

What Do Smallholders Value in a Reforestation Project? Evidence from a Discrete Choice Experiment in Madagascar

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Motivation

- Reforestation project in northern Madagascar (PLAE-III) with support to obtain land title for reforested land
- Objective/Novelty:** assess preferences for future reforestation projects among **past programme participants** and their neighbours, stratified by previous programme experience

U_{isj} = Utility respondent i receives from choosing choice j in choice-set s ; α_j = alternative-specific constant (ASC) ; δ_{sj} = ASC * choice set; β_{ik} = preference parameter of respondent i for attribute k ; A_{isj} = vector of $k = 5$ attributes per alternative j ; X_i = vector of respondent characteristics affecting the choice/preference of attributes (y_j); ε_{isj} = vector of errors clustered at household/respondent level

Methodological Approach

- Create hypothetical projects with varying attribute levels
- Estimate attribute preferences via random parameter logit:

$$U_{isj} = \alpha_j + \delta_{sj} + \sum_{k=1}^5 \beta_{ik} A_{isjk} + X_i' \gamma_j + \varepsilon_{isj}$$

DISCRETE CHOICE EXPERIMENT

Overview



Payment

20,000 - 40,000 - 60,000 - 80,000 - 100,000 Ariary (Beneficiaries)
0 - 20,000 - 40,000 - 60,000 - 80,000 - 100,000 Ariary (Non-Beneficiaries)
(3,86 - 7,72 - 11,58 - 15,45 - 19,31 EUR)



Tree Type

Exotic - Native



Payment Recipient

Individual - Group

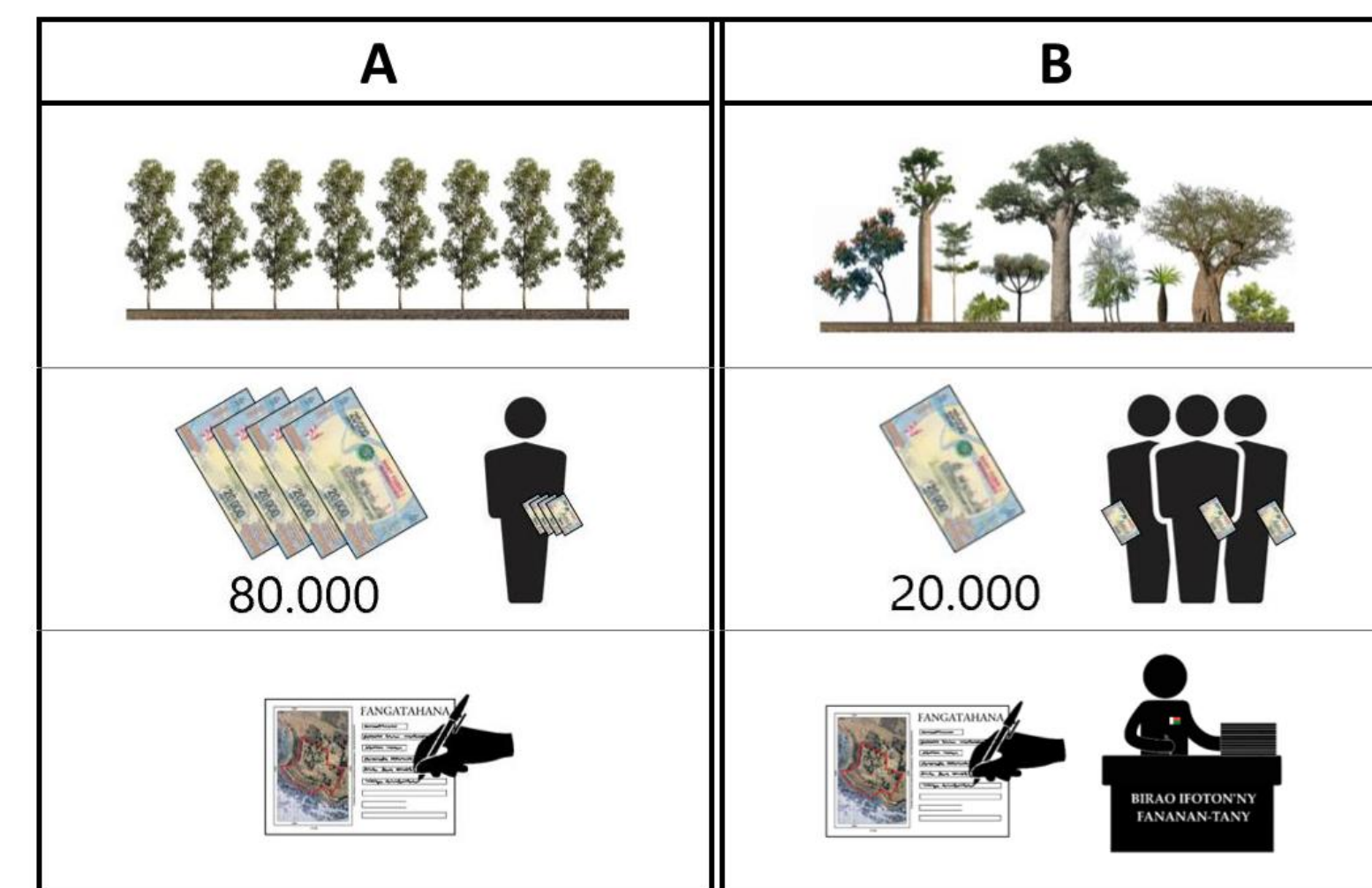


Certification Support

No Support
Support with certification application only
Support with certification application and follow-up with local land officers

Experimental Design

- 2,774 respondents (1,406 beneficiaries; 1,368 non-beneficiaries)
- Choice between 2 projects (plus opt-out option)
- 3 (2) blocks of 8 choices each for beneficiaries (non-beneficiaries)
- Respondents randomly assigned to blocks



BASELINE RESULTS

Programme Preferences

Baseline Estimates – Preferences & Willingness-to-Pay

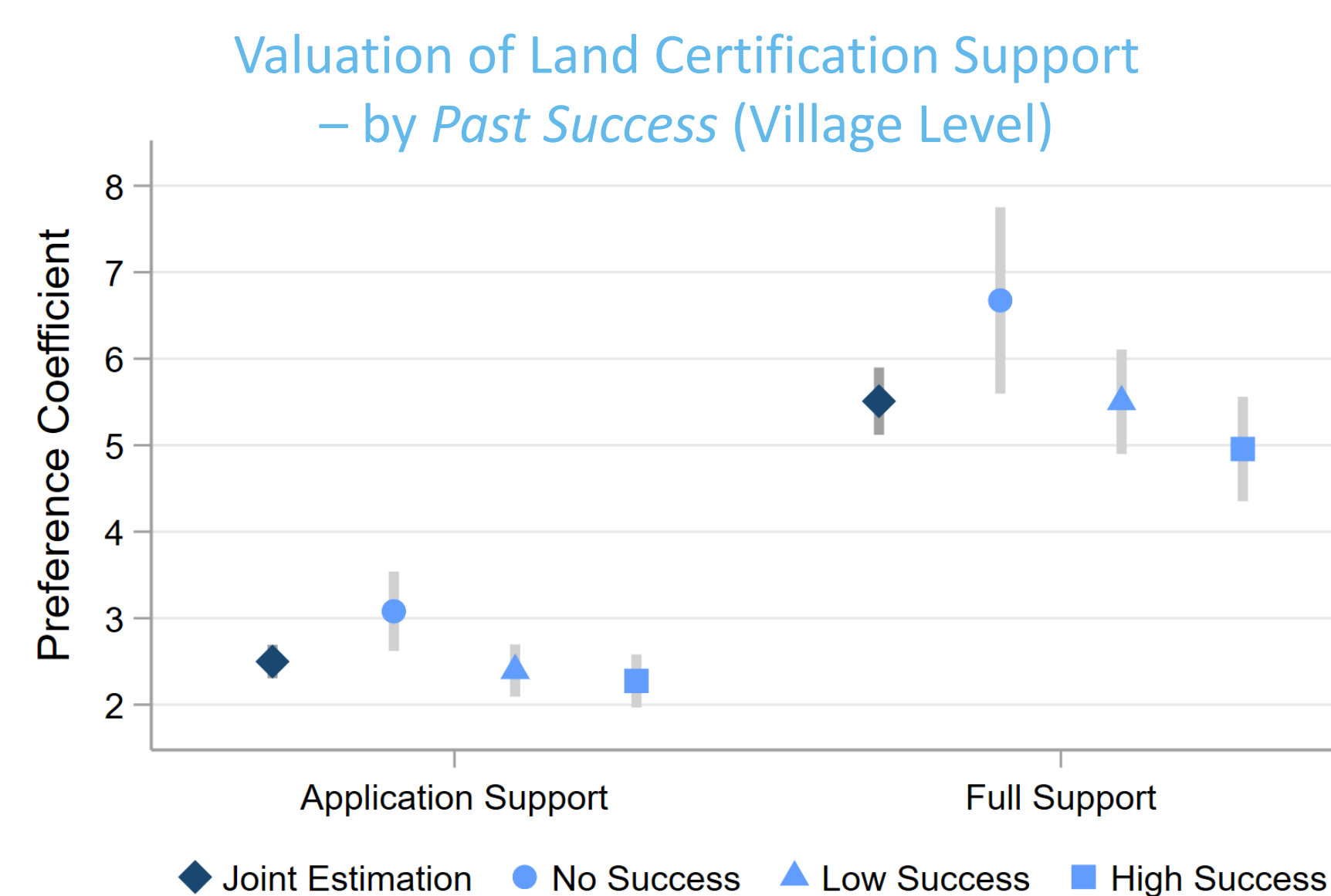
	(1) Preferences		(2) WTP	
	Coefficient	SE	Coefficient	SE
Means:				
Payment (in 1,000 Ar)	0.010***	0.001		
Application Support	2.499***	0.118	104.334***	6.666
Full Support	5.509***	0.237	244.571***	16.062
Group Payment	-0.342***	0.072	-15.471***	3.463
Exotic Trees	0.264***	0.091	10.847*	6.580
ASC	-8.850***	1.312	-604.577***	126.546
Standard Deviations:				
Payment (in 1,000 Ar)	4.752***	0.515		
Application Support	-0.841***	0.152	40.433**	17.337
Full Support	2.353***	0.150	135.667***	11.882
Group Payment	1.325***	0.120	52.223***	8.544
Exotic Trees	2.450***	0.131	112.909***	8.604
ASC	5.282***	0.491	-330.219***	54.406
Halton Draws	1,000		1,000	
LRI	0.288			
Observations	33,696		33,696	

High Interest for Future Programme Participation

- Strong valuation of support with land certification process
- PES transfers appreciated but to lower extent than other attributes
- Individual-level payments preferred
- Substantial compensatory payments required (on average) to forgo any support with land certification process in future programme

HETEROGENEITY

Previous Programme Experience



Splitting by Previous Certification Success

- Villages where nobody received a land title despite applying for one (●) exhibit significantly higher preferences for support with certification process vis-à-vis villages where most households applied successfully (■) (*Unfulfilled-Need Effect*)
- No different preferences for certification support in villages where certification worked overall, or for non-beneficiaries

» **Experiential learning:** households that encountered problems when applying for land certificates value outside support during the process more

FURTHER RESULTS

Respondent Characteristics & Synergies

Migration, Remoteness, Peer Trust

- Little evidence that migrants required more support
- Stronger preferences with increasing village remoteness
- Respondents with higher trust into their group leaders or fellow members are more accepting towards group-level

Attribute Synergies

- PES transfer reduction accepted to obtain support with certification process
- No changed preferences for planted tree types when obtaining more support with certification process

Valuation of Land Certification Support – by Perceived Institutional Capacity

	(1) Perceived Tenure Insecurity	(2) Perceived Corruption	(3) Perceived Land Grab	(4) Distrust Agent Foncier	(5) Distrust Local Mayor	(6) Distrust Index Institutions	(7) Distrust Index General
Appl. support × Inst.	0.615*** (0.188)	0.044 (0.081)	0.052 (0.080)	0.165 (0.115)	0.117 (0.094)	0.122 (0.090)	0.013 (0.092)
Full support × Inst.	0.874*** (0.326)	0.334** (0.134)	0.279** (0.141)	0.350* (0.186)	0.248 (0.156)	0.318** (0.145)	0.168 (0.170)
LRI	0.291	0.285	0.287	0.284	0.291	0.278	0.289
Observations	31,320	31,704	33,000	27,576	31,416	25,656	33,600

High Hopes in Foreign Donors

- Respondents with higher perceptions about land tenure insecurity and institutional incapacities in the process of land certification have increased demand for certification support

» Hope that foreigner donors can help with local institutional inefficiencies



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In cooperation with:

