition for youth varied in line with national youth policies in each study country. The Rwanda and Uganda studies defined youth as between ages 16 and 30 years, in line with the two countries’ policies and those of the African Union. The Niger study used a range from 15 to 35 years, while the Guatemala study used a definition of youth as individuals from 8 to 24 years of age. For the Nigerian study, the age range was 18 to 36 years.

Data collection and interview process

The 2019 studies in Guatemala, Niger, and Rwanda and the 2020 studies in Rwanda and Uganda used a case study approach, gathering primary data through key informant interviews with “implementers,” – that is, representatives of private sector, government agencies, universities, producer organizations, non-

governmental organizations (NGOs) and community-based organizations implementing initiatives engaging youth in private sector EAS either as providers or recipients. Other methods used included literature reviews and field and site visits. Interviews were semi-structured – that is, they involved a structured list of questions but allowing questions or issues to be explored, with neither the exact wording nor order of the questions determined ahead of time ((Merriam and Tisdell, 2016).

In the 2019 Rwanda study, the authors examined the involvement of 22 youth in agriculture initiatives, while in the Guatemala study, 19 initiatives were examined. In the 2020 Rwanda and Uganda studies, interviews were conducted with representatives of 37 such initiatives in total. In about one-third of the cases, field staff and youth participating in the initiatives were also interviewed. Interviews were also conducted with policymakers in all country studies because of the critical role they play in creating an enabling environment for pluralistic EAS.

In the Nigeria study, the focus was to analyze the business ecosystem and identify potential models of youth engagement in agribusinesses and rural enterprises. A detailed questionnaire was designed, and field interviews were conducted. Selected young entrepreneurs, policymakers, and program managers responsible for youth programs in Nigeria were interviewed. Field visits were also made to selected business locations and operations of young entrepreneurs. Discussions were held with a range of stakeholders, including relevant institutional leaders (Babu et al., 2020).

III. INSIGHTS FROM CASE STUDIES IN GUATEMALA, RWANDA, NIGER, NIGERIA, AND UGANDA

In this section we compile selected results from the country case studies in the context of the strategic interventions and the contextual and driving factors identified in the conceptual framework which guided the studies.

Policy and socioeconomic environment

The policy environment can set the overall tone for the engagement of youth in agriculture. Youth issues are beginning to enter agricultural policy and strategies in several developing countries. For example, a supportive policy environment was key for successful youth engagement in extension and advisory services in Rwanda and Uganda. This goes beyond funding and managing the public sector extension services. It also involves promoting pluralistic services and facilitating multi-stakeholder regulation, coordination, monitoring, and evaluation, as well as implementing reforms to adapt to changing priorities and circumstances. Because of strong policy support in Rwanda and Uganda, governments, donor agencies, the private sector, and youth are actively partnering and implementing initiatives promoting youth in agriculture. However, further appropriate investments and incentives are needed to ensure that youth effectively engage in agriculture (Franzel et al., 2019; 2020).

In Rwanda, researchers found that a youth-in-agriculture strategy is a necessary first step to mainstream the topic into overall government policies (Franzel et al. 2019). The tertiary agricultural education gap should be closed by adding extension curricula and farmer outreach activities to university programs. Prizes to motivate young agripreneurs are a common tool in many countries. Awards programs can be implemented

at low cost while generating important benefits, such as recognizing and raising the status of winners and enhancing their networks and learning. The awards also help change attitudes among youth so that they increasingly become aware that they can benefit from careers in agriculture (Franzel et al., 2020)

In the context of Guatemala, while agricultural policies are beginning to recognize youth and their challenges in the agricultural sector, they are yet to identify clear strategies to engage youth in agriculture. However, several partnership and business arrangements are emerging in the country that youth could effectively take advantage of to deepen their engagement in the agricultural sector. For example, the Guatemala assessment showed a high level of project-related person-to-person partnering in the agriculture sector for the benefit of youth engagement (Chaisson-Cardenas, 2019). These partnerships between extension stakeholders and various stakeholders, such as NGOs, higher education institutions, and both public and private organizations, need further nurturing. However, there appears to be little sustained systemic coordination among entities. This leads to competition or overlap in some regions of the country, particularly in the Guatemalan highlands, while leaving other areas unserved. As a result, youth are not being supported in all parts of the country. Public institutions, while improving, still work independently with little coordination with other actors in the agriculture sector (Chaisson-Cardenas, 2019).

The Guatemala assessment further suggests that while Guatemala *extension* works with a large number of youth (under age 25), there is very little targeted *youth development* programs for ages 13 to 25; and almost no activities happening for youth under 13. For example, interviewees did not specifically characterize any of the extension programs reaching youth as “youth development programs”. Rather, instead they labeled them as extension programs in agriculture, home economics, or rural development programs that happen to reach youth between the ages of 13 and 25 years. Policy and program guidance to focus on youth are largely missing.

Most funds for public extension in Guatemala come from the national general fund and, thus, are subject to political moods and priorities. Guatemala also has a relatively low level of tax revenues at around 11 percent of GDP, with high levels of corruption that siphons off much of the public resources available. Government institutions responsible for education, including agricultural extension; security; health; nutrition; and other essential public services do not have the resources to address the challenges posed by the country’s increasing crime and violence and high levels of child malnutrition and other health issues, or to foster the economic development needed to reduce the country’s high levels of poverty. This means that extension for youth in Guatemala currently is not a national priority. The situation is not likely to change unless the public finance challenges are recognized at the policy and strategy levels.

Niger had a number of policies that focused mainly on food security and on economic and social development. They also had a national youth policy that was adopted in 1998 (Djamen, 2019). However, the youth interviewed for the country case study mentioned several policy or socioeconomic barriers to their participation in agriculture. For example, producer organizations play an important role in accessing extension services, as the organizations generally have an internal EAS scheme. However, the presence of youth in producer organizations was very low at less than 20 percent in general. Sociocultural barriers are part of the reason. In Niger, youth are more interested in cash crops while older farmers are more involved in production of staple crops. However, it is difficult for youth to challenge the leadership of their elders. Finally, existing EAS providers are focused on providing advice on production techniques, while youth

were found to be more interested in agripreneurship and business development. Recognizing youth needs at the policy level in Niger is a needed key step.

Nigeria has a national youth policy which is an important policy driver for attracting youth to agriculture (Babu et al., 2020). The National Youth Policy 2019 discusses strategies for youth involvement in agriculture through improving access to credit/finance, land, capacity building services, education, and opportunities for youth employment in agriculture. Since the policy was implemented in 2019, its impact on rural youth entrepreneurs has not yet been seen – none of the respondents or institutions examined in the Nigeria case studies appear to have benefited from the policy. The lack of an entrepreneurship ecosystem to support youth in agriculture and in agribusinesses is seen as a major impediment in Nigeria for efforts that aim to convert the content of the youth-related policies into tangible benefits for youth.

In summary, while policy and strategy documents in the study countries are beginning to recognize the role and importance of engaging youth in agriculture, the translation of these policies into specific programs that are backed by investments is still at an early stage. Placing youth issues and their engagement in agriculture on the national policy agenda is important for identifying key areas in efforts aimed at developing agriculture and the rural economy where youth should be given special attention. Social investment and youth development funds need to support youth policies in agriculture. These youth policies in agriculture should guide the development of an entrepreneurship ecosystem in rural areas that aligns itself with youth-oriented agribusiness strategies across and along agribusiness value chains. Such an entrepreneurship ecosystem would involve continuous dialogue and interactions between multiple stakeholders who can articulate their problems, identify common ground to solve them, and implement these solutions. In Rwanda and Uganda, policy makers, with the backing of donor agencies, NGOs, and community-based organizations, are beginning to build such platforms and initiate the processes needed. But they are still at an early stage.

Institutions and intermediary organizations/multi-stakeholder platforms

The country case studies have several insights to offer on the institutional drivers of youth engagement in agriculture. In Uganda, intermediaries in the form of village agents link farmers to input suppliers, produce buyers and other service providers. Often paid through sales commissions, they may work directly for these service providers or for NGOs, projects, or private companies that seek to better link farmers to inputs and services. Five companies interviewed in Uganda employed on average 106 agents and served about 130,000 farmers in total. About three-quarters of the agents employed by these companies were youth, but the share of youth agents who were female was low, ranging from 16 to 33 percent (Franzel et al, 2020). Whereas donor agencies and NGOs in Uganda provide considerable support to village agents and to the organizations employing them, the Rwanda 2019 study found a lack of such support for young village agents (Franzel et al., 2019). The main objective of providing support for village agents is primarily to help private input suppliers recruit such agents and to provide training in order to improve the agent's information provision and sales performance, thus increasing the demand for their services among both agro-dealers and farmers.

Institutional mechanisms for internships offer an effective way for youth to strengthen skills, gain experience, enhance their marketability, develop professional networks, and realize that there are fulfilling careers to pursue in agriculture. In Rwanda, a government agency, a donor project, and a youth network developed an internship program for university graduates, placing 328 of them, 66 percent female, in private

companies and agricultural cooperatives. Interns did not earn any income from their internships, but being an intern significantly increased one's chances of later obtaining a paying position (Franzel et al, 2020).

Two contrasting initiatives provided credit to young agriculturalists in Uganda. One government initiative gave loans to youth groups. However, repayment rates were low – less than half – and, thus, not sustainable. There was no link to extension services. In the other initiative, a private bank partnered with a development project to provide loans to individual youth. With EAS staff supporting the youth who obtained loans, repayment rates were 95 percent, and the youth were able to start long-term relationships with the banks. In Niger, collaboration with banks improved access to and management of credit by youth, especially for women. One project in Dosso region engaged EAS providers to support youth in preparing their credit applications. In addition, EAS providers are also requested by the Niger Agricultural Bank to provide technical advice on credit application files. This approach not only facilitates youth and women's access to credit, it also improves the technical quality of the projects being funded and, consequently, their ability to generate the expected outcomes and impacts. At the end of 2018, 1,383 projects had been financed, 40 percent of which were led by women (LuxDev, 2018).

In Rwanda, facilitating formation of and support to youth groups was important. The Department of Animal Resources helped young poultry farmers in western Rwanda form 63 groups with about 12 farmers per group. The groups are important for accessing finance and inputs, for exchanging information among members, and for marketing their eggs.

From the Nigeria study, it was evident that institutional support to youth agripreneurs, such as from chambers of commerce or industry associations, was lacking. Most of the youth did not receive any support due to a lack of awareness, a lack of focus on the fish processing and small-scale fish production sub-sectors on which the youth agripreneurs specialized, or the lack of efficacy of such associations due to internal politics and a lack of agenda. The youth agripreneurs in the Nigeria case studies faced significant challenges in accessing insurance to minimize the risk of loss to the business due to natural disasters such as parasite infections and floods. This was primarily due to the non-availability of suitable insurance products to meet their risk management needs. Access to loans and credit was another major constraint. Most youth agripreneurs in the Nigeria case studies relied upon self-financing or help from their families to start their business. A report by the Carnegie Endowment for International Peace (Page, 2019) suggests that credit schemes offered by big credit agencies, such as the Central Bank of Nigeria's Agricultural Credit Guarantee Scheme, are poorly designed, badly implemented, and difficult to access. The Nigeria study (Babu et al., 2020) also observed that corruption and security threats have constrained the impact of certain youth-focused policies, like the National Youth Service Corps (Council on Foreign Relations, 2017; Oluwalogbon, 2019; Chukwuemeka et al, 2014).

In terms of access to knowledge, formal training received at universities or from government, not-for-profit, and private institutions have been extremely useful for youth agripreneurs. Some important topic areas for such training include leadership development, agribusiness management, and technology and entrepreneurship knowledge. However, many youth agripreneurs in the country case studies highlighted that they found it generally quite difficult to access necessary and continuous training.

To further support young agripreneurs, governments and development partners also can play useful facilitation roles in improving access to and in reducing risks of investing in innovations like digital tools. Initiatives helping youth develop businesses must help them access complementary services, such as business training, coaching, and credit. They can do this by offering the service or linking youth to others who do so.

Technological options, business infrastructure and regulatory environment

In addition to the policy and institutional environments, the availability of technology, business infrastructure, and a favorable regulatory environment can be effective drivers of youth engagement in agriculture.

Young agripreneurs have started successful fee-based extension companies in Rwanda and Uganda by focusing on niche enterprises and services, such as for horticulture and irrigation. In Rwanda, the Horticulture in Reality Corporation (HoReCo), which obtained contracts with government and donor agencies, employed 104 extension staff (85 percent youth, of which 40 percent were female). The Agriwin company in Rwanda contracted with private, large-scale farmers and employed 20 extension staff (all youth and 45 percent female). Private sector models are more financially sustainable than are other models that engage young agripreneurs, as they are generally not dependent on subsidies.

In the Rwanda 2019 study, it was found that there was relatively little use of ICT in agricultural extension, which has been shown to be an entry point for youth. Approaches that have been effective in other countries, such as video, are not widely used in Rwanda and hardly at all by local organizations. In the Nigeria study (Babu et al., 2020), the case studies emphasized that mobile and internet usage has been useful for building the networks of youth agripreneurs and for advertising, obtaining market information, receiving bulk orders, and for obtaining updates on the latest technologies. In Uganda, two input supply companies, Famunera and m-Omulimisa, operate call centers that farmers can use to get information about crop management. In Niger, the use of WhatsApp messaging has boosted e-extension and improved access to farm advisory services for youth. The use of ICTs makes the job of an agricultural extensionist more attractive to youth and makes it possible to reach a wider audience, hence, achieving greater impact.

In term of access to efficient and affordable infrastructure, one of the case studies in Nigeria highlighted the high cost of production and distribution in the fish and fingerling business. Access to inputs for fish processing have also been a challenge. Due to lack of innovations, the productivity of fish farming has been compromised due to problems in obtaining new brood stock. Lack of access to water and expensive fish extraction procedures were some other challenges faced by young entrepreneurs in Nigeria. Often agribusiness incubation programs in the local university system provided access to new technology. Receiving support for market and export opportunities has been another challenge highlighted by youth in the Nigeria study. In all of the case studies, youth reported that they had to create their own network to find market opportunities. Moreover, it was highlighted by a youth entrepreneur in Ibadan that youth are at a disadvantage when there is no regulatory mechanism which sets the quality standards. (Babu et al, 2020).

Youth also face difficulties in accessing the resources necessary to start and run their agricultural businesses, including land, farm inputs, and loans and insurance (particularly for climatic hazards). For example, even when facilities exist to access bank loans, youth in Niger hesitated to apply because they

considered agriculture to be too risky. They feared that poor management of the contracted loan or climatic or market shocks could cause them to lose their investment and assets and become poorer. Furthermore, some youth considered that the existing subsidies to support youth agripreneurs were not adequate. These subsidy schemes tend to give priority to acquisition of equipment or initial inputs, while youth think what is most essential is working capital.

Producer organizations, particularly apex (federation or unions) organizations, play an important role in the access of youth to advisory services, as they generally have internal extension schemes. The presence of youth in the membership of producer organizations is still very low in the study countries, at less than 20 percent in general. Such institutional barriers work against youth participation in agriculture. Also, existing extension providers are too focused on production techniques, while youth are more interested in agripreneurship and business development.

The Nigeria study also included case studies of three urban entrepreneurs. They were motivated to work in the agriculture sector to address the existing challenges in the food value chain in Nigeria such as logistical and infrastructure gaps and low processing capacity. One of the urban entrepreneurs from the case studies grew up on a poultry and vegetable farm in Nigeria and now has a shop for farm-fresh foodstuff and grocery items which aggregates the outputs of smallholder farmers and consumer goods companies. Mentoring, networking and credit support have played a key role in the success of all urban youth entrepreneurs in the case studies. One of the case studies highlighted that regulatory support in the form of tax exemptions and improved registration process has also been helpful for small and medium businesses, but challenges remain. Another case study stated that there is very little differentiation between micro and medium-sized business from a regulatory requirement point of view. Due to this lack of differentiation, a small business has to pay the same amount to government authorities for public adverts and is also required to hire auditors and incur other costs like logistics fees and multiple taxes that are very high in comparison to their revenue streams. Several young urban agripreneurs were identified in the Rwanda and Uganda studies including mushroom producers in Rwanda and yogurt and briquette processors in Uganda. But urban agripreneurs were not differentiated from rural ones in the Rwanda and Uganda studies so it was not possible to generalize about them.

Individual skills and capacity

Finally, the individual characteristics of youth and further development of their skills in agriculture and agribusiness can drive their effective engagement in agriculture. In Rwanda and Uganda, there were several models that helped to strengthen capacity of individual young agripreneurs. Programs to train youth to become agripreneurs were common and included training in such topics as developing a business plan, enterprise budgeting, record keeping, and marketing. A weakness of many of these training programs, however, was that they were not integrated into a broader strategy of increasing employment or linking youth to other support services needed to start a business, such as coaching or credit.

In Uganda, the Uganda National Apiculture Development Organization trained 150 paraprofessional extension workers, all youths, who provide fee-based advisory services to beekeepers, while also often having their own beekeeping businesses. Young community animal health workers backstopped by the Rwanda Agricultural Board provide fee-based services to dairy farmers in Rwanda.

The Rwanda study also identified gaps in tertiary agricultural educational institutions, including their lack of outreach programs providing services to farmers, which could serve as an important training ground for students, and that the University of Rwanda lacks a department of Agricultural Extension. A department of Agricultural Extension would be useful not only for training students in the most effective extension approaches, but also for conducting research and advising government, NGOs, and the private sector on the best extension approaches to use and how to use them.

In the Nigeria study, the case studies highlighted that the key individual success drivers for youth included personal ambition, the attitude of not giving up, responsibility, mentorship, a willingness to go the extra mile to serve customers, and entrepreneurial education. Youth emphasized that initiatives through networking with businessmen, political affiliates, and social networks helped in expanding their business. They also value their role as mentors in training and mentoring other youth interested in agribusiness and entrepreneurship (Babu et al., 2020).

IV. PROGRAMMATIC IMPLICATIONS FOR YOUTH ENGAGEMENT IN AGRICULTURE

Insights from the case studies conducted in Guatemala, Niger, Nigeria, Rwanda, and Uganda through a lens of drivers of youth engagement in agriculture provides several programmatic implications for promoting such engagement. We start with more general recommendations and then move on to those under specific drivers.

Inclusion of youth in agriculture through program interventions requires assessments of their needs. More resources are needed to conduct youth assessments before, during, and after planning youth-in-agriculture programs. Dedicated resources for conducting such assessments should include youths' views on their aspirations, needs, and constraints. Targets should be set and monitored for achieving specified levels of youth inclusion, including the number of youth to be recruited as extension providers and the number receiving services and training.

It is important to understand heterogeneity among youth and how this affects their opportunities for finding remunerative careers in agriculture. We saw from the framework that there are different characteristics of youth and different pathways that youth can take toward prosperity. This heterogeneity must be considered to engage youth appropriately in agriculture. More programs should target particularly vulnerable youth segments, such as poor rural youth who lack high school degrees.

Gender targets should also be monitored for inclusiveness. Incentives should be put in place for implementers to set, monitor, and meet both gender and youth targets. Development practitioners have learned a great deal in recent years about how to increase the proportion of women participating and benefiting from development activities. For example, proactively encouraging young women to apply for positions or participate in training can help increase their participation in agricultural development processes.

Policy and socioeconomic environment

Youth need support through a harmonized policy system with strong transparency and accountability mechanisms. Specific recommendations include:

Effective policies are key. Rwanda and Uganda have strong policies promoting youth in private sector EAS, but each had special elements from which other countries could learn. Rwandan policies included streamlining regulations to make it easier to start and operate businesses, tax exemption for small enterprises, reduced airtime rates for rural businesses, and the inclusion of private sector extension staff in public sector EAS planning and training. Ugandan policies included a national strategy for youth employment in agriculture, a department in the national university that trains students in EAS and provides EAS research and policy expertise, and registration of all EAS providers to improve coordination.

Update strategies. In Guatemala, the National Agricultural Extension Strategy should be updated to incorporate positive youth development – an approach engaging youth and recognizing and using their strengths – into programs working with youth in agriculture. This is important because in rural Guatemala, indigenous youth begin work in agriculture around five years of age and compulsory education ends in the sixth grade. Thus, youth development programs should begin early to bridge the gap between the end of formal schooling and the youth’s ability to gain formal employment, whether in agriculture or elsewhere, and move toward self-sufficiency. The government and development partners should set up functioning frameworks for greater coordination, partnership, and synergy among various actors.

Ensure security, transparency, and accountability. Countries like Nigeria have faced persistent corruption allegations and political threats. There is a need for addressing these issues through strong transparency and accountability policies. Additionally, strong monitoring and evaluation mechanisms should be a part of the policy process. Security threats, which have hampered participation in certain youth programs in some areas of Nigeria, should be addressed by taking strong safety measures in and around program sites.

Sensitize to change perceptions about agriculture. Agriculture is often viewed as not a productive form of employment. Continued efforts must be made through national policies and programs to create awareness among youth about employment opportunities in the agriculture sector and provide them incentives and support to undertake entrepreneurial ventures in agribusinesses. National and regional competitions to award prizes to and showcase young agripreneurs can help change attitudes toward agriculture and improve the status and networks of awardees.

Incentivize agribusiness companies to hire youth. Youth are often left out by agribusiness firms in their hiring processes, due to the limited experience of youth. Public-private partnerships to engage youth as interns in order to guide them towards specific career paths in agriculture is an effective way of attracting and retaining youth in agriculture and agribusiness. Additional incentives that could be offered private companies to pro-actively engage youth as employees in their businesses include offering tax incentives, corporate social responsibility awards, or recognizing companies with high achievement in engaging with youth both as employees and as suppliers or customers.

Help young women. Program implementers need to focus on gender at the same time as youth. Otherwise, the benefits accruing to youth may help only young males, particularly if the unique constraints that young women face are not addressed. Data on youth should be broken down by gender to show the number and percentage of young women targeted or benefitting.

Institutions and intermediary organizations/ multi-stakeholder platforms supporting youth entrepreneurs

Effective youth engagement can benefit from youth-friendly agribusiness support systems, integrated services, and financial support in the form of low cost and easy access credit and insurance.

Create a youth-friendly business ecosystem. In addition to policy-oriented interventions, effective engagement of youth requires nurturing institutions, intermediaries, and multi-stakeholder platforms that include youth entrepreneurs. This goes beyond the government institutions and government-sponsored programs that are often not adequate to meet the needs of young entrepreneurs. For example, NGOs, development organizations, and farmers' organizations should provide support on training, financial support, and monitoring and evaluation of youth oriented agricultural programs. Such organizations working on the ground can assess the local training and financial needs of young entrepreneurs. Their collaboration with educational institutions, government, and successful youth entrepreneurs who are willing to provide mentorship should be strengthened. Focus should also be on improving the capacity of NGOs, development organizations, and farmers' organizations on monitoring and evaluation of existing policies and programs focused on youth entrepreneurs.

Integrate services to help youth develop businesses. Programs offering training to agripreneurs should ensure that they offer or link beneficiaries to services needed to help their businesses develop. Such services may include foundational training on topics such as financial literacy, coaching, and access to financial services.

Provide access to credit and insurance. In all of the five countries studied, it was evident that there is a need to create strategies to enhance youth access to credit and insurance mechanisms. Youth need to be supported through government insurance schemes or by partnering with private insurance companies. This is particularly important for small and medium entrepreneurs working in agribusiness to manage their business risks. In the context of access to credit, design and implementation concerns should be addressed by frequent assessments of loans that have been granted. To improve credit access to rural entrepreneurs, efforts should be made to involve more local financial institutions.

Technological options, business infrastructure and regulatory environment

Investments in community-based agricultural infrastructure; technology support, including production processes and ICT tools; local institutions to improve market access; and regulatory environment are necessary to allow youth's entry into agriculture.

Address infrastructure bottlenecks. In Nigeria, lack of advanced fish breeding techniques, lack of access to water, postharvest losses, poor-quality midstream logistics, and lack of inexpensive inputs for fish production were major concerns of youth engaged in fish farming which need to be addressed. Some government and international organizations are currently working on addressing some of these infrastructure challenges, but stronger efforts need to be made going forward. Increased investments are needed in community-based infrastructure for the development of agricultural activities, such as warehouses and market facilities, with a priority for areas lacking the agricultural infrastructure necessary for successful youth engagement in agriculture.

Provide technology and regulatory support. ICTs are useful for youth to network, for obtaining updated market and technology information, and for advertising their products. Therefore, efforts should be made to improve local penetration and to provide ICT services at low cost. To ensure products are competitive in the domestic and international markets, quality standards and regulatory mechanisms for produce inspection, grading, food safety, and traceability need to be customized to meet the specific needs of a country. There should also be focus on easing regulatory constraints such as high logistics fees and multiple taxes which impact small enterprises operating in urban areas.

Improve market access. In the Nigerian case, institutions like chambers of commerce and youth associations need to engage in the policy process to help policymakers better understand market and related concerns and realities of youth entrepreneurs. Such business-focused associations should also help youth entrepreneurs to access relevant local market information. The government should also facilitate the development of strong value chains and improving their access to youth entrepreneurs.

Individual skills and capacity

Skill development, mentorship and coaching, and integration of extension curricula in higher education programs can attract youth to agriculture.

Create skill development opportunities. Create programs which i) introduce the concept of agricultural entrepreneurship in order to attract young individuals to consider agriculture and agripreneurial activities as possible employment pathways, ii) cover broader entrepreneurial topics, including financial and business management and leadership, and iii) meet localized/specific training needs, such as for fisheries, in particular regions. The government should strengthen its collaboration with local and national universities, the private sector, NGOs, development organizations, and existing young entrepreneurs to open additional entrepreneurial centers which provide free or subsidized training.

Provide mentorship and coaching. Many of the skills for young people engaged in agriculture can only be learned by doing, rather than in the classroom. To shore up the individual skills gained, mentoring (including peer mentoring) and coaching are essential, especially for agripreneurial activities. Specifically, programs can promote mentorship by youth entrepreneurs. Contractual arrangements can be established through which existing entrepreneurs provide advice and relevant inputs to emerging businesses of a similar type as their own and, in return, charge a fee for doing so. Subsidies could help ensure that youth and women are able to access such services.

Continue education. Youth engagement in agriculture could also be enhanced through tertiary agricultural education. However, as shown by the Nigerian and Rwandan cases, current knowledge gaps should be closed by adding extension curricula and farmer outreach activities to university programs.

V. CONCLUDING REMARKS

This paper identifies policy, institutional, technological, and capability drivers of youth engagement in agriculture with a view to develop specific programmatic lessons. Using a conceptual framework that brings together several pathways of youth prosperity to contextual and driving factors that guide interventions to

promote youth engagement in agriculture, we report selected insights from case studies on youth in agriculture from Guatemala, Niger, Nigeria, Rwanda, and Uganda.

While we have learned much about the drivers of youth engagement in agriculture through the cases reported, there is still much to be learned and the need for further research:

There is a need to better evaluate digital tools for the benefit of youth engagement in agriculture. While digital tools in agripreneurship programs have received considerable attention recently, these need to be scaled, enhanced, and sustained. Subsidies are justified for developing, adopting, and evaluating tools that support youth in agriculture. However, there should be a clear business plan and timeline for phasing out such subsidies.

There is need for impact assessments. Few rigorous assessments of interventions to promote youth in agriculture exist. They are needed to objectively examine program performance and to learn how to develop and replicate the more effective programs. A high priority is to better understand whether programs training rural youth to become agripreneurs are effective and the specific types of training and supplementary services required, such as financial literacy training, coaching, and the provision of financial services. The advantages, disadvantages, and cost-effectiveness of different models and how best to improve them would improve the viability of youth engagement models and the potential for young people and the agricultural value chains they work in to benefit.

As policymakers and program managers in developing countries search for interventions that can promote youth involvement in agriculture, the insights presented in this paper may be useful for identifying context-specific issues and barriers in their own countries. The framework presented here could be applied to study youth engagement issues in a country or in more local decentralized contexts to develop such programs on the basis of lessons learned from elsewhere. There is a need to support and implement the driving factors identified in this paper for expanding and intensifying youth engagement in agriculture.

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