The European Journal of Development Research
https://doi.org/10.1057/s41287-020-00352-2

SPECIAL ISSUE ARTICLE

Who Wants to Farm? Answers Depend on How You Ask: A Case Study on Youth Aspirations in Kenya

Katie LaRue[1] · Thomas Daum[1] · Kai Mausch[2] · Dave Harris[3,4]

Accepted: 4 December 2020

Abstract

While there is a consensus that rural poverty has to be reduced, there are two opposing views on the role that agriculture can play in this regard: a "farm-based" and an "off-farm led" development paradigm where the respective other sector is merely a complementary income source during a transition period. The latter paradigm is supported by studies finding that rural youth in sub-Saharan Africa are not particularly interested in agriculture. However, policy discourse on youth in agriculture often situates their aspirations as either full-time farming or non-farming, thus either supporting or opposing one or the other of the two paradigms, while neglecting the shades of grey between these two extremes. Using a mixed-methods approach—a household survey and a narrative-based tool called SenseMaker—to collect data from both adults and youth in 261 households in rural Kenya, this study suggests that this categorical understanding needs to be revisited to inform rural development strategies based on the actual aspirations of rural youth.

Keywords Agricultural development · Rural areas · Youth bulge · Poverty · Youth aspirations

Résumé

S'il existe un consensus sur le fait que la pauvreté en milieu rural doit être réduite, il existe deux points de vue opposés sur le rôle que l'agriculture peut jouer à cet égard: un paradigme de développement basé sur l'agriculture et un autre axé sur les activi-

Supplementary information The online version of this article (https://doi.org/10.1057/s41287-020-00352-2) contains supplementary material, which is available to authorized users.

✉ Katie LaRue
laruek@mail.gvsu.edu

[1] Chair of Social and Institutional Change in Agricultural Development, University of Hohenheim, Schloss Hohenheim 1, 70599 Stuttgart, Germany

[2] World Agroforestry (ICRAF), Nairobi, Kenya

[3] International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Nairobi, Kenya

[4] School of Environment, Natural Resources and Geography, Bangor University, Bangor, UK

Published online: 12 January 2021

tés non agricoles, où l'autre secteur respectif n'est qu'une simple source de revenus complémentaires pendant une période transitoire. Le second paradigme s'appuie sur des études qui démontrent que les jeunes vivant en milieu rural en Afrique subsaharienne ne sont pas particulièrement intéressés par l'agriculture. Cependant, le discours politique sur les jeunes et l'agriculture dépeint souvent leurs aspirations ainsi: soit être agriculteur à plein temps ou pas d'agriculture du tout. Ce discours soutient ou s'oppose à l'un ou l'autre des deux paradigmes, tout en négligeant les nuances qui existent entre ces deux extrêmes. Cette étude utilise des méthodes mixtes – une enquête auprès des ménages et un outil d'analyse des narrations appelé SenseMaker – pour collecter des données auprès d'adultes et de jeunes dans 261 ménages en milieu rural au Kenya. L'étude suggère que cette dichotomie agriculture à plein temps – pas d'agriculture doit être revue pour dessiner des stratégies de développement rural basées sur les aspirations réelles de la jeunesse en milieu rural.

Introduction

In Sub-Saharan Africa, poverty alleviation through rural development has been the primary focus of governments and donors alike (OECD 2016). Efforts concentrate on rural areas where, despite rural–urban migration, 60% of the population resides (United Nations 2019) and where 82% of all Africans in extreme poverty are living (Beegle and Christiansen 2019). While there is a consensus that rural poverty has to be reduced, the best way to do so is intensively debated, with different viewpoints on the importance of agriculture, which can be summarised as farm- or off-farm-related paradigms (Bellù 2011; Diao et al. 2017). Farm-based paradigms assert that the development of the agricultural sector in predominantly agrarian societies, where most rural households derive a substantial portion of their livelihoods from farming, is the key pathway out of poverty (Barrett et al. 2001; Glover et al. 2016; Johnston and Mellor 1961; Lipton 2006; World Bank 2007). According to this paradigm, agricultural development generates positive spill-overs to the rural non-farm economy and "kick-starts" development (Byerlee et al. 2009; Jayne et al. 2018). This paradigm is exemplified by efforts such as the Comprehensive Africa Agriculture Development Program (CAADP) and the Alliance for a Green Revolution (AGRA). AGRA, for example, argues that "no region in the world has built a modern economy without first strengthening its agricultural sector" and that the "youth represent an enormous opportunity" for agriculture transformation.[1]

In contrast, off-farm-led paradigms see fewer opportunities for rural development through smallholder farming and argue for the need to industrialize and focus on the non-agricultural sector—which may then lead to positive spill-overs for agriculture (Cantore et al. 2017; Lewis 1954, Gardner 2000; Matsuyama 1992; Murphy et al. 1989; Söderbom and Teal 2003). Collier (2008) popularized this view arguing that smallholder farming is often romanticized ("peasants, like pandas, are to be preserved") and should be replaced by large-scale commercial farming and

[1] https://agra.org/our-strategy/.

industrialization. Similarly, Morris and Fessehaie (2014) argue that "Africa needs to provide job opportunities to millions of young people. Only a massive industrialisation effort will enable Africa to eradicate poverty" (p. 26). Importantly, most advocates of off-farm-driven structural transformation acknowledge that diversification is a gradual process during which agriculture continues to play a key role (Barrett et al. 2017a, b).

To what extent these different paradigms can be successful depends on many factors. For example, the off-farm led paradigm depends on the capacity of a country to be either internationally competitive with other low-wage economies if the focus is on export, or to ensure sufficient protection if the focus is on import substitution (cf. Bellù 2011). Another factor, which has received increasing attention in recent years, is the interest of the youth to engage in farming.

Several studies indicate that rural youth are not interested in agriculture –at least not under current conditions (see Bezu and Holden 2014, for Ethiopia; Burnet et al. 2017, for Kenya; Elias et al. 2018, for several African countries; Leavy and Smith 2010; Sumberg et al. 2017, for Ghana). Elias et al. (2018) found that traditional farming is "considered a fallback option for those who have 'failed'" (p. 99).[2] In Ethiopia, Tadele and Gella (2012) found farming to be considered as "backward, demanding and even demeaning" (p. 41), often viewed as a "last resort, and for many not an option at all" (p. 33). In Ghana, Sumberg et al. (2017) found that young people describe farming as a non-modern and physically difficult job for the uneducated, concluding that "it is very short-sighted to think that agriculture can provide the employment sweet spot for young rural Africans" (p. 159). These findings have been used to support the off-farm-led paradigm since efforts to use agriculture as an "engine" for development may be counteracted by the limited interest of the youth to run this "engine".

This is a potentially powerful argument given that youth constitute a large share of the population in Sub—Saharan Africa—75% are younger than 35 (United Nations 2019) which is the definition employed by the Kenyan government (UNDP 2013) and for this study—and given their ability to vote with their feet by walking away from farming. This has led to an increased focus on youth by several organizations (FAO 2014; IFAD 2019), often arguing that farming needs to become more attractive, which can help to stimulate farm-led development (Sumberg and Hunt 2019). Such efforts are supported by studies painting a less dire picture of young people's interest in agriculture compared to the ones above (Berckmoes and White 2016, for Burundi; Daum 2019, for Zambia; Elias et al. 2018, for several African countries; Giuliani et al. 2017, for Morocco; Kristensen and Birch-Thomsen 2013, for Uganda and Zambia; Metelerkamp et al. 2019, for South Africa). In this regard, a more nuanced understanding of the youth's interest in farming is essential when considering the different development strategies that can contribute to poverty alleviation.

[2] However, they also acknowledge that "young people may move in and out of agriculture over their life course, combining it with other activities, in parallel or sequentially, to generate capital to establish their independent lives and livelihoods" (p. 103).

However, a more nuanced understanding is constrained by several conceptual shortcomings. First, in policy discourses on youth aspirations, their aspirations towards farming are often framed as a "take it or leave it" decision. Such stylized assertions are often not based on empirical evidence (Abay et al. 2020; Daum 2019). Moreover, while some studies allow the youth to express their interest in farming on a continuum scale (e.g., Rietveld et al. 2020), much of the literature has a binary approach to youth aspirations related to farming. Asking young people about their aspired livelihood choice (Bezu and Holden 2014; Melchers and Büchler 2017; Mussa 2020), aspired jobs (Elias et al. 2018; Mussa 2020) or whether they want to be farmers artificially situates their livelihood decisions in a dichotomy of either being full-time farmers or non-farmers (i.e. wishing for other jobs). For example, in Ethiopia, Bezu and Holden (2014) report that "only 9% of the youth (…) chose agriculture as their future livelihood while the others plan non-agricultural employment" (p. 270). Such an approach leads to findings either supporting or countering the above-mentioned development paradigms but neglecting the shades of grey between these two extremes.

Second, most literature either focuses on ambitions of young people, i.e. their level or magnitude of ambitions, which can be measured by calculating ambition indices[3] (Beaman et al. 2012; Bernard and Taffesse 2014) or on aspirations referring to *what* people want to do and how they form their strategy across various livelihood options (Mausch et al. 2018). We define ambition as someone's desired future status without being explicit about the means to reach that ambition. Our definition of aspirations, on the other hand, takes account of how that ambition is envisioned to be achieved, i.e. the preferred livelihood strategy and underlying combination of income streams to be employed to that end. However, to our knowledge, no studies have looked at both of these concepts in parallel or simultaneously, which would provide more guidance for policymakers. The combination is thereby more suitable to guide support mechanisms and entry points. Ambitions provide some guidance on the variation of motivation that is present within a population, where clusters of likely progress can be leveraged and stagnating clusters can be supported. Integrating aspirations provides additional insights into the livelihood strategies that form the basis for these ambitions and thereby more concrete entry points for support.

Third, little is known about the factors influencing the aspirations and ambitions of youth. While some authors argue that young people maneuver according to their geographical, socio-economic and political opportunity space—a term coined by Sumberg and Okali (2013)—few have studied this opportunity space empirically nor assessed how realistic youth find their aspirations to be.

Against this background, this paper sets out to answer three questions: (1) Are youth more likely to aspire to be farmers when presented with non-mutually exclusive options?; (2) What is the relationship between ambition and aspirations?; (3) Who influences youth aspirations and how do aspirations/ambitions vary based on the identity of the main influencer? For this paper, and in line with previously

[3] These indices are referred to as aspiration indices in the original version but are referred to here as ambition indices to better capture their conceptualization.

mentioned definitions, ambitions will reflect the level or magnitude of the desired achievement, while aspirations will capture the actual goal that is desired.

Meeting these three objectives, this paper contributes to obtaining a better understanding of both youth aspirations and ambitions as well as how they are formed. This will help policymakers and relevant stakeholders to find effective solutions to generate meaningful employment opportunities for the future working population within the sub-Saharan African region and to guide efforts targeted towards alleviating rural poverty.

The paper is organised as follows: "Data and Methods" section introduces sampling strategies, the study sites in rural Kenya, and the data collection methods, namely an innovative, qualitative, narrative-based data collection tool called SenseMaker and a semi-quantitative household questionnaire. "Results" section presents the sample characteristics and addresses the three research questions. "Discussion and Conclusion" section discusses the results and makes some concluding remarks.

Data and Methods

Eliciting Aspirations

First, data were collected using a qualitative narrative-based tool called SenseMaker (Snowden 2010, Cognitive Edge 2019), a research tool and method developed by Cognitive Edge.[4] The SenseMaker approach follows a two-step procedure and has been applied in several previous empirical studies (GirlHub 2014; Jenal 2016; Polk 2017):

1. The process begins with a story prompt. Here, respondents were asked: "Imagine your life in 10 years' time, tell a story about how you got to that point from this present day"? The narrative is recorded.
2. Respondents are then asked to interpret the meaning of their own stories through a series of questions based on predefined topics of interest that have been generated following a thorough literature review (GirlHub 2014). This self-interpretation of the shared narrative is called the "significance framework"

For this study, the significance framework is built around the livelihood concept (Ellis 1998; Ellis and Freeman 2004). It focuses on factors that influence livelihood strategies and translates these into the survey instrument. Here we focus on themes directly influencing strategic choices such as the degree of focus on farming vs other activities, parental pressures and perceived level of opportunities within their location and levels of confidence to reach their aspirations. All these factors support the understanding of how youth see their futures and what they see as the main drivers

[4] Cognitive Edge is a private consultancy company. Cognitive Edge is building methods, tools and capability to utilise insights from Complex Adaptive Systems theory and other scientific disciplines in social systems. This approach is termed Naturalising Sensemaking for which they developed SenseMaker®.

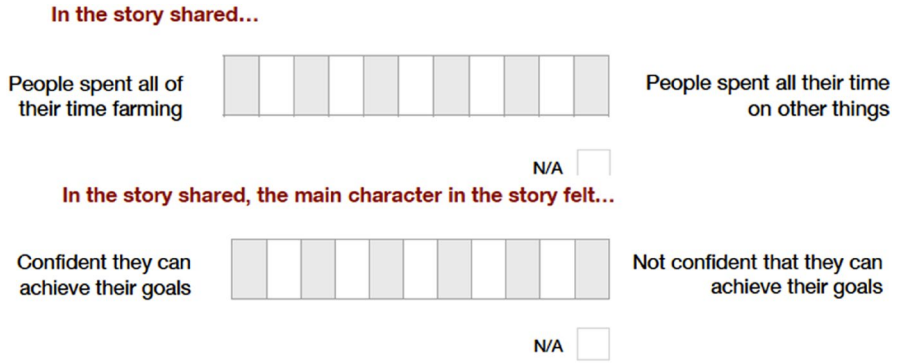

Fig. 1 Examples of some of the Dyads used in the Sense Maker Questionnaire

and obstacles in their envisioned pathways. All questions following the narrative are asked in relation to the experience the respondent shared, which allows the storyteller to interpret their own story.[5] Data collected using SenseMaker will be referred to as based on the "Aspiration survey" (see Annex 1 for the full survey instrument).

The scales used in the Sensemaker environment are 0–100 on a sliding scale that usually involves opposing ends (Fig. 1). As shown in the appendix, Sensemaker can also ask questions on a two-dimensional scale, using rectangles, and on a three-dimensional scale, using triangles. However, the data used for this paper only used data from one-dimensional questions.

Respondents are asked to drag a ball along the slider to a position that best describes the experience they shared. In this example, the two polarities of the dyad above are youth having no option but to be farmers or despite all other options available, they want to be farmers.

Measuring Ambitions

To measure ambitions, we follow an index developed by Bernard and Taffesse (2014) and refer to the corresponding data as the "Ambition survey[6]". As part of a quantitative survey, questions to measure ambitions were asked. These questions were based on a standardised survey instrument and result in an index (Bernard and Taffesse 2014). While the index was originally referred to as aspiration index, in this study and in line with our definition outlined above, the index is referred to as an ambition index as it does not account for sectoral differences in aspirations but rather the level of difference between the status quo and the future state (Mausch et al. 2018). To capture the complexity of the different goals that individuals choose for themselves, the instrument combines questions on income, social status, and education. Specifically, the questions asked are:

[5] For a more detailed elaboration of the aspiration survey design see Mausch et al. this issue.

[6] See https://enketo.ona.io/x/#Fqgaznh8 for the full Ambition survey instrument.

> Imagine the person with the highest level of (…) in your community, this represents a 10. The one with the lowest (…) in the community is represented with a 1. What is the level of (…) that you have at present on the scale from 1–10?
>
> What is the level of (…) that you would like to achieve (could be higher than 10)?

Asking about the person with the minimum and maximum levels of each dimension within the community (the highest and lowest level of income, social status, and education) is done to anchor the individual responses (Bernard and Taffesse 2014; Kosec et al. 2014; Mekonnen and Gerber 2017). However, individuals were allowed to provide answers related to their ambition that were above the maximum in their community. To calculate an aggregated index of ambition, a further question was asked to encapsulate the relative importance individuals place on each of the three dimensions (income, status, education), which allows a better understanding of priorities and trade-offs at the individual level as preferences are not homogenous. Specifically, respondents were asked:

> Tell me which of these three dimensions are the most important for you. Here are 20 beans. Please distribute all the 20 beans on this sheet of paper with the field representing the 3 dimensions according to their importance (…).

Following Bernard and Taffesse (2014), the three dimensions were combined into an index using Eq. (1). The index is constructed by normalizing each dimension of the ambitioned state by subtracting the community average and dividing this difference by the community level standard deviation. This ensures the dimensions are unit free and as a result, can be directly comparable and further aggregated. The result is then multiplied by the weight each individual gives to the different indicators of ambitions. The three normalized outcomes for the different dimensions are then summed up for each individual to produce the personal aggregated ambition index (Akramov et al. 2003; Kosec et al. 2014; Mekonnen and Gerber 2017). The index helps to encapsulate the various ambition levels amongst individuals. A higher result indicates a higher ambition level. Due to the nature of the index, a negative value indicates individuals with ambitions below the average of the sample population.

Formally, the index can be written as:

$$\mathrm{A}_i = \sum k\left(\frac{a_i^k - \mu^k}{\sigma^k}\right) * W_i^k \tag{1}$$

where a_i^k is individual i's response to question 2 above regarding dimension K, (income, social status or education), μ^k is the sample mean for responses to question 2 for dimension K, σ^k is the standard deviation for responses to question 2 for dimension K, W_i^k is the weight that individual i assigned to the corresponding dimension when answering question 3.

Study Design

To understand both aspirations and ambitions, we used a mixed-methods approach that combines the strengths of both quantitative and qualitative data collection methods. Kenya is used as a case study as it is an important business and financial hub in East Africa and has one of the most dynamic economies with increasing non-farm employment opportunities. Additionally, past research in Kenya highlights the dynamics of youth engagement in agriculture and therefore offers a good environment in which to test this new approach against past research efforts. A combination of the narrative-based data collection method SenseMaker and a standardized questionnaire used for a household survey which included the ambition index was used. The sequence of the two data collection approaches was important; SenseMaker was applied first to avoid any association with agriculture as it only addressed rural development topics broadly at the beginning and only narrowed down to specific agricultural questions towards the end. SenseMaker was used to explore potential livelihood portfolios and choices. The household survey mainly explored the degree of ambition within the sample population while also capturing aspirations through direct questioning around preferred income portfolios and socio-cultural background characteristics. The parallel assessment of both ambitions and aspirations in the same target population will provide a richer picture of dynamism and aspired future livelihoods to generate more detailed options for future support mechanisms.

Sampling Design and Study Sites

300 households in rural Kenya were selected using a multi-stage sampling technique. First, three counties and 4 sub-counties were purposefully selected. Counties were selected to ensure a mix of communities with varying degrees of agricultural- and off-farm work potential or opportunities to pursue other livelihood options. The selection was based on the distance and connectivity to the capital city Nairobi as well as biophysical preconditions that vary in their agricultural potential. While these are not meant to be representative of Kenya in general, they do represent the range of diversity within the country (for more details see Mausch et al., this issue).

The three locations that were chosen were: (1) Turkana county and the sub-county of Loima (2) Meru county and the sub-county of Timau, (3) and Makueni county, and the sub-counties Kibwezi east and Lalawa. Turkana represents a remote region of Kenya with limited agricultural potential and a dominant pastoral lifestyle but Loima sub-county also runs several irrigation schemes that allow relatively reliable farming (Turkana County 2019a). Meru county and Timau sub-county represent the highest potential for agricultural production and are relatively well connected to the capital city as well as one of the regional urban centres, which offers both job opportunities and a developed market for agricultural inputs and outputs (Meru County 2019a). Finally, Makueni county represents an intermediate potential for agriculture and, although it is also relatively close to the capital city, it has more limited infrastructure than Meru (Makueni County 2019a).

Table 1 Overview of respondents in relation to the sampling criteria

	Aspirations survey size	Ambitions survey size
Total households	n.a.[a]	261
Total respondents	537	348
By age		
Adults (> 35 years)	341	208
Youth (< 35 years)	196	140
By role		
Household head	233	222
Spouse	37	-
Youth	99	87

[a]The number of households cannot be determined with accuracy as the household heads and spouse/youth were interviewed independently and due to technical difficulties with the GPS data the intended matching based on location was not possible for all data points

To capture youth views specifically, we intentionally targeted youth members of the community. Different authors have used different definitions of 'youth', mostly emphasizing that it relates to a transition period between childhood and adulthood (Leavy and Smith 2010). In this transition period, important biological and social changes occur. Most definitions try to combine several of these changes into one definition: children mature sexually, grow socially as well as become autonomous from their parents (Bennell 2007). However, all these changes may occur at different ages and take various times for different people. Also, the length of this transition period depends on socio-cultural, externally constructed factors such as norms, which can differ across regions and countries. For example, in some communities, young men who are unable to provide for a future wife will remain categorized as a young person regardless of age (Leavy and Smith 2010). Thus, one needs to be careful when categorizing people based on age alone. Keeping this limitation in mind, economic analysis requires some objective and clear classification of who is considered to be a youth. For this study, we define youth as those aged between 16 to 35 years,[7] which is in line with many policy definitions of youth in Kenya (UNDP 2013).

During the second stage of sampling, ten villages were randomly selected at the sub-county level and from these villages, 10 households were randomly selected, leading to the final 300 selected households. Within each household, the household head (defined by family role) was selected. In addition, in a random draw, the spouse or one youth member of the household was sampled. This implies that some respondents can be classified as both the household head based on their role as well as youth based on their age. Thus, the data provides insights into the views of individuals disaggregated between either age or family roles.

[7] For simplicity we use under 35 as a shorthand for the remainder of the paper.

Table 2 Household characteristics

Variable	Makueni $N = 92$		Meru $N = 88$		Turkana $N = 81$	
	Mean	SD	Mean	SD	Mean	SD
Gender (% of female)	65	48	47	50	64	50
Household head age (years)	51	17	52	14	44	15
Education level (years)	7	4	8	5	2	3
Identify as farmer (%)	86	4	85	4	86	3
Household size	4.5	2.0	5.2	2.1	8.8	4.3
Farm size (acres)	6.8	6.2	1.7	2.3	2.5	3.0
Land ownership (%)	46	5	82	39	48	5
Farm income (% of total)	55	26	57	29	40	25
Crop income (% of farm)	61	26	54	29	49	31
Livestock income (% of farm)	38	24	38	28	46	31

The household survey contained two sections with the household head answering the first set of questions followed by a young person answering the second set of questions. Table 1 provides an overview of the sample. The first section of the questionnaire intended for the household head included all questions around general household characteristics such as income and assets but also featured a set of questions related to their aspirations. The youth section only included the questions on aspirations. As an outcome, some of the results are disaggregated by role (household head vs. youth) and some by age (adult vs. youth).

Both methods were administered to the exact same households and family members during two different rounds of survey implementation within 4 weeks. However, respondents' data cannot be matched between the surveys due to technical difficulties with the identification method used in one of the surveys. While the direct comparison of individual answers is therefore not possible, this approach will still be valuable to compare perceptions of younger and older populations and trends within the survey method. Additionally, since some family members were not present for the second round of interviews, the sample size for the second survey is smaller. The tables and figures used throughout will indicate which data set is being referenced. Data collected using SenseMaker will be referred to as "Aspiration survey" and data from the household survey will be referred to as "Ambition survey".

Results

Sample Characteristics

Table 2 shows some characteristics of the sample by county. Overall, noteworthy differences are: Turkana has the lowest average education levels and the largest households, Makueni has a much larger average farm size and Turkana has a slightly higher share of farm income derived from livestock.

Table 3 Youth's livelihood goals, preferred place of living in the future and current working time spent farming ($N=87$). *Source* Ambitions Survey

N	Youth livelihood goals			
	Total	Business/self-employed	Farming	Wage/salary
	87	57	20	10
Preferred place of residence in the future (%)				
This village	49	41	65	60
Next town	24	30	15	10
Capital	17	18	15	20
Foreign	6	7	0	10
Other village	2	2	5	0
N/A	1	2	0	0
	100	100	100	100
Current working time spent farming (%)				
All the time	5	5	5	0
Most of the time	29	27	50	0
Part of the time	27	20	30	60
A little bit of the time	22	25	10	30
None at all	17	23	5	10
	100	100	100	100
Household farm size (%)				
<2 acres	58	74	14	12
≥ 2 acres	42	53	40	7
	100	100	100	100

Who Wants to Farm? Does Conceptualizing Youth Aspirations as Categorical Reflect Their Actual Views on Farming?

Understanding the actual career strategies (aspiration) of young people is key for designing appropriate agricultural and rural policies. When asking youth respondents about their livelihood goals, forcing them to decide between the mutually exclusive options of farming, own business and wage/salary, 23% opted for farming, while 66% preferred to run their own business. This business may be non-agricultural (e.g. carpentry, hairdressing, shops) or agriculture-related (e.g. agricultural trade, food processing). Twelve % envisioned becoming wage-employed, which includes government-paid jobs such as police officers, doctors, nurses and teachers (Table 3). Their livelihood goals still lie primarily in business even considering the majority of young households currently spend most of their working time on the farm. However, youth within households that own more than the mean 2 acres of land have aspirations that are more often in farming as compared to youth from households that own less than 2 acres land. This is in line with results from Bezu and Holden (2014) who

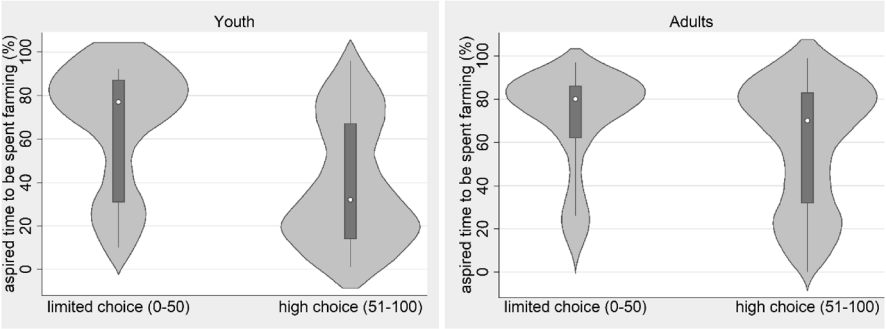

Fig. 2 Future farming aspirations and perceived level of choice to farm for youth and adults. *Note* Answers to the question "In the story shared, people spent all of their time doing other things (=0)—People spent all of their time farming (=1)." Across youth and adults and limited or high choice according to answers to the question: "In the story shared, youth feel like they have no option but to be farmers (0)—Despite other options, they want to be farmers (100)"

found that youth are forced out of agriculture due to limited access to land and other resources.

Interestingly, most livelihood goals are rural: 49% of youth respondents preferred to remain at their current place of residence 24% would like to live in the next town and only 17% wished to migrate to the capital (Table 3). This is also reflected by the following quotes suggesting that many young people have a strong commitment to the community:

> I […] would like to have graduated from University of Machakos where I am pursuing bachelor's degree in Education Science. I would like to get employed and rescue my grandparents from chronic poverty. I can achieve this through working hard in school and getting bursaries from the government. (Female, 16–24, Makueni).

> In ten years to come I […] wish to further my education and get a better employment as well to create my own employment to give back to society. (Female 25–34, Meru).

While Table 3 suggests that youth have limited interest in farming, this picture changes when they are not forced to choose between the mutually exclusive options of farming and other livelihood goals. To make this possible, respondents were asked how much working time their future-selves spent on farming. Combining this with the perceived level of choice between farming and other career options, for which respondents were asked to assess on a scale from 0 (no choice but farming) to 100 (despite other options they still want to farm), provides an assessment of the freedom people feel to move into and out of farming. The trends across younger and older respondents are significantly different (Fig. 2). Few respondents, young or old, opted for the extremes (being full-time farmers or non-farmers) and many chose an 80:20 split where farming, as well as other income streams, play at least some role (*y*-axis). While farming plays some role in the stories of the respondents, there is

Table 4 Ambition index and its components by age group. *Source* Ambitions Survey

Variable	Adult ($N=206$)		Youth ($N=139$)		*T*-test/ Mann–Whitney
	Mean	SD	Mean	SD	*P* value
Overall ambition	−0.02	0.69	0.18	0.77	0.010
Income	−0.05	0.39	−0.01	0.53	0.450
Social status	0.03	0.23	−0.01	0.24	0.023
Education	0.01	0.38	0.21	0.35	0.000

a clear shift towards more time spent farming among older respondents. Farming plays a lesser but still important role for youth compared to adults.

The difference across the sub-groups that feel high or low degrees of freedom to choose between farming or other occupations is much more prominent among youth. Where people feel they have high levels of choice, the time spent farming is much less than those who feel they have no choice but to farm. Among the older respondents, most still see themselves farming most of their time even if they have other options.

The quotes displayed below, which are derived from the stories recorded with SenseMaker, further illustrate that forcing young people to choose between being either full-time farmers or non-farmers when answering this question can be misleading. When asked to imagine their lives in ten years' time, most youth in all counties reported a desire to pursue mixed livelihood strategies. This involved some type of business or wage employment coupled with farming for various strategies such as a main source of income, supplemental income, or as a safety net:

> I wish to press on with my education and my dream is to become a doctor. From there I will buy a land and engage in livestock farming. I would also open a chemist [a pharmacy] to help the sick in my community (Male, under 16, Meru).

> In the next ten years I want to build my own rental apartments to ensure I set up my business in the same building. Currently I own a hotel whereby I am paying rent for it. I have already bought land for building and working on saving to get enough money to start the construction. I also do farming and use the farm products in my hotel (Female 25–34, Makueni).

> I want to do business and get some money to help myself. I will also keep animals as a way of supporting my living (Female, 16–24, Turkana).

> In the next ten years I want to start a fruits and vegetables business. I also want to build a better shelter for my family and educate my children. Currently I do some little seasonal farming (Female, 16–24, Makueni).

> I buy and sell goats. I travel to remote places of Turkana where I buy animals cheaply and I transport them to Lodwar where they can fetch a good

Table 5 Mean of the relative importance respondents attach to the three dimensions of ambitions (out of a total score of 20). *Source* Ambitions Survey

Variable	Adult ($N=206$)		Youth ($N=139$)		*T*-test/ Mann–Whitney
	Mean	SD	Mean	SD	*P* value
Income (%)	40	19	50	22	0.000
Social status (%)	22	12	22	13	0.697
Education (%)	38	38	28	24	0.000

Table 6 Youth ambitions index by on-farm or off-farm related livelihoods (directly asked). *Source* Ambitions Survey

Variable	On-farm livelihood aspirations ($N=20$)		Off-farm livelihood aspirations ($N=63$)		*T*-test/ Mann–Whitney
	Mean	SD	Mean	SD	*P* value
Overall ambition	−0.06	0.67	0.20	0.77	0.086
Income	−0.11	0.53	−0.01	0.57	0.253
Social status	0.00	0.20	−0.01	0.15	0.442
Education	0.04	0.22	0.22	0.36	0.023

Table 7 Ambition index by whether youth want to remain in, or leave, rural areas. *Source* Ambitions Survey

Variable	Stay rural ($N=43$)		Leave rural area ($N=40$)		*T* test/ Mann–Whitney
	Mean	SD	Mean	SD	*P* value
Overall ambition	−0.01	0.66	0.29	0.81	0.031
Income	−0.12	0.48	0.04	0.62	0.112
Social status	−0.02	0.17	0.01	0.16	0.199
Education	0.12	0.29	0.24	0.38	0.047

price. My wife also helps me in some small expenses at home because she makes and sell brooms. (Male 25–34, Turkana).

What is the Ambition and Aspiration of Youth?

Table 4 shows the ambitions of young people, using the index that was calculated as outlined in the "Measuring Ambitions" section. The comparison suggests that young people are, on average, more ambitious than adults when measured with this commonly used index. However, the overall difference in aggregate ambition is largely driven by differences in educational ambition.

Using a different lens, Table 5 shows the average importance placed on each of the dimensions (income, social status, and education) that together make up an individual's ambition level. When determining the relative importance of the different categories, adults on average tend to place less importance on education than youth.

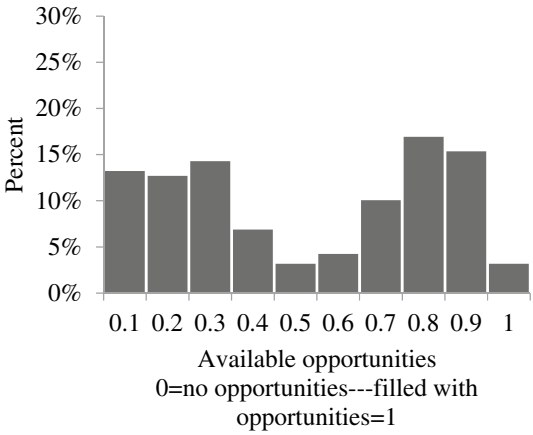

Fig. 3 Youth's perceived level of opportunities. *Note* Answer to the question "In the story shared, the world I live in… has/had no opportunities (=0)— is filled with opportunities (=1).". *Source* Aspirations Survey

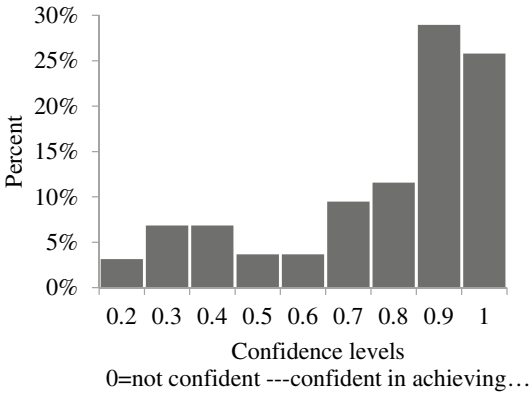

Fig. 4 Youth's perceived confidence levels for achieving goal. *Note*: Answer to the question "In the story shared, the main character in the story felt… not confident that they can achieve their goals (=0)—confident they can achieve their goals (=1)". *Source* Aspirations Survey

Taken together, these results may be because adults were thinking about the education of their children when weighing the importance of the different categories while the overall education ambition index is lower for adults because they are more settled in their ways. Thus, commonly used ambition indices may not easily lend themselves to comparing people at different life stages despite allowing respondents to weigh the importance of the different dimensions.[8]

Tables 6 and 7 combine ambition and aspiration of the youth. Using the ambition index (see "Study Design" section), Table 6 compares the ambitions of youth who aspire to pursue farm-based livelihoods and youth who aspire to off-farm related livelihoods when having to choose between these options. Youth who aspire to off-farm related livelihoods, on average, are more ambitious, particularly concerning education. It is difficult, however, to assess causality here: youth with higher educational ambitions may not like farming but similarly,

[8] Comparing different age groups sampled from rural areas alone is also inherently difficult since any older person that had off-farm aspirations when young could have left by now to pursue those.

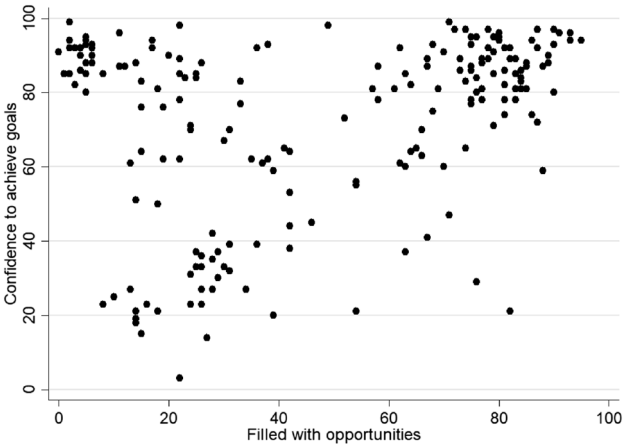

Fig. 5 Youth confidence levels and perceived opportunities. *Note* Two-way representation of the level of confidence to achieve their goals on a scale from 0–100 and the level of perceived opportunities (0–100) *Source* Sensemaker Survey

Table 8 Categories of people who have the most influence on youth aspirations (%) (N = 87). *Source* Ambitions Survey

Variable	(%)
Categories of people influencing youth ($N = 87$)	
Family	66
Friends	2
Relatives	4
Church	1
Myself	27
	100

youth who do not want to be farmers may aspire to become more educated to leave farming behind. It is also likely that off-farm related livelihoods require more educational qualifications. In contrast, farming may be perceived as requiring little extra education. Interestingly, income and social status ambitions are not significantly different between the two groups.

Table 7 shows that youth who want to leave rural areas have, on average, higher ambition levels. Again, this is associated with significant differences in educational ambitions. As explained above, establishing causality is not possible. Overall, off-farm livelihoods appear to be associated with higher income expectations and these are seen to be more likely realized outside their current place of residence.

Figures 3, 4, and 5 show two other dimensions of future visions: perceived level of available opportunities and confidence in achieving goals. Figure 3 highlights that youth perceive a wide range of available opportunities and Fig. 4

Table 9 Cross-tabulation of children's own aspirations and parent's aspirations for their children ($N=74$). *Source* Ambitions Survey

	Parent's aspirations for children			Total (%)
	Farming (%)	Wage/salary (%)	Own business (%)	
Children's aspirations				
Farming	**1**	19	4	24
Wage/salary	0	**9**	1	11
Own business	0	45	**20**	65
Total	1	73	26	10

Note Numbers differ slightly compared to Table 4 since here only data from households with answers from both household head and youth are considered

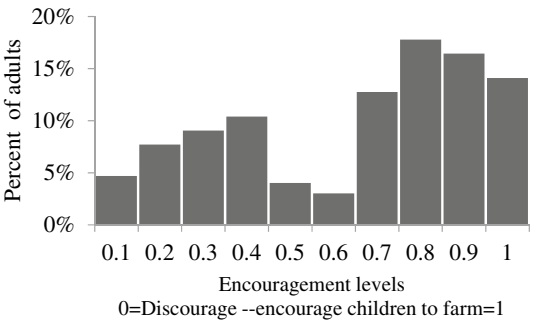

Fig. 6 Level to which adults encourage their children to become farmers ($N=298$). *Note* Answers to the question "In the story shared, parents… discourage their children to become farmers (=0)—encourage their children to become farmers (=1)". *Source* Aspirations Survey

shows a high level of confidence by most youth in achieving their goals. Figure 5 suggests some association between the levels of perceived opportunities and the confidence in the achievement, although the correlation coefficient is only 0.28.

Who Influences Youth Aspirations and What Role Do Parents Play in Their Formation?

Sixty-six percent of youth said that they were mainly influenced by their nuclear family (based on mutually exclusive choices), while few indicated that they were influenced by other actors such as friends, more distant relatives and the church (Table 8). Given the large influence of the nuclear family on young people's aspirations, it is important to understand in which direction parents try to influence their children. What are their aspirations for their children?

While many youths stated that their family influences their decision, this does not mean that youth have the same aspirations as their family. Table 9 shows how often parents' aspirations for their children align with their children's aspirations (based on mutually exclusive choices). In general, there are relatively few fits: Only 30% of youth aspire to what their parents aspire for them. In most cases, parents aspire

Table 10 Youth ambition levels in relation to who influences them. *Source* Ambitions Survey

Variable	Family ($N=52$)		Others ($N=30$)		T test/ Mann–Whitney
	Mean	SD	Mean	SD	P value
Ambition index	−0.03	0.70	0.45	0.75	0.002
Income index	−0.13	0.49	0.13	0.64	0.021
Social status index	−0.01	0.18	0.01	0.12	0.318
Education index	0.10	0.32	0.31	0.35	0.003

wage/salary-based livelihoods for their children (73%) while only 11% of young people themselves envision that livelihood strategy.

However, as before, when asking parents differently about their aspirations for their children, the picture seems to change. Figure 6 displays the results achieved when parents were asked about the extent to which they encourage their children to become farmers. Here, parents were not forced to choose between different options. For example, even with a value of 1 (showing maximum encouragement of children to farm), they could also want their children to simultaneously pursue something else. Figure 6 suggests that, on average, parents were more likely to encourage than discourage their children to become farmers. Sixty percent of parents tended to encourage their children to become farmers. Only a minority, those around the 0.5 mark, appeared not to have a preference for the future occupation of their children.

Table 10 shows ambition levels based on who influences the youth most: family or others, including themselves. The table shows that youth who are mainly influenced by people outside the nuclear family such as relatives, friends, church, and themselves have, on average, higher ambition levels.

Discussion and conclusion

This study set out to explore the livelihood ambitions and aspirations of the rural youth in Kenya. Understanding the livelihood choices of young people is key for designing appropriate agricultural and rural policies (Leavy and Smith 2010). Yet, discussions on youth aspirations in agriculture are often situated in a dichotomy of wanting full-time farming or no farming at all and thereby either supporting a farm-based development strategy, where a vibrant farming sector drives economic growth or an off-farm pathway, where non-farm work drives growth (Bellù 2011). Studies presenting aspirations in such a dichotomy have often shown that young people prefer livelihoods other than farming (Bezu and Holden 2014; Burnet et al. 2017; Elias et al. 2018; Mussa 2020). This would support an off-farm led development trajectory, even though—as pointed out above—interest by the youth is not a sufficient condition to make such a trajectory work.

This study comes to similar conclusions when asking youth about their preferred livelihood choice using binary choice questions: 65% of the respondents opted for having their own business as the preferred, singular livelihood choice. This is consistent with other research that found a reluctance among rural youth towards pursuing agriculture-based livelihoods (Giuliani et al. 2017; Leavy and Smith 2010; Mueller et al. 2018; Sumberg et al. 2017).[9] However, artificially forcing respondents to choose between livelihood options may disguise more nuanced aspirations. Using a qualitative, narrative-based data collection tool, this study has shown that young people typically see farming playing some role in their future, albeit that few respondents want only to farm.[10] Most youths reported that farming will play a considerable role in their lives within mixed livelihood strategies, which combines multiple income streams from on-farm- and off-farm-sources, echoing findings from Kristensen and Birch-Thomsen (2013), Rietveld et al. (2020), and Daum (2019), among others.

The results suggest that presenting farming as a "take it or leave it" option is misleading. From the youth's perspective, there are many shades of grey between the two extreme ends of the development spectrum. The predominant vision of mixed livelihood strategies should not be surprising since there is a consensus that most (adult) farmers pursue diverse livelihood generating portfolios as well (Barrett et al. 2001; Dorward et al. 2009; Ellis 1998; Verkaart et al. 2018). This seems a sensible choice considering the seasonality and riskiness associated with farming, which may be aggravated by climate change. Additionally, for smallholder farmers to escape poverty purely based on farming appears difficult if not impossible (Gassner et al. 2019; Harris and Orr 2014). This may explain why most parents envision relatively more secure employment-based livelihood choices for their children when forced to decide between several options. This confirms Verkaart et al. (2018) who find that in only 6% of the sampled Kenyan households did parents want their children to become farmers when asked categorically. However, this study showed that, when using a non-framed and open-ended approach, most parents encourage their children to also do some farming, which may be based on some level of cultural attachment or reflect the realities in rural areas where purely off-farm based livelihood strategies are still rare.

Most studies exploring youth plans either focus on their desired livelihood choice (aspiration) or the level difference from the status quo (ambition). This study has shown that looking at both aspects in parallel provides important insights. For example, previous studies examining the determinants of aspirations often cite the key role of parents in the formation of aspirations (Leavy and Smith 2010). In this study, many young people reported that the views of their close family, including parents,

[9] Interestingly, and in contrast to these studies, most of the youth want to be self-employed rather than having salaried jobs. Only 12% want to have a salaried job at all (and probably only a still smaller share would prefer that option if it is a low wage industry job—and not a job with social prestige such as teacher or doctor).

[10] Importantly, the pursuit of farming is not merely seen as a fallback option or as a "just waiting" position (Locke and te Lintelo 2012).

influence their aspirations. However, the results also suggest that youths who are mostly influenced from outside the nuclear family have higher ambitions. Potentially, youths who have a very close circle of influencing people are exposed to less diverse ideas and life plans whereas a widening of their social circle leads to a wider set of ideas and likely increases their perceived set of options and thereby ambitions. This echoes Sumberg and Okali (2013) who argue that the perceived opportunity space as well as the ability to use this space depends largely on social networks. Thus, having role models outside of the family may be important both for showing opportunities and that they can be achieved.

While many young people cite their nuclear family's influence on them, this commitment to the family is not reflected in their career decisions. Generally, parents' aspirations for their children rarely align with their children's aspirations (based on asking binary choice questions on their livelihood choices). This may be because children have a better understanding of their opportunities while parents may have unrealistic desires for them—most desire their children to obtain some wage/salary work—or because youth do see some potential in farming. More work is needed to better understand the interplay between parents' and children's aspirations. While a commitment to the family is not reflected in livelihood goals, it may in part explain why most youths preferred to remain in their home village or nearby towns. Youths probably see this decision as a compromise for not pursuing the avenues their parents wished for them. This is despite the current literature on outward youth migration showing the pull of employment opportunities is increasing rural-to-urban movements (Mueller et al. 2018). Taken together with their desire to remain in rural villages, it is unlikely that all youth who indicated that their aspirations are outside of farming will be completely detached from the agricultural sector. These findings are similar to Elias et al. (2018) who found that most businesses envisioned by rural youth are agriculture-related.

Conceptual difficulties that this study did not explore and that would be important for future work on aspirations between age groups are time horizons and path dependency. Young people who are often still in school face a much broader range of potential future pathways as they have not yet chosen a career and are full of hope for a great future. Comparing this population to the older generation who have already made their life choices when it comes to career and place of residence involves some conceptual challenges when it comes to both aspirations and ambitions. Aspirations of older people are largely geared towards expanding their current profession as complete career shifts are difficult and hence rare. Additionally, at this age, they may anticipate that significant changes in their level of status or income are not realistic and thereby ambitions are lower. In contrast, young people have not yet attained significant status in their community and often do not yet earn any income. Therefore, they naturally anticipate significant upward changes in these dimensions, which makes their ambition levels higher. Furthermore, their aspirations in livelihood portfolios are not yet influenced by past choices and are likely more diverse. Further exploration of these dynamics and the effects on the influences these generational differences may have would likely lead to a better understanding of the intergenerational dynamics.

More research is also needed to better understand the conditions under which youth would prefer different livelihood options—for example, what income level and what social prestige level they have in mind when they express aspirations for different options. While many studies find that the current type of agriculture is not attractive because of low productivity—resulting in low returns to labour—(Giuliani et al. 2017; Leavy and Smith 2010; Mueller et al. 2018; Sumberg et al. 2017), the literature has not assessed how attractive agriculture would be to the youth if productivity and profitability were higher. Also, existing studies do not take into account whether young people prefer a non-agricultural occupation if the income there is also very low. Closely related, a closer investigation of the conceptual interactions between ambitions and aspirations would allow further insights into rural development approaches. A deeper understanding of the determinants of aspirations and their relation to ambition levels would allow incorporation of these concepts into policy and project planning.

To conclude, this study suggests that a categorical conceptualization of aspirations needs to be revisited to inform rural development strategies based on the actual aspirations of rural youth. From the youth perspective, the dichotomy between "farm-based" and "off-farm based" development pathways makes little sense as both are relevant for their envisioned livelihoods. Efforts to make farming more attractive to young people are welcomed but such efforts should consider that few young people want to be full-time farmers. Agricultural policies and programs for young people should reflect that youth maneuver around mixed livelihood strategies and may utilize linkages between these different livelihood pillars (e.g. that money from farming is being used to finance investments into business and vice versa), thus more holistic policy approaches are needed. As noted by Elias et al. (2018), "young people may move in and out of agriculture over their life course, combining it with other activities, in parallel or sequentially, to generate capital to establish their independent lives and livelihoods" (p.103). Also, rural policies and programs need to consider that some youth want to be full-time farmers while many others see themselves as part-time farmers, and still others want to move out of agriculture altogether—all of which may require different approaches (Rietveld et al. 2020).

Generally, the results provide further evidence that the categorical assessment of rural futures as either farm or off-farm is not sufficient to understand the aspirations and plans of the population. A more nuanced approach will improve the understanding of the drivers of rural change. The youth and their aspiration for non-agricultural futures but their desire to stay in their rural homes provides entry points support. Earlier studies have already highlighted the importance of the rural non-farm economy (Christiaensen et al. 2013) as well as the potential of agriculture value chains as a promising employment option for rural youth (Christiaensen et al. 2020; FAO 2017; Imai et al. 2017; Ripoll et al. 2017). This could be the best of both worlds: business-related aspirations of rural youth are supported, while the opportunities largely remain in their rural areas. Policymakers should utilize this opportunity and ensure that value addition is not only done in the big cities but creates decent employment opportunities within the aspired home of the rural youth, i.e. in rural and semi-rural towns. Given the envisioned mixed livelihood strategies of youth,

such an approach, creating business opportunities close to the farming areas, would allow for spillovers to the farming sector.

Acknowledgements This work was undertaken as part of, and funded by the CGIAR Research Program on Grain Legumes and Dryland Cereals (GLDC) and supported by CGIAR Fund Donors. Initial parts of this work were undertaken as part of, and funded by the CGIAR Research Program on Policy, Markets and Institutions (PIM) and supported by CGIAR Fund Donors. Furthermore, we gratefully acknowledge the financial support from the "Program of Accompanying Research for Agricultural Innovation" (PARI), which is funded by the German Federal Ministry of Economic Cooperation and Development (BMZ). The authors are grateful for the comments and constructive feedback of Regina Birner.

Compliance with Ethical Standards

Conflict of interest None of the authors have any conflict of interest.

References

Abay, K.A., W. Asnake, H. Ayalew, J. Chamberlin, and J. Sumberg. 2020. Landscapes of opportunity: Patterns of young people's engagement with the rural economy in sub-Saharan Africa. *The Journal of Development Studies*. https://doi.org/10.1080/00220388.2020.1808195.

Akramov, K., Mirkasimov, B. and Song, J. 2003. Aspirations and Women ' s Empowerment : Evidence fro Kyrgyzstan.

Barrett, C. B., Christiaensen, L., Sheahan, M. and Shimeles, A. 2017. On the structural ransformation of rural Africa. The World Bank.

Barrett, C.B., P. Christian, and B.A. Shiferaw. 2017. The structural transformation of African agriculture and rural spaces: Introduction to a special section. *Agricultural Economics* 48 (S1): 5–10. https://doi.org/10.1111/agec.12382.

Barrett, C.B., T. Reardon, and P. Webb. 2001. Nonfarm income diversification and household livelihood strategies in rural Africa: Concepts, dynamics, and policy implications. *Food Policy* 26 (4): 315–331. https://doi.org/10.1016/S0306-9192(01)00014-8.

Beaman, L., E. Duflo, R. Pande, and P. Topalova. 2012. Female leadership raises aspirations and educational attainment for girls: A policy experiment in India. *Science* 335 (6068): 582–586. https://doi.org/10.1126/science.1212382.

Beegle, K., and L. Christiaensen. 2019. *Accelerating poverty reduction in Africa*. Washington, DC: World Bank.

Bellú, L.G. 2011. Development and development paradigms: A (reasoned) review of prevailing visions. Easypol Module 102.2. Rome: Food and Agriculture Organization of the United Nations.

Bennell, P. 2007. Promoting livelihood opportunities for rural youth. Paper prepared for IFAD Governing Council Roundtable: Generating Remunerative Livelihood Opportunities for Rural Youth. UK: Knowledge and Skills for Development.

Berckmoes, L. H. and White, B. 2016. Youth, farming, and precarity in rural Burundi. Generationing development (pp. 291–312). Palgrave Macmillan: London.

Bernard, T., Taffesse, S. 2014. Aspirations: An approach to measurement with validation using Ethiopian data. *Journal of African Economies* 23 (2): 189–224. https://doi.org/10.1093/jae/ejt030.

Bezu, S., and S. Holden. 2014. Are rural youth in Ethiopia abandoning agriculture? *World Development* 64: 259–272. https://doi.org/10.1016/j.worlddev.2014.06.013.

Burnet, R., Deacon, B., and Mirzoyants, A. 2017. #Shujaaz360: It's All About The Money 2017.

Byerlee, D., A. De Janvry, J. Van Wassenhove, and D. Barry. 2009. Smallholders unite. *Foreign Affairs* 88 (2): 168–169.

Cantore, N., M. Clara, A. Lavopa, and C. Soare. 2017. Manufacturing as an engine of growth: Which is the best fuel? *Structural Change and Economic Dynamics* 42: 56–66. https://doi.org/10.1016/j.strueco.2017.04.004.

Christiaensen, L., Z. Rutledge, and E. Taylor. 2020. Viewpoint: The future of work in agri-food. *Food Policy*. https://doi.org/10.1016/j.foodpol.2020.101963.

Christiaensen, L., J. De Weerdt, and Y. Todo. 2013. Urbanization and poverty reduction: The role of rural diversification and secondary towns 1. *Agricultural Economics* 44 (4–5): 435–447. https://doi.org/10.1111/agec.12028.

Cognitive Edge. 2019. About sense maker, https://cognitive-edge.com/sensemaker/, Accessed 19 Dec 2019.

Collier, P. 2008. The politics of hunger: How illusion and greed fan the food crisis. *Foreign Affairs* 87 (6): 67–79.

Daum, T. 2019. Of bulls and bulbs: Aspirations, opinions and perceptions of rural adolescents and youth in Zambia. *Development in Practice* 29 (7): 882–897. https://doi.org/10.1080/09614524.2019.1646209.

Diao, X., M. McMillan, and S. Wangwe. 2017. Agricultural labour productivity and industrialisation: Lessons for Africa. *Journal of African Economies* 27 (1): 28–65. https://doi.org/10.1093/jae/ejx034.

Dorward, A., S. Anderson, Y. Nava Bernal, E. Sánchez Vera, J. Rushton, J. Pattison, and R. Paz. 2009. Hanging in, stepping up and stepping out: Livelihood aspirations and strategies of the poor. *Development in Practice* 19 (2): 240–247. https://doi.org/10.1080/09614520802689535.

Elias, M., N. Mudege, D.E. Lopez, D. Najjar, V. Kandiwa, J. Luis, J. Yila, A. Tegbaru, G. Ibrahim, L. Badstube, E. Njuguna-Mungai, and A. Bentaibi. 2018. Gendered aspirations and occupations among rural youth, in agriculture and beyond: A cross-regional perspective. *Journal of Gender, Agriculture and Food Security* 3 (1): 82–107 https://doi.org/10.19268/JGAFS.312018.4

Ellis, F. 1998. Household strategies and rural livelihood diversification. *The Journal of Development Studies* 35 (1): 1–38. https://doi.org/10.1080/00220389808422553.

Ellis, F., and H.A. Freeman. 2004. Rural livelihoods and poverty reduction strategies in four African Countries. *The Journal of Development Studies* 40 (4): 1–30. https://doi.org/10.1080/00220380410001673175.

FAO. 2014. Youth and agriculture: key challenges and concrete solutions. Food and Agriculture Organization (FAO), Technical Centre for Agricultural and Rural Cooperation (CTA), International Fund for Agricultural Development (IFAD), www.fao.org/3/a-i3947e.pdf. Accessed 28 March 2018.

FAO. 2017. *Dynamic rural-urban linkages for decent rural employment Way forward : Integrated approaches*.

Gardner, B. 2000. Economic growth and low income agriculture. *American Journal of Agricultural Economics* 82: 1059–1074. https://doi.org/10.1111/0002-9092.00104.

Gassner, A., D. Harris, K. Mausch, A. Terheggen, C. Lopes, R. Finlayson, and P. Dobie. 2019. Poverty eradication and food security through agriculture in Africa: Rethinking objectives and entry points. *Outlook on Agriculture* 48 (4): 309–315. https://doi.org/10.1177/0030727019888513.

GirlHub. 2014. Using Sensemaker® to understand girls' lives. Retrieved from http://old.cognitive-edge.com/wp-content/uploads/2015/04/GH-SenseMaker-brief.pdf

Giuliani, A., S. Mengel, C. Paisley, N. Perkins, I. Flink, O. Oliveros, and M. Wongtschowski. 2017. Realities, perceptions, challenges and aspirations of rural youth in dryland agriculture in the Midelt Province Morocco. *Sustainability*. https://doi.org/10.3390/su9060871.

Glover, D., J. Sumberg, and J.A. Andersson. 2016. The adoption problem; or why we still understand so little about technological change in African agriculture. *Outlook on Agriculture* 45 (1): 3–6. https://doi.org/10.5367/oa.2016.0235.

Harris, D., and A. Orr. 2014. Is rainfed agriculture really a pathway from poverty? *Agricultural Systems* 123 (January): 84–96. https://doi.org/10.1016/j.agsy.2013.09.005.

IFAD. 2019. Creating Opportunities for Rural Youth. 2019 Rural Development Report. IFAD.

Imai, K.S., R. Gaiha, and A. Garbero. 2017. Poverty reduction during the rural–urban transformation: Rural development is still more important than urbanisation. *Journal of Policy Modeling* 39 (6): 963–982. https://doi.org/10.1016/j.jpolmod.2017.10.002.

Jayne, T.S., J. Chamberlin, and R. Benfica. 2018. Africa's unfolding economic transformation. *The Journal of Development Studies*. https://doi.org/10.1080/00220388.2018.1430774.

Jenal, M. 2016. A new framework for assessing systemic change in Katalyst : The pilot study in local agri-business network.

Johnston, B.F., and J.W. Mellor. 1961. The role of agriculture in economic development. *The American Economic Review* 51 (4): 566–593.

Kristensen, S., and T. Birch-Thomsen. 2013. Should I stay or should I go? Rural youth employment in Uganda and Zambia. *International Development Planning Review* 35 (2): 175–201. https://doi.org/10.3828/idpr.2013.12.

Kosec, K., Hausladen, S. and Khan, H. 2014. Aspirations in rural Pakistan, (November), 2. Retrieved from http://ebrary.ifpri.org/utils/getfile/collection/p15738cll2/id/128324/filename/128535.pdf

Leavy, J., and S. Smith. 2010. Future farmers: Youth aspirations, expectations and life choices. *Future Agricultures Discussion Paper* 13: 1–15.

Lewis, W.A. 1954. Economic development with unlimited supplies of labor. *Manchester School of Economic and Social Studies* 22 (2): 139–191.

Lipton, M. 2006. Can small farmers survive, prosper, or be the key channel to cut mass poverty? electronic. *Journal of Agricultural and Development Economics* 3 (1): 58–85. https://doi.org/10.22004/ag.econ.110129.

Locke, C., and D.J. Te Lintelo. 2012. Young Zambians 'Waiting' for opportunities and 'working towards' living well: lifecourse and aspiration in youth transitions. *Journal of International Development* 24 (6): 777–794. https://doi.org/10.1002/jid.2867.

Makueni County. 2019. Makueni county integrated development plan 2018–2022. Accessible from https://makueni.go.ke/download/makueni-county-integrated-development-plan-2018-22/, Accessed 16 Dec 2019.

Mausch, K., D. Harris, E. Heather, E. Jones, J. Yim, and M. Hauser. 2018. Households' aspirations for rural development through agriculture. *Outlook on Agriculture* 47 (2): 108–115. https://doi.org/10.1177/0030727018766940.

Mausch, K., Harris, D., Dilley, L., Crossland, M., Pagella, T., Yim, J. and Jones, E. this issue. Not all about farming: capturing aspirations is a challenge to assumptions about rural development

Matsuyama, K. 1992. Agricultural productivity, comparative advantage, and economic growth. *Journal of Economic theory* 58 (2): 317–334. https://doi.org/10.1016/0022-0531(92)90057-O.

Mekonnen, D.A., and N. Gerber. 2017. Aspirations and food security in rural Ethiopia. *Food Security* 9 (2): 371–385. https://doi.org/10.1007/s12571-017-0654-6.

Melchers, I., and B. Büchler. 2017. Africa's rural youth speak out. *Rural* 21: 3.

Meru County. 2019. Meru County Integrated Development Plan 2018–2022. Accessible from http://meru.go.ke/lib.php?com=6&com2=33&&res_id=885, Accessed 16 Dec 2019.

Metelerkamp, L., S. Drimie, and R. Biggs. 2019. We're ready, the system's not–youth perspectives on agricultural careers in South Africa. *Agrekon* 58 (2): 154–179. https://doi.org/10.1080/03031853.2018.1564680.

Morris, M., and J. Fessehaie. 2014. The industrialisation challenge for Africa: Towards a commodities based industrialisation path. *Journal of African Trade* 1 (1): 25–36. https://doi.org/10.1016/j.joat.2014.10.001.

Mueller, V., C. Doss, and A. Quisumbing. 2018. Youth Migration and Labour Constraints in African Agrarian Households. *Journal of Development Studies*. https://doi.org/10.1080/00220388.2018.1430770.

Murphy, K.M., A. Shleifer, and R.W. Vishny. 1989. Industrialization and the big push. *Journal of Political Economy* 97 (5): 1003–1026.

Mussa, E.C. 2020. Youth aspirations, perceptions of farming, and migration decisions in rural Sub-Saharan Africa: Further empirical evidence from Ethiopia. ZEF-Discussion Papers on Development Policy No. 296. Center of Development Research (ZEF).

OECD. 2016. A new rural development paradigm for the 21st century: A toolkit for developing countries. *Development Centre Studies, OECD Publishing, Paris,*. https://doi.org/10.1787/9789264252271-en.

Polk, R. 2017. *A multimodal study on how embodiement relates to perception of complexity*. Ann Arbor: ProQuest.

Ripoll, S., J. Andersson, L. Badstue, M. Büttner, J. Chamberlin, O. Erenstein, and J. Sumberg. 2017. Rural transformation, cereals and youth in Africa: What role for international agricultural research? *Outlook on Agriculture* 46 (3): 168–177. https://doi.org/10.1177/0030727017724669.

Rietveld, A.M., M. van der Burg, and J.C. Groot. 2020. Bridging youth and gender studies to analyse rural young women and men's livelihood pathways in Central Uganda. *Journal of Rural Studies*. https://doi.org/10.1016/j.jrurstud.2020.01.020.

Snowden, D. 2010. Knowledge theory perspectives on place branding. In *International place branding yearbook 2010*, ed. F.M. Go and R. Govers, 31–44. London: Palgrave Macmillan.

Sumberg, J., and S. Hunt. 2019. Are African rural youth innovative? Claims, evidence and implications. *Journal of Rural Studies* 69: 130–136. https://doi.org/10.1016/j.jrurstud.2019.05.004.

Sumberg, J., T. Yeboah, J. Flynn, and N.A. Anyidoho. 2017. Young people's perspectives on farming in Ghana: A Q study. *Food security* 9 (1): 151–161. https://doi.org/10.1007/s12571-016-0646-y.

Sumberg, J., and C. Okali. 2013. Young people, agriculture, and transformation in rural Africa: An "Opportunity Space" approach. *Innovations* 8 (1–2): 259–269. https://doi.org/10.1162/INOV_a_00178.

Söderbom, M., and F. Teal. 2003. Are manufacturing exports the key to economic success in Africa? *Journal of African Economies* 12 (1): 1–29. https://doi.org/10.1093/jae/12.1.1.

Tadele, G., and A.A. Gella. 2012. A last resort and often not an option at all: Farming and young people in Ethiopia. *IDS Bulletin* 46 (6): 33–43.

Turkana County. 2019 Turkana County Integrated Development Plan CIDP II (2018–2022), accessible from https://www.turkana.go.ke/wp-content/uploads/2019/10/Turkana_CIDP_Book_POPULAR_V3.pdf. Aaccessed 16 Dec 2019.

United Nations, Department of Economic and Social Affairs, Population Division. 2019. World Urbanization Prospects: The 2018 Revision (ST/ESA/SER.A/420). New York: United Nations

UNDP. 2013. Kenya's Youth Employment Challenge, (January 2012). United Nations Development Programme, https://doi.org/https://doi.org/10.1002/jhbp.361.

Verkaart, S., K. Mausch, and D. Harris. 2018. Who are those people we call farmers? Rural Kenyan aspirations and realities. *Development in Practice* 28 (4): 468–479. https://doi.org/10.1080/09614524.2018.1446909.

World Bank. 2007. *World Development report 2008: agriculture for development*. Washington, DC: World Bank.