Using stated choice experiments to predict biosecurity uptake by livestock farmers

▌ Application to African Swine Fever prevention in Corsica

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The context

The worldwide propagation of African Swine fever has prompted the French government to impose drastic prevention measures on pig farms, including a strict confinement of animals

This measure is incompatible with the free ranging farming systems predominant in Corsica

Loeillot, 2021

A regional biosecurity plan was proposed by a technical committee. It allows the continuity of free ranging only for pregnant sows and neutered growing-finishing pigs. It includes the mandatory collection of dead pigs in the field.
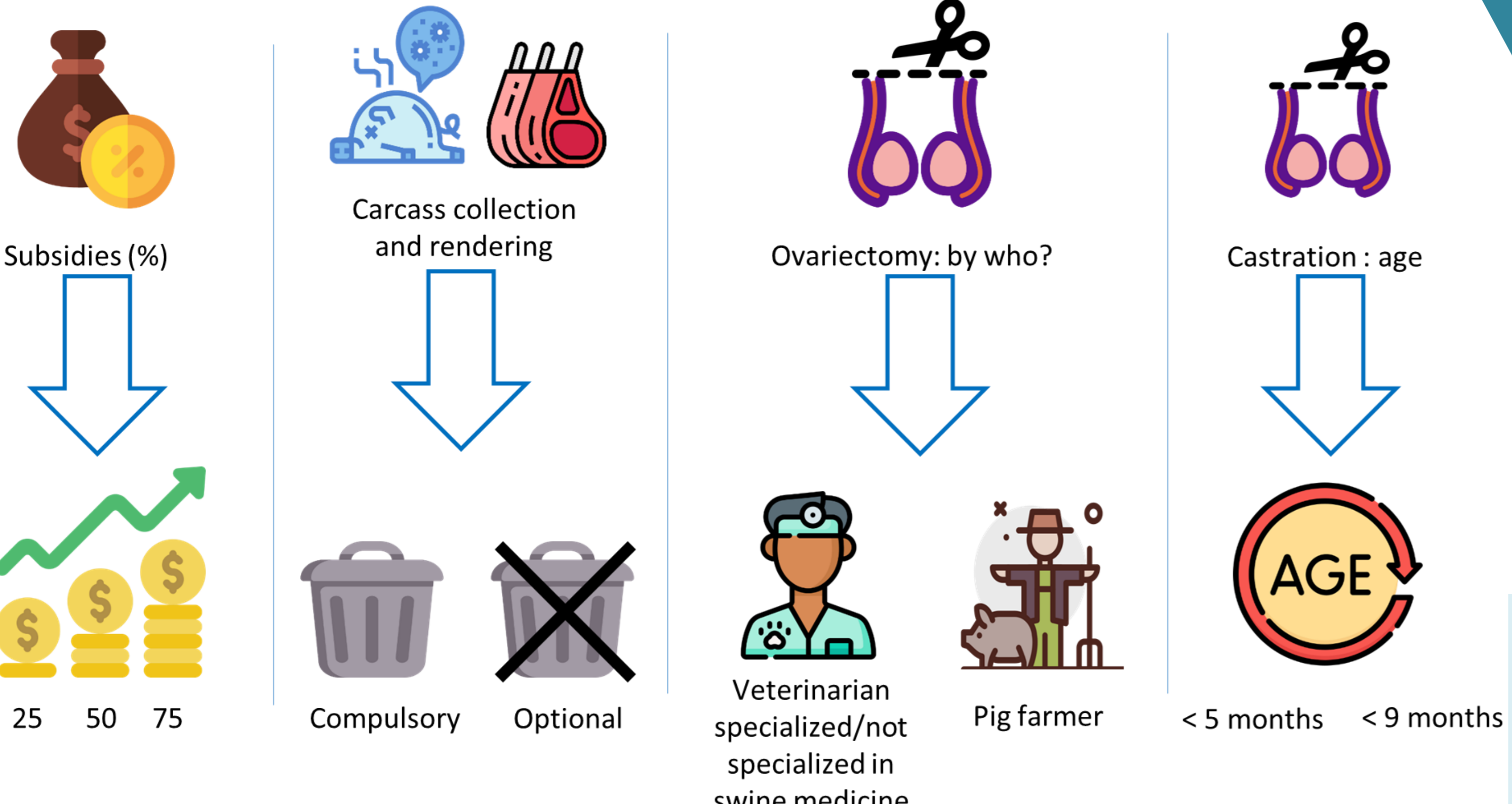
Loeillot, 2021

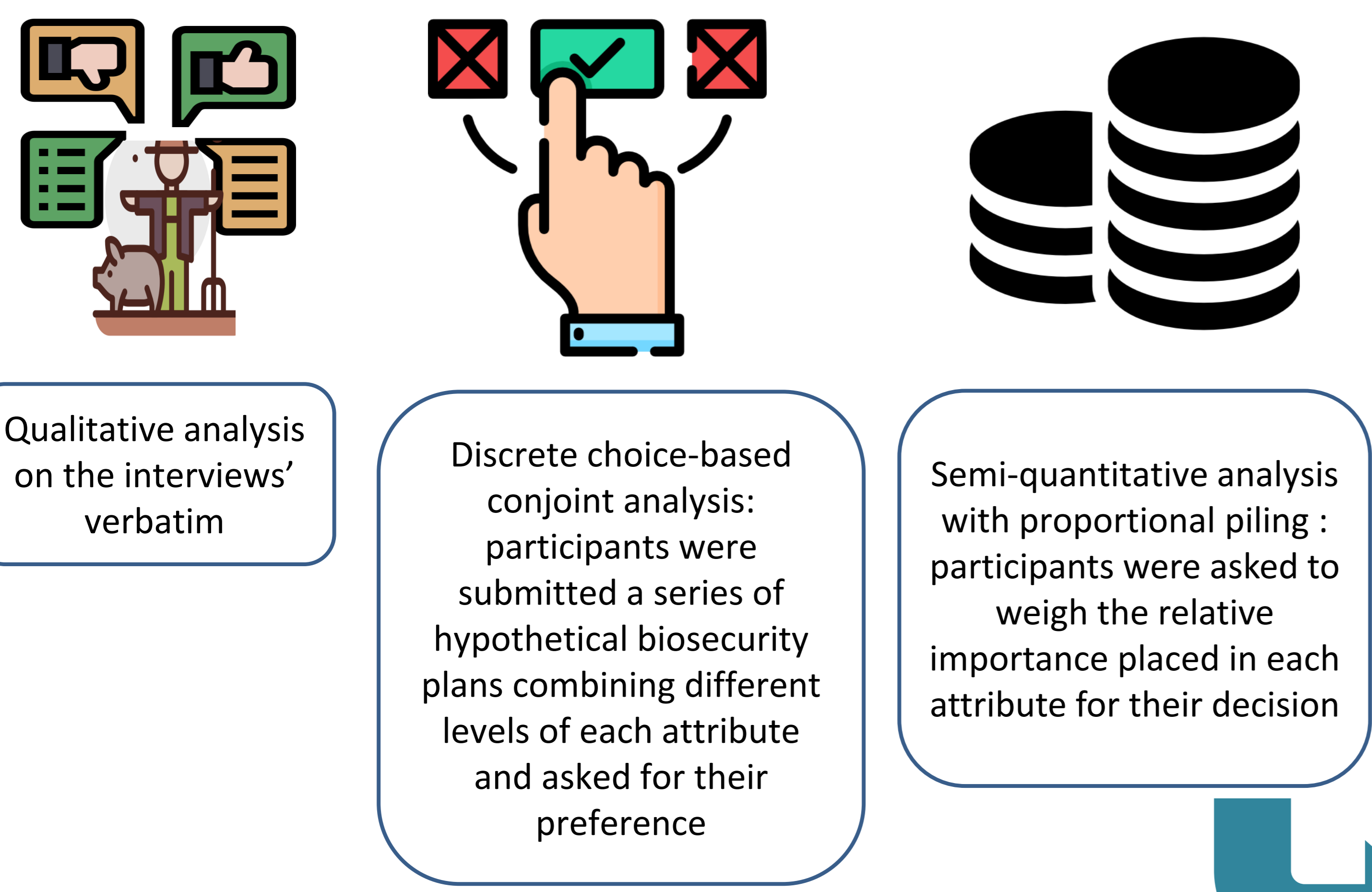## How to predict farmers' attitude towards the new biosecurity plan?

Method

Preliminary interviews with farmers

Selection of attributes affecting the compliance of farmers to the regional biosecurity plan

Subsidies (%)
25 50 75

Carcass collection and rendering
Compulsory   Optional

Ovariectomy: by who?
Veterinarian specialized/not specialized in swine medicine   Pig farmer

Castration : age
< 5 months   < 9 months

Interview of a sample of farmers with a mixed approach

Qualitative analysis on the interviews' verbatim

Discrete choice-based conjoint analysis: participants were submitted a series of hypothetical biosecurity plans combining different levels of each attribute and asked for their preference

Semi-quantitative analysis with proportional piling : participants were asked to weigh the relative importance placed in each attribute for their decision

Some constraints to the compliance of farmers to the biosecurity plan are not purely financial: workload related to the collection of carcasses in the field; risk for animal welfare and growth performance if the neutering is performed too late; limited trust in the veterinarians to perform ovariectomies

Most participants' opinion was that carcass collection and rendering should be mandatory. However, in the choice experiment, participants tended to favor the less constraining option (making it optional)

Half of the participants preferred to delegate ovariectomies to veterinarians, the other half was in favor of allowing farmers to perform it
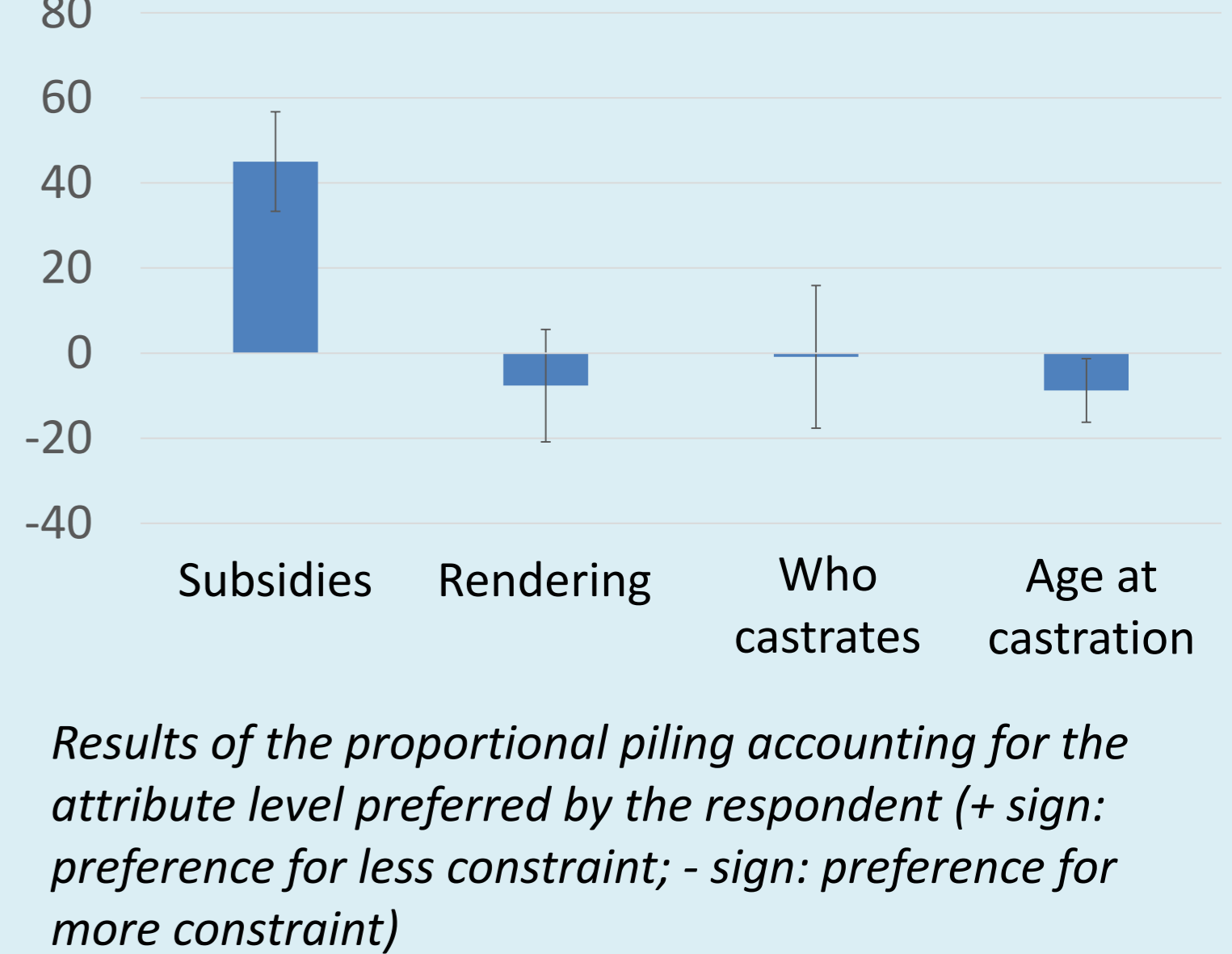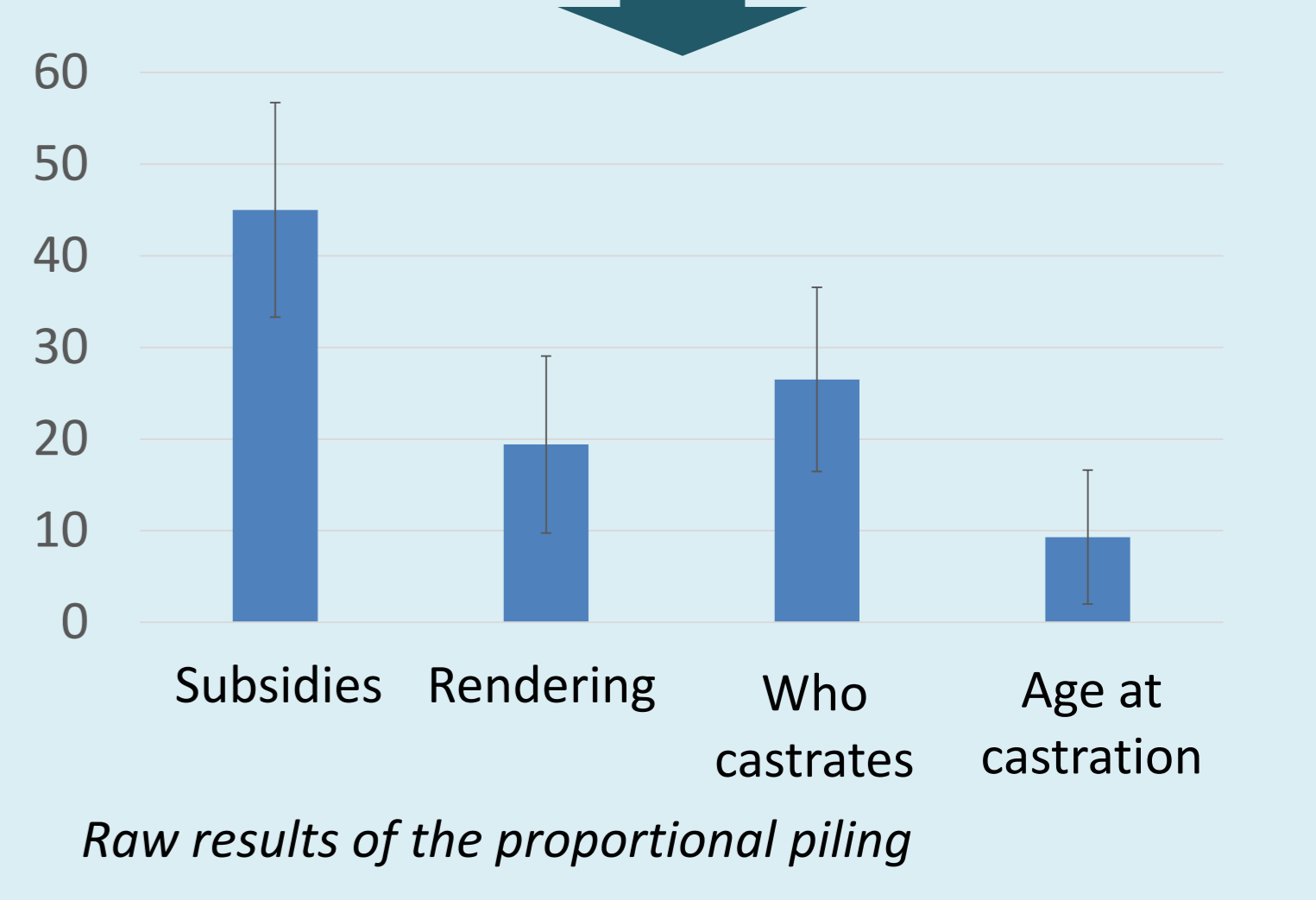
This table shows the result of the conjoint choiced-based analysis. Odds ratios refer to the odds of implementing the program in the presence/absence of the attribute level

Attribute	Level	Odds ratio	P value	Significance
Subsidies	25%			
	50%	2,0	<0,01	YES
	75%	6,9	<0,01	YES
Age	<5 months			
	<9 months	0,7	<0,01	YES

Attribute	Level	Odds ratio	P value	Significance
Who castrates the females	Standard vet			
	Swine vet	1,1	0,68	NO
	Farmer	1,4	0,05	Limit
Age at castration	<5 months			
	<9 months	0,7	<0,01	YES

Results

There is a clear preference for a high governmental contribution to the financial cost of the plan, and for making neutering at a young age (<5 month) compulsory

This figure shows the result of the proportional piling exercise

Raw results of the proportional piling

Results of the proportional piling accounting for the attribute level preferred by the respondent (+ sign: preference for less constraint; - sign: preference for more constraint)

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