Determinants of uptake and strategies to improve agricultural insurance in Africa. A review

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ONLINE APPENDIX

Table A1. Agricultural insurance coverage by country in Africa

Country	Programme name	Current coverage (2020)	Di Marcantonio & Kayitakire (2017)	Hess & Hazell (2016)
Algeria	CNMA & Others	50,000		
Benin	Planet Guarantee	1,100		
Burkina Faso	R4	702	1,471	
Cameroon	ACTIVA Assurances & AXA Cameroun	150,000§		
Cote d'Ivoire	Atlantique Assurances Côte d'Ivoire & AXA Côte d'Ivoire.	120,000§		
East Africa*	ACRE Africa	313,606		394,426
	R4/ HARITA	28,692	20,365	
	ACRE Africa		67,607	
	IBLI	2,021	405	
Ethiopia	EPIICA		5,295	
	GAIP	35,842	655	2115
	KLIP	18,000		
	IBLI	10,000	256	1,000
Ghana	Fresh Co			12,000
	R4	37,891		
	Opportunity Bank			6,000
	NASFAM			1,000
Malawi	Coin Re		3,000	
Mali			13,843	
Morocco	MAMDA & Others	50,012		
	Hollard Mozambique	5,547		
Mozambique	Guy Carpenter			43,000
Nigeria	NAIC	15,000		5,000
	Kenya Commercial Bank			6,400
	SONARWA & ACRE Africa		15,000	
Rwanda	MicroEnsure		24,000	
	CNAAS	206,936	10,000	8,500
Senegal	R4			
	Afrisan			300
	QFP Tanzania			500
Tanzania	MicroEnsure		24,000	
Tunisia	CTAMA	4,000		
Uganda	UAIS	64,318		
	R4	7,822		
	Mayfair ZFISP	907,504		1,546
	NWK Agri services			52,000
Zambia	ZNFU Zambia			2,500

	Pioneer Seeds			400
	MicroEnsure		6,610	
Zimbabwe	R4	1,651		
Planet Guarantee***				32,000
R4**		8,862		32,288
Total Coverage		**2,039,506**	**192,507**	**600,975**

Notes: [§]Projected coverage in 2020. *ACRE Africa Program covers Kenya, Rwanda & Tanzania **R4 Program covered Ethiopia, Senegal, Malawi, and Zambia at the time and does not provide country level coverage. ***Planet Guarantee West Africa – Country coverage not provided. All sources of the current coverage are available from the authors on request; they have not been included in the table only for space purposes.

Table A2. Membership in African Risk Capacity annual risk pools

	Risk Pool I (2014 - 2015)	Risk Pool II (2015 - 2016)	Risk Pool III (2016 - 2017)	Risk Pool IV (2017 - 2018)	Risk Pool V (2018 - 2019)	Risk Pool VI (2019 - 2020)
Mauritania	✓	✓	✓	✓		✓
Niger	✓	✓	✓			✓
Senegal	✓	✓	✓	✓	✓	✓
The Gambia		✓	✓	✓	✓	✓
Mali		✓	✓	✓		✓
Malawi		✓				
Burkina Faso			✓	✓	✓	✓
Kenya	✓	✓				
Cote D'Ivoire						✓
Chad						✓
Zimbabwe						✓
Madagascar						✓
Togo						✓
Total	4	7	6	4	3	11

Source: Authors' summary from African Risk Capacity (n.d.).

Literature search process

We used the following search terms to capture all the variations of agricultural insurance. The key search terms were "livestock insurance" or "agriculture insurance" or "agricultural insurance" or "agriculture risk insurance" or "agricultural risk insurance" or "crop insurance" or "weather insurance" or "index insurance" or "index-based crop insurance" or "indemnity insurance" or "climate insurance" or "climate risk insurance" or "drought insurance" or "rainfall insurance" or "disaster insurance" or "pest insurance". We then used standard Boolean operators (and/or) to include all the African countries in the search strategy. The Scopus database is especially comprehensive as it also provides grey literature in the form of working papers, conference presentations, newspaper articles, organisations' reports and other unpublished documents.

To select the ones included in this review, we first merged the Scopus search and the Web of Science search into a single Microsoft Excel document and then sorted them by author and title to remove duplicates. We excluded 147 duplicate documents. Secondly, we browsed all the titles to remove literature based on other topics. We excluded even papers that only tackled the impacts of insurance uptake without a discussion on insurance demand or take-up. Documents that we deemed to be on other topics and hence excluded were 203.

By further browsing journal titles, we sought to eliminate articles of perceived predatory nature. Predatory publishing is rampant and also slowly creeping among respected authors and respected citation databases (Wallace and Perri, 2018; Severin and Low, 2019). However, the tools to identify predatory publications are not yet standardised (Cukier *et al*., 2020). We, therefore, use two of the suggested methods to weed out these journals. First, we checked if the journal or publisher appeared on Beall's list of potential or suspicious journals and publishers (Beall, 2020). We also use the website https://thinkchecksubmit.org/, which has been suggested before to check if the journal was authentic (Kennedy, 2020). In this way, we

removed 36 documents from 34 journals/ publishers. The second stage review entailed abstract and full-text review. At the abstract review, we reviewed 301 documents, initially retained 155 records, and then narrowed down to 120 documents for a full review. In figure A1 below, we provide a depiction of this search and inclusion strategy.

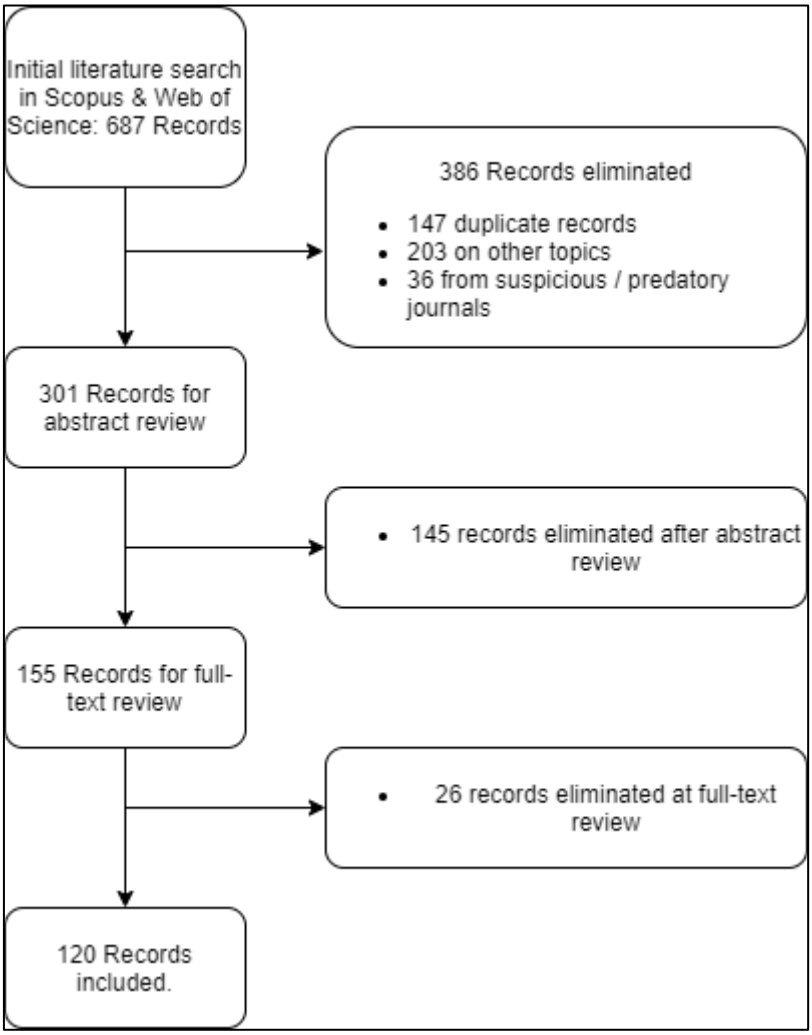

Figure A1. Inclusion criteria.

Regarding the mix of studies reviewed, of the 120 papers in the final full-text review, 29 per cent (35/120) were field experiments and 22 per cent (26/120) were simulation studies applied on long-term climatic data. Eighteen of the 120 studies were cross-sectional studies with a further six studies applying either instrumental variables or panel data methods. We included 10 qualitative studies and 9 review papers – including those that reviewed national

and cross-national policies for agricultural insurance (figure A2).

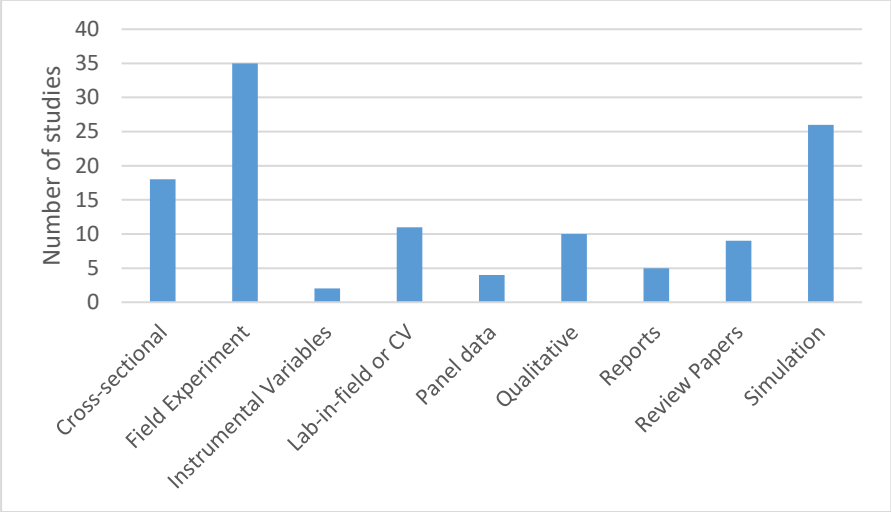

Figure A2. Reviewed studies by the method.
Source: Authors.

Another addition to the literature that this review makes is reviewing a lot of recent relevant literature mainly coming from the last five years. By comparison, Yuzva et al. (2018)'s search strategy covered only up to December 2017 while Marr et al. (2016) did not provide a timeline of their search though most likely it was before November 2015. Sixty-seven per cent of papers in the full-text review were from the 2016-2020 period, thus providing more updated evidence (figure A3).

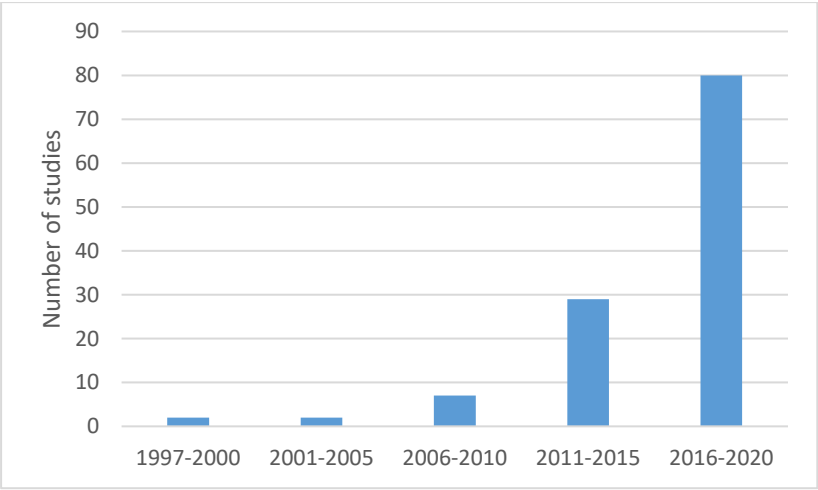

Figure A3. Coverage (time) of our full-text review.
Source: Authors.

These studies were from 23 countries across the continent with Ethiopia and Kenya having the largest number of studies, 35 and 34 studies respectively. This is despite at least half of the 54 countries in Africa having an agricultural insurance programme (figure 1). Besides, it is further surprising that there are only three studies frodm Zambia yet the country has the highest insurance coverage. Suffice to mention that studies in Kenya and Ethiopia emanate mainly from evaluations of the Index-Based Livestock Insurance in the two countries. Given the compulsory nature of the Zambia programme (Smith, 2019), such evaluations might not be possible since there would be limited variation across households. However, this scenario might also show a path-dependency nature of research in that more research happens in places where previous research has been conducted. We, therefore, encourage researchers to explore other countries where programmes exist but the evidence is meagre, for instance, Nigeria, Botswana and Namibia.

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