



Inclusive Insurance for Emerging Markets

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Bundling weather index-based crop insurance and credit in Senegal:

effects of mandatory versus
voluntary product
integration on take-up

Presentation structure

1. Research questions
2. Study context
3. Methodology
4. Key findings
5. Discussion
6. Implications for policy and practice
7. Comments and pathway of improvement

1. Research questions



- What are determinants of index insurance take-up in Senegal?
- Does bundling insurance with agricultural credit stimulate demand?
- What are the implications of different ways of bundling on insurance take-up?

2. Study context

Study context (1)

- Location: Senegalese groundnut basin, regions of Fatick and Kaolack
- Rainfall deficit & variability are predominant risks

Percentage of households...	Kaolak	Fatick	Senegal
Affiliated to a cooperative or farmer organisation	15,0	20,3	11,4
With total area under cultivation less than 6ha	59,1	72,3	69,8
Located in rural areas and practicing rain-fed agriculture	85,38	87,68	79,45
Headed by a woman	10,4	16,5	15,3

Source : Agence Nationale de la Statistique et de la Démographie (2014)



Study context (2)



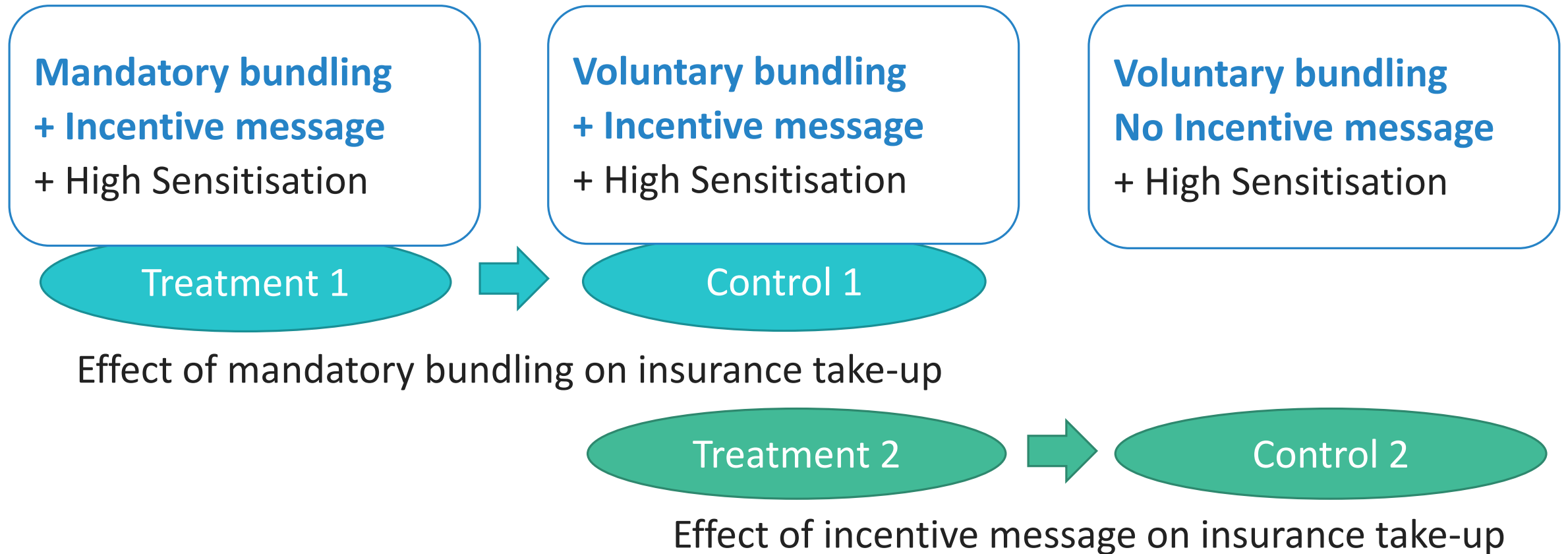
- Introduction of weather index-based crop insurance (WII) in Senegalese groundnut basin in 2012
- Product provision through cooperatives and MFIs
- Insurance usually linked to 'lead product' (credit, agricultural inputs)
- Pilot projects trialling different modalities for insurance provision and product bundling across the country

3. Methodology

Methods

- Working with credit and insurance intermediary: farmers' network and its financial institution COOPEC/RESOPP
- Training of COOPEC/RESOPP agents on index insurance products and on the specific requirements under this study
- Randomised controlled trial (RCT) to assess implications of three different ways for bundling insurance with credit on insurance take-up
- Data collection on take-up decisions during the experiment, complemented by follow-on survey, key informant interviews and focus group discussions

Treatment and control groups

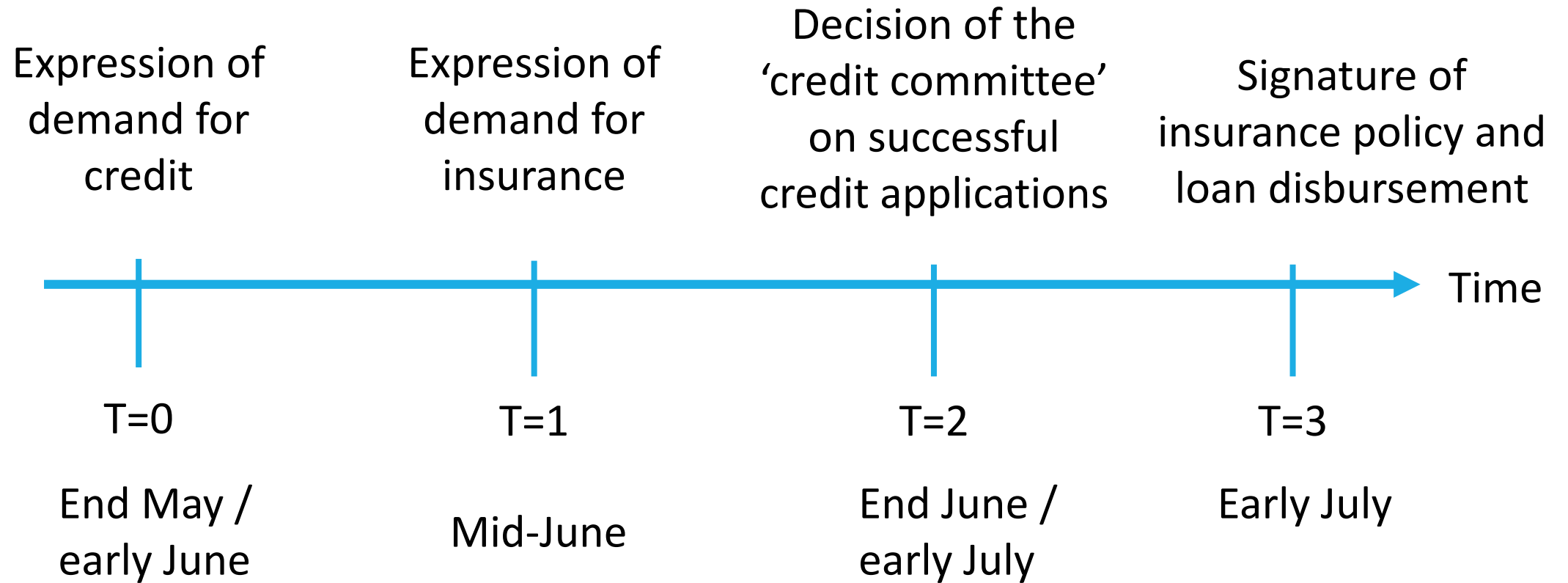


Sample

	Treatment 1	Treatment 2	Control 2	Total
Applicants for credit	-----	-----	-----	425
RCT participants	141	103	127	371
Survey	133	96	117	346
Actual insurance take-up	92	73	88	253

- Random allocation of participants to the treatment and control groups
- Total of 120 participants in 15 focus group discussions
- 5 key informant interviews

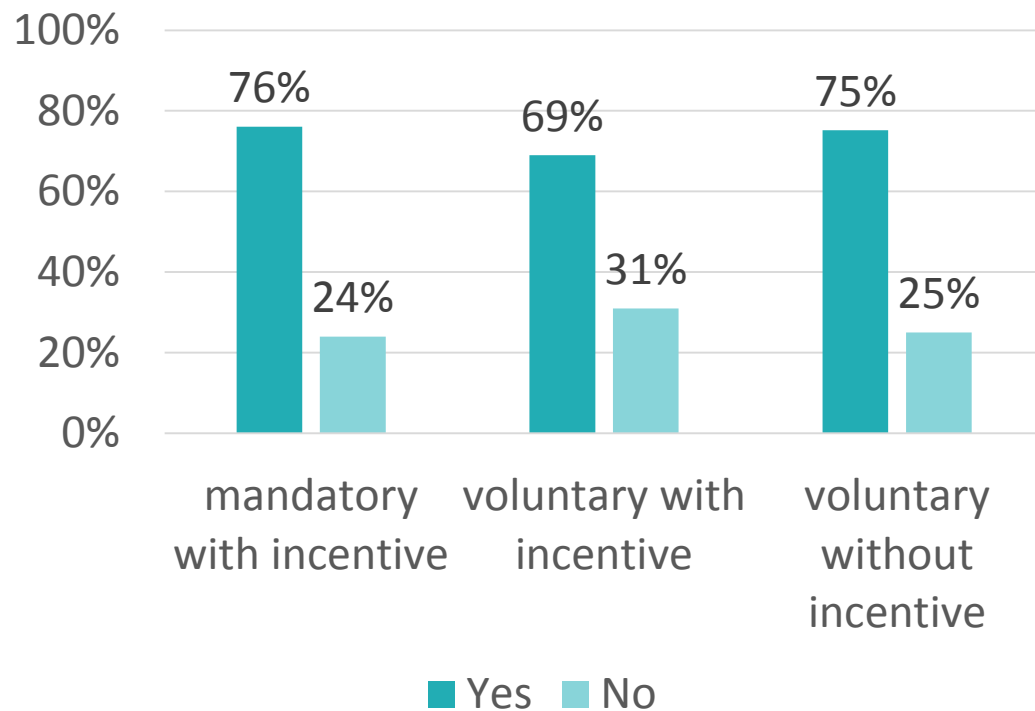
Intervention periods



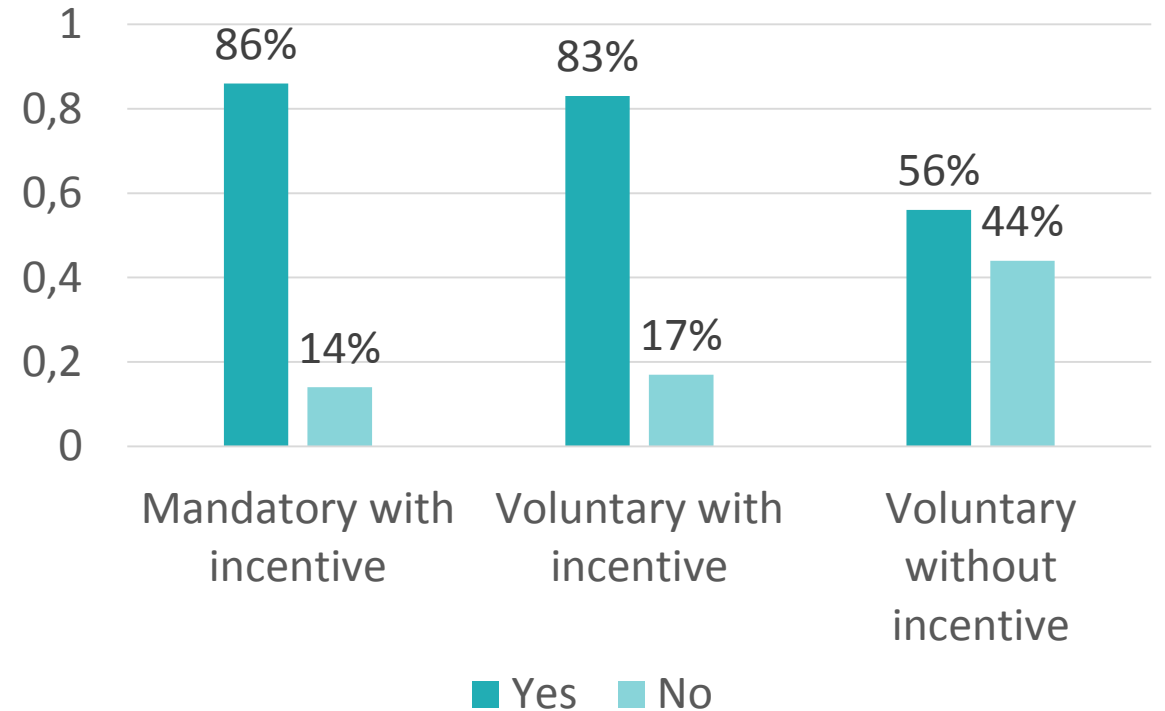
4. Key findings

Take-up per group (1)

Uptake decision by group during the RCT



Willingness to purchase WII by group during survey



Take-up per group (2)

- Overestimation of willingness to purchase insurance
- Possibility of spillover/contagion effect

Odd ratios	Actual uptake decision (RCT)	Willingness purchase: (Survey)
Sales protocol 1: RCT (mandatory with incentive)	0.959 (0.474)	
Sales protocol 3: RCT (voluntary without incentive)	1.406 (0.702)	
Sales protocol 1: Survey (mandatory with incentive)		1.106 (0.887)
Sales protocol 3: Survey (voluntary without incentive)		0.0247*** 1.106
Network size (medium network)	1.208 (0.595)	1.995 (1.308)
Network size (large network)	6.057*** (3.666)	1.492 (1.024)
Network homogeneity (homogeneous)	5.380*** (3.136)	0.845 (0.682)
Network homogeneity (very heterogeneous)	3.892** (2.657)	0.691 (0.624)
Observations	302	302
Adjusted R	0.411	0.530
LR Chi2	139.3	170.8

Key findings on bundling

- Expected preference for incentivised voluntary bundle (treatment 2) as compared to no incentive voluntary bundle (control 2) confirmed
- No statistically significant difference between mandatory and voluntary bundling when the insurance product facilitates access to loans in a credit-constrained context

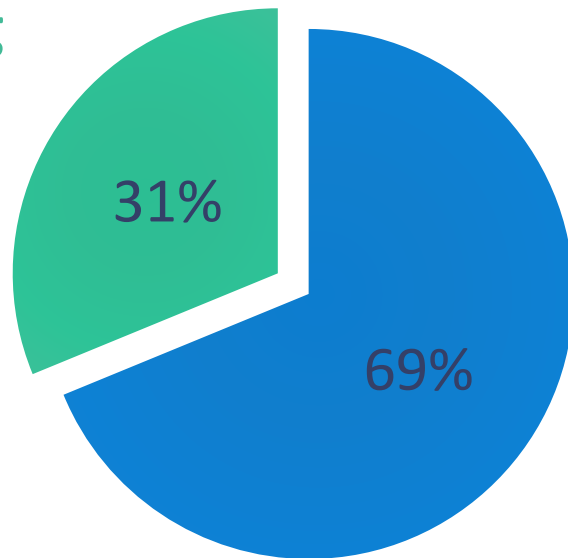
Determinants of take-up beyond bundling

- Agent selling the product
- Reference rain gauge
- Sex
- Network size and homogeneity (spillover effects in the RCT)
- Value of prior agricultural production
- Size of land owned
- Liquidity constraint and access to other formal and informal financial services
- previous experience with insurance
- Perception of basis risk

Side-effects on credit use

Voluntary with incentive

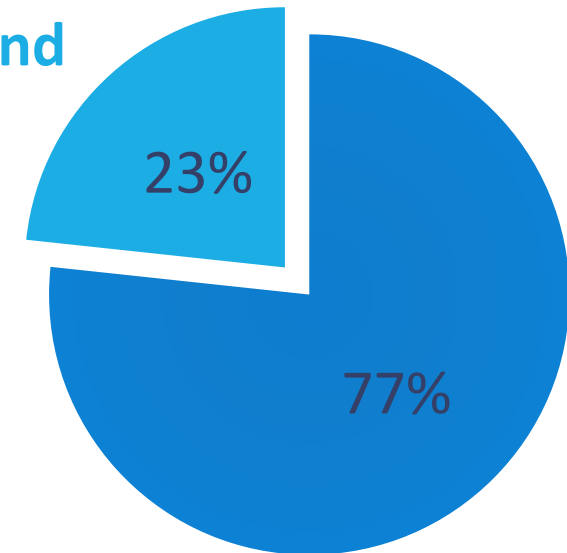
Foregoing insurance only



■ Yes ■ No = no to insurance only

Mandatory with incentive

Foregoing insurance and credit



■ Yes ■ No = No to credit and insurance

6. Implications for policy and practice

Discussion of results

- In context of high liquidity constraints and high need for credit, people did not want to take any risk to decrease their chance to a loan, even if they did not fully grasp the concept of the insurance or the bundled product
 - Will demand for voluntary incentivised bundling decrease if people better understand the product and interaction between insurance and credit?
- What does increased insurance use mean for managing other risks not covered by the insurance product?
 - Do farmers understand the terms of their contracts and pay-outs?
 - How well do pay-outs correlate with actual losses and how reliable is the mechanism?
 - Does insurance crowd out alternative risk management strategies?

Implications of bundling modalities

	Voluntary bundling	Mandatory bundling
Incentive	<p>High insurance take-up</p> <p>Facilitation of credit use without constraining access</p> <p>Consumer choice and higher need to carry out awareness raising and training</p>	<p>High insurance take-up</p> <p>Facilitation of access to credit for some, but lower use of / access to credit for others</p> <p>Reduced administrative costs for insurer and intermediary</p>
No incentive	<p>Lower insurance take-up when bundling conditions are clear and network spill over effect is controlled</p> <p>No direct facilitated access to credit</p>	<p>Not tested</p>

6. Comments and Pathway of improvement

Comments and pathway of improvement(1)

#Reviewer 1 (Word Development):

- 1.** The lack of differences in uptake across arms is puzzling. Were borrowers only interested in credit and did not care about the insurance?
- 2.** The purchase of insurance may have been an afterthought and this diluted the strength of the different treatments.
- 3.** It could also be the case that individuals did not understand the insurance and credit contracts being offered?
- 4.** One should check whether individuals in the voluntary purchase group knows more about the product than under the compulsory group.
- 5.** It would be good to compare the follow-up survey responses with the actual take-up the following year if insurance was repeatedly offered.

Comments and pathway of improvement(2)

#Reviewer 2 (Word Development):

- 1.** Problem of farmers misunderstanding : if farmers thought the unbundled product (voluntary insurance) was bundled (mandatory), one cannot draw any conclusion from the RCT. In other words, the experiment went wrong.
- 2.** Write a different paper that sound more as a "cautionary tale", putting the problem of the misunderstanding to the forefront and insisting about the "wrong conclusions" that one would draw by foreseeing this misunderstanding

Thank you for your attention!

Project background

Partners:



International
Initiative for
Impact
Evaluation

Aim: Assess take-up and impact of index-based crop insurance, bundled with agricultural credit in Senegal

Project phases:

- **Phase 1 formative evaluation** and identification of sales protocols to support take-up: 2017
- **Phase 2 impact evaluation:** 2018 – 2023

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References

Images used in the presentation for non-commercial purposes:

[UNMIL / Christopher Herwig \(2010\) Does financing Benefit African women?](#)

[IITA \(2009\) Winnowing groundnut in Senegal](#)