

Determinants of Women’s Willingness to Pay for Productive Assets

Insights from experimental evidence and machine learning: stingless beekeeping starter kits in oil palm landscapes, Indonesia

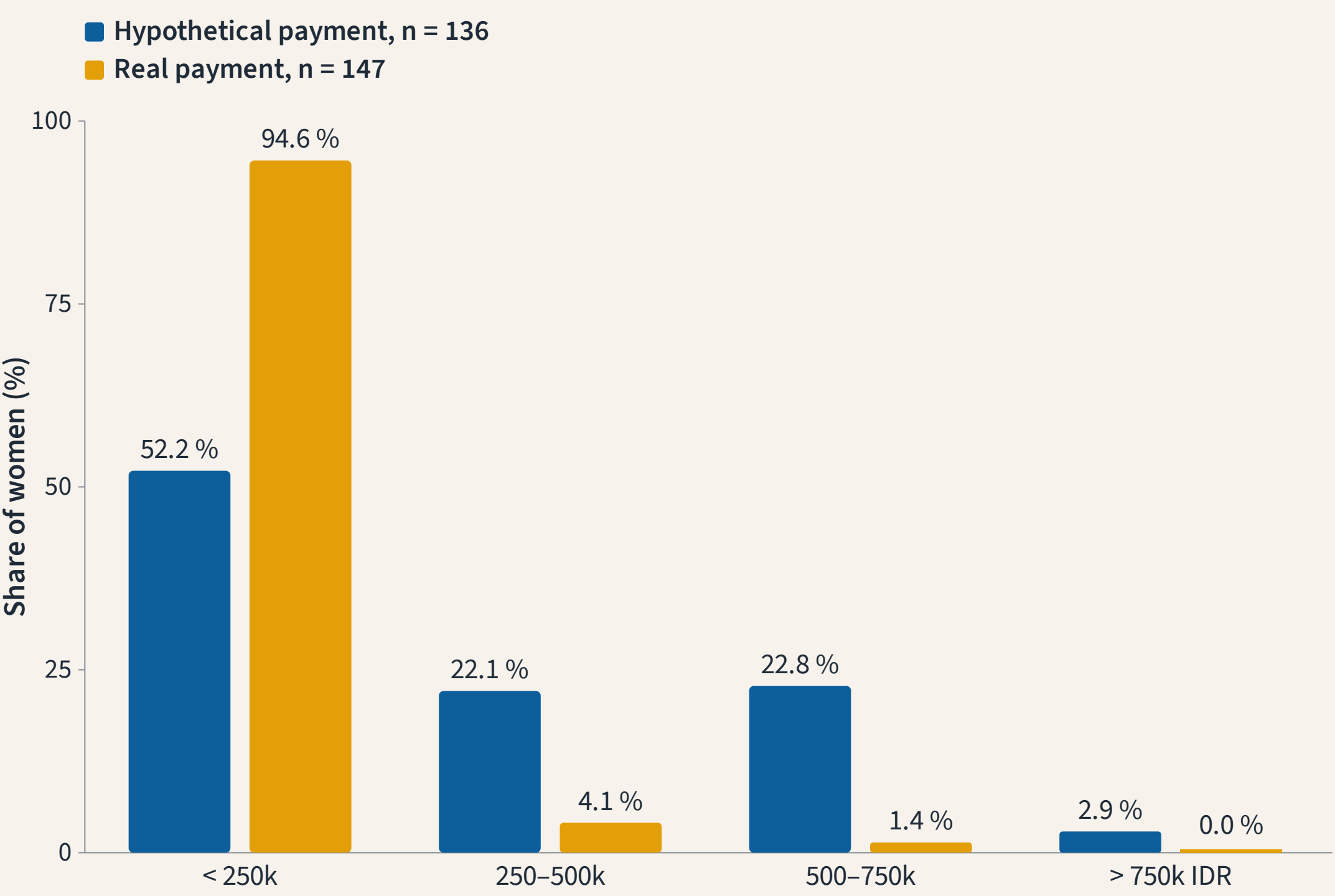
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Key findings

Hypothetical bias: stated willingness to pay is 2.6 times real willingness to pay

Under real payment, 95 % of women reject both bids.



Three factors significantly shape willingness to pay

↑ More income earners in the household
positive, $p < 0.05$

↑ High off-farm household income
positive, $p < 0.01$

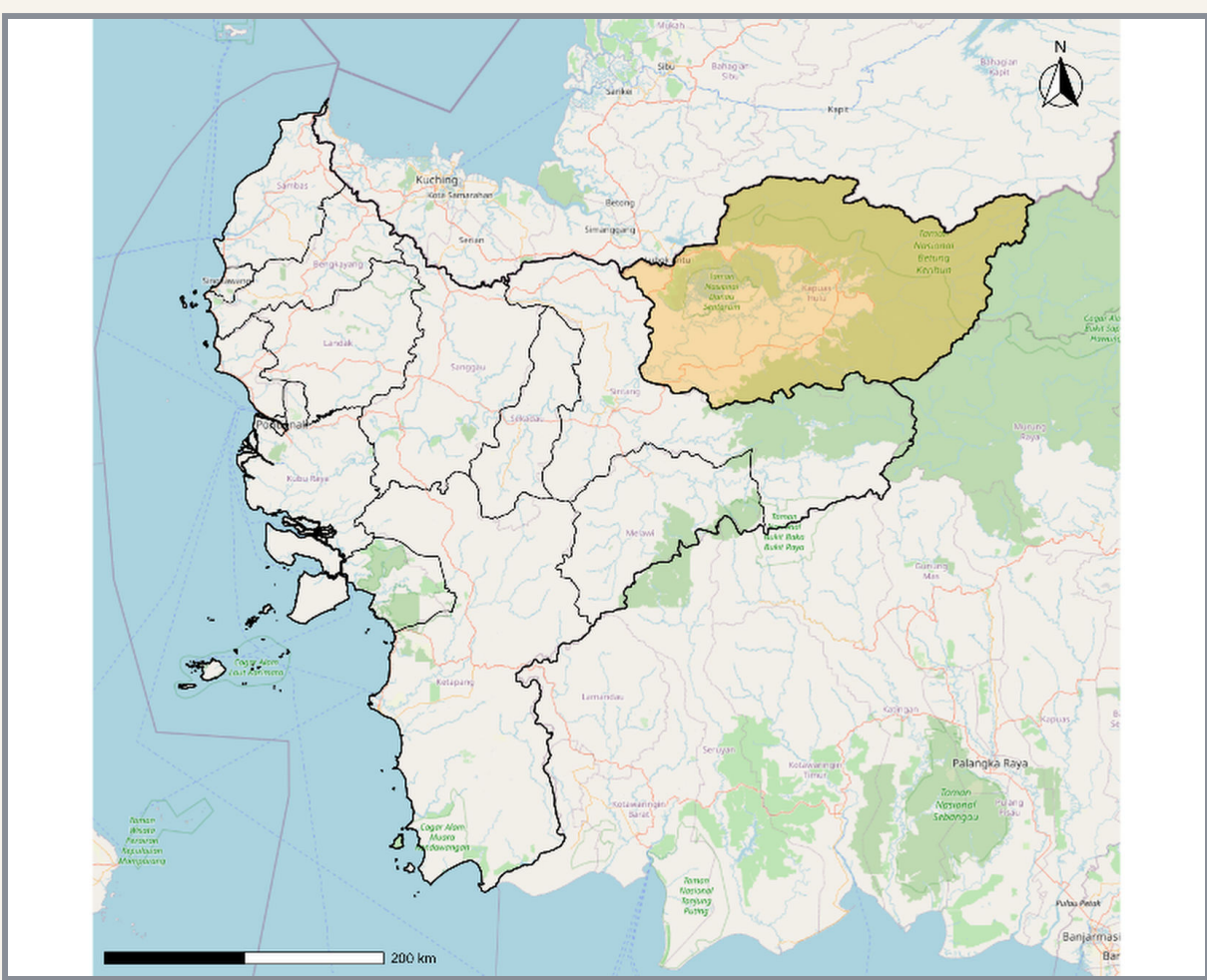
↕ Perceived forest productivity
low: negative, $p < 0.05$ · medium: positive, $p < 0.10$

Background

- Oil palm expansion has pushed women into unpaid or low-paid labour.
- Productive assets such as stingless beekeeping starter kits could open complementary income streams that fit women’s time and land constraints.
- No local market exists yet, so demand for the kits is unknown.
- Beekeeping also supports the environment: stingless bees pollinate nearby crops and forests, without competing for land.

RESEARCH QUESTIONS

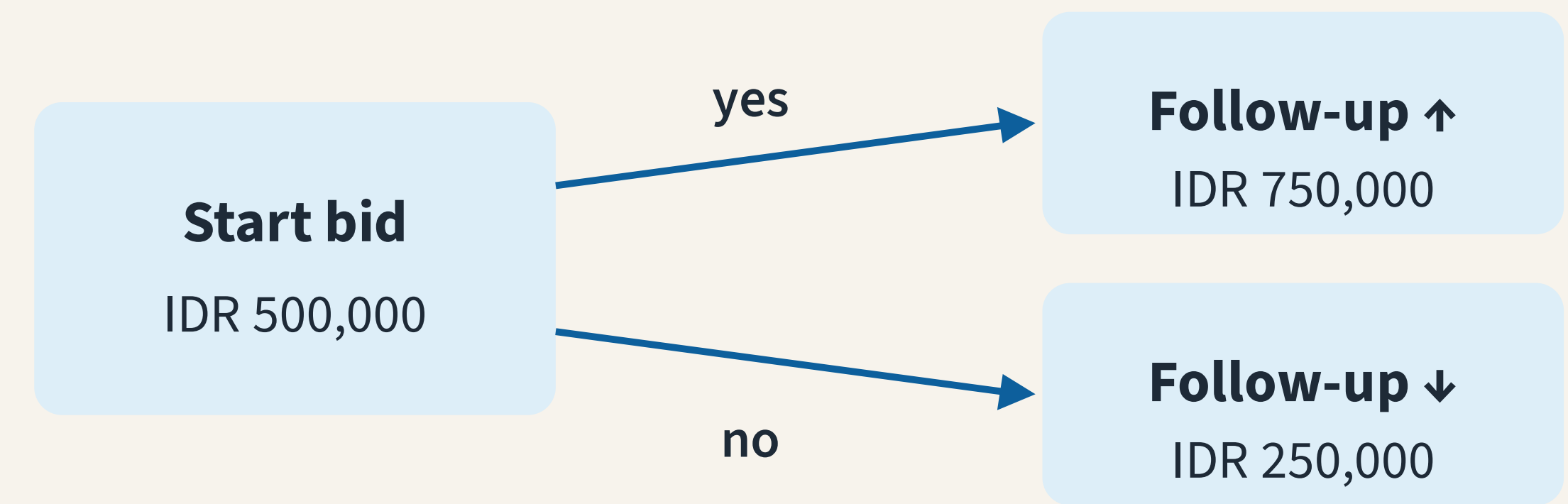
- Which factors determine women’s WTP for the kit?
- Do WTP and its drivers differ under real vs hypothetical payment?



Study area: Kapuas Hulu District (highlighted), West Kalimantan. Source: authors’ own illustration

Study design & methods

- Setting:** 300 women in three oil-palm-dominated villages, Kapuas Hulu, randomised into a real and a hypothetical payment group.
- Elicitation:** double-bounded dichotomous choice (DBDC) for a stingless-beekeeping starter kit.



- Analysis:** XGBoost screens 127 candidate predictors; selected variables enter interval regressions of log WTP.

283

women in final sample

127 → 10

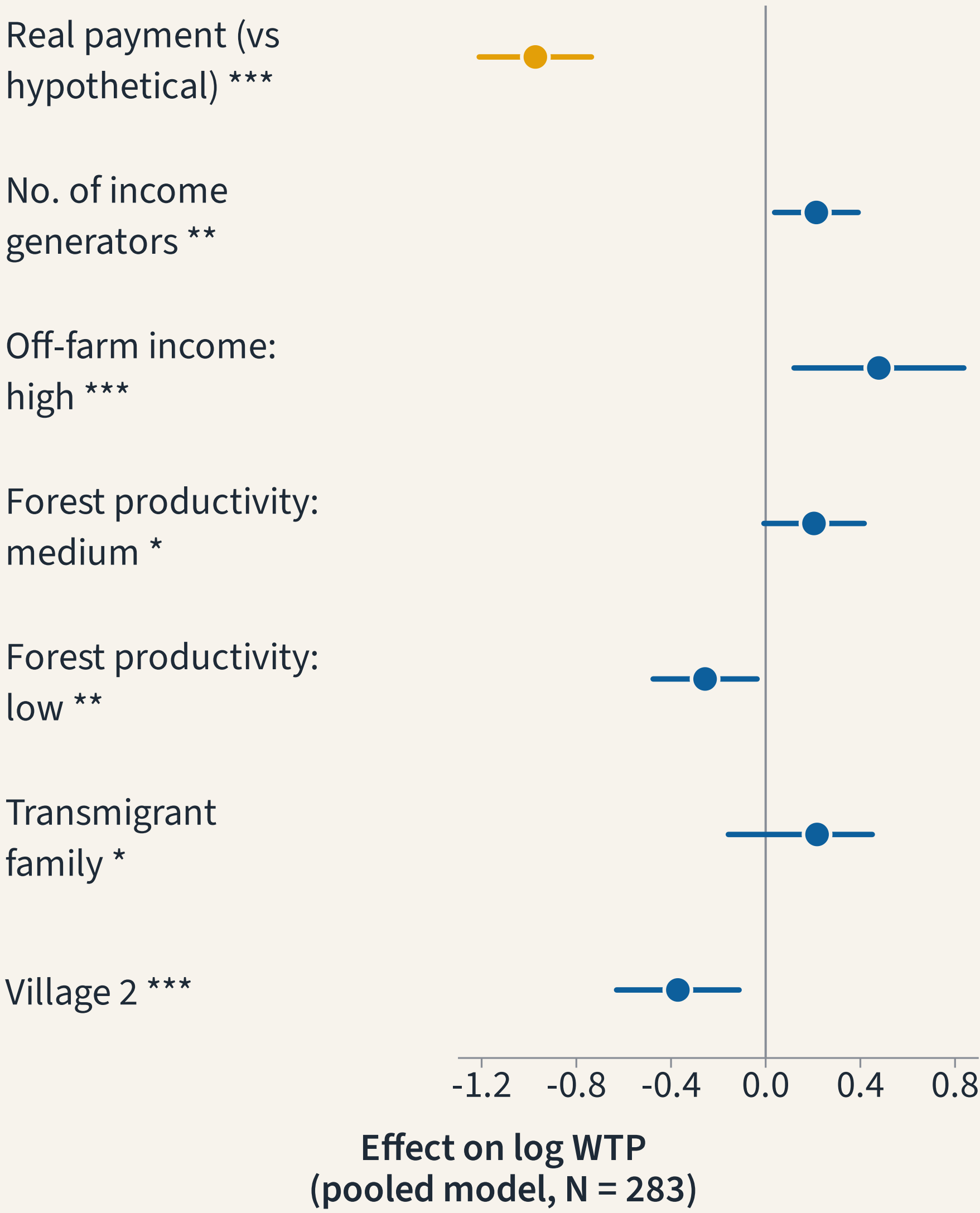
predictors screened → selected by ML



Beekeeping training for women, Kapuas Hulu. Source: GIZ/GRASS



Determinants of WTP



Pooled interval regression, DV = log WTP, $p < 0.10$

- Households with more earners and substantial off-farm income have the liquidity to invest.
- Women who see local forests as productive expect beekeeping to pay off.
- Village and transmigrant effects reflect structural differences, not individual drivers.

Conclusion and implications for practice

Pilot under real payment before scaling

Stated demand overstates real uptake, so test kit demand with real money before rolling out.

Determinants show where to act

Access to finance and extension services raise WTP; women with high WTP are multipliers for kit adoption.

Beekeeping empowers women – beyond oil palm

Skills and in-kind support foster inclusion and self-reliance; extended to Dayak communities in Kalimantan, financed by the Green Climate Fund.



Abstract and paper

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