

BRIDGING SUPPLY- AND DEMAND-SIDE STATED PREFERENCES FOR DESIGNING SUSTAINABLE YOUTH-LED AQUACULTURE BUSINESS MODELS: EVIDENCE FROM NORTHERN GHANA

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2,000+

community-owned reservoirs

998

households surveyed

3

northern regions

PROBLEM & RESEARCH GAP

Pilot projects have demonstrated the technical feasibility of cage aquaculture, but its economic and institutional sustainability remains uncertain. High subsidies, costly training and governance challenges limit scalability and community acceptance. Evidence on inclusive investment models remains limited.

BACKGROUND

Northern Ghana faces persistent youth underemployment and food insecurity, worsened during the dry season. Many youths resort to seasonal migration as a coping strategy. With over 2,000 community-owned reservoirs built mainly for irrigation, their potential for aquaculture remains largely untapped. This gap represents a significant missed opportunity for income diversification and improved food security.

01 SUPPLY SIDE

What business model attributes make aquaculture in small reservoirs socially acceptable and economically sustainable for local communities?

02 DEMAND SIDE

Which fish attributes - species, form, size and price - most influence household purchasing decisions in Northern Ghana?

SEQUENTIAL FRAMEWORK

TECHNICAL PILOTING

1

Field cage-aquaculture pilots test biological and operational feasibility in real reservoirs.

PRIVATE-SECTOR ENGAGEMENT & BUSINESS MODEL SCOPING

2

Assessment of existing aquaculture business models, market opportunities, investment requirements and private-sector partnerships.

BUSINESS MODEL CO-DESIGN

3

Co-creation of employment, payment, contract and market arrangements with stakeholders, informed by community and consumer preference studies (Discrete Choice Experiments).

METHODS

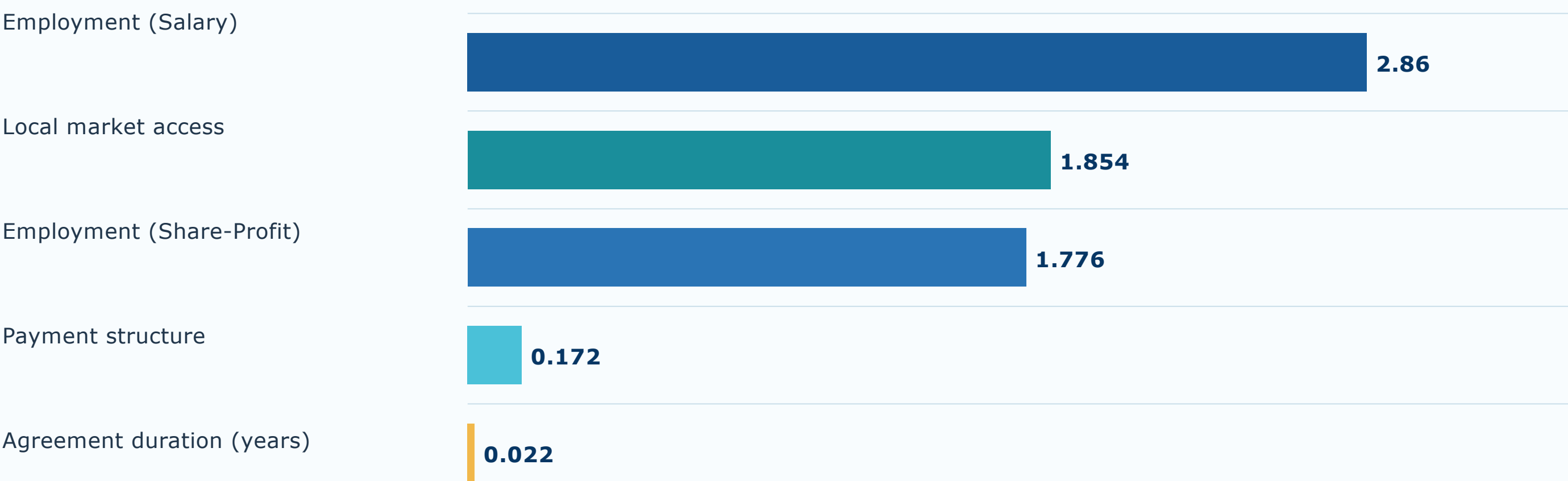
STUDY DESIGN

- STUDY AREA
Northern, Upper East and North East regions
- SAMPLE
998 households
- DATA
Survey + Discrete Choice Experiments
- MODEL
Mixed-Logit Model

WHAT COMMUNITIES WANT

Employment opportunities - especially salaried jobs, followed closely by local market access and profit-sharing - are the core incentives for accepting an aquaculture investment. Agreement duration plays only a minor role. Preference heterogeneity points to flexible or tiered contract options.

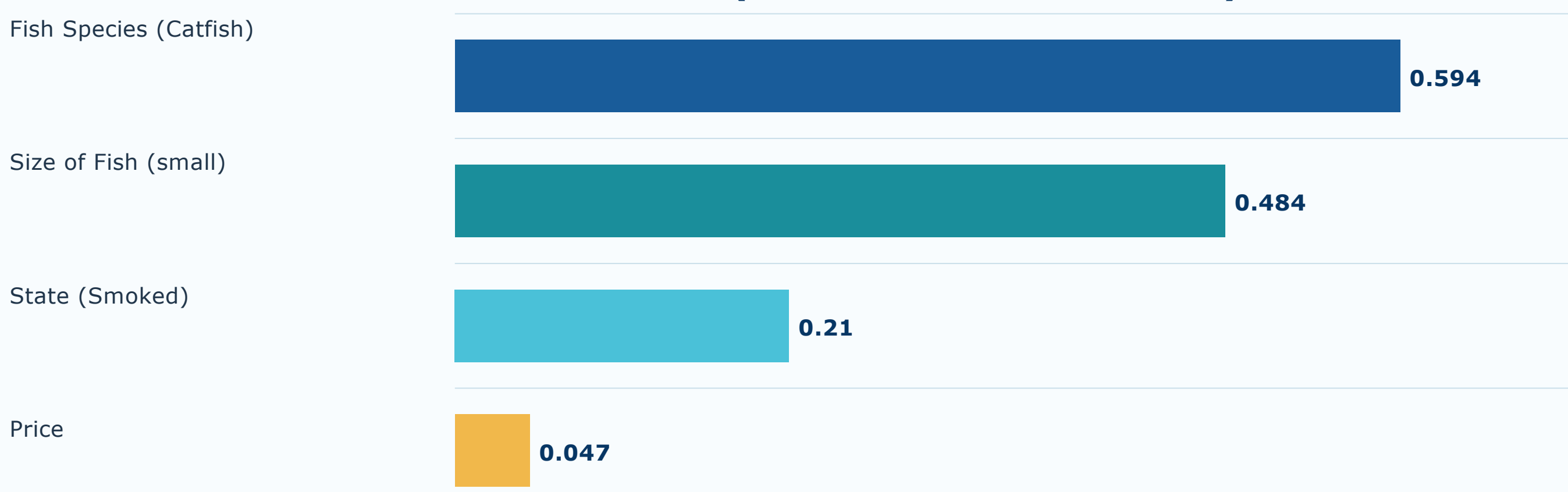
UTILITY OF ATTRIBUTES (WHAT COMMUNITIES WANT)



WHAT CONSUMERS PAY FOR

Strong demand exists for catfish, smoked fish and small-size fish, with consumers willing to pay premiums for these attributes over other options on the market. Preferences and willingness to pay vary across households, creating opportunities for product differentiation rather than a single standard product.

UTILITY OF ATTRIBUTES (WHAT CONSUMERS WANT)



CONCLUSION

Findings underscore the need for socially acceptable business models, consumer-aligned production choices and context-specific implementation strategies that reflect local realities.

Significant heterogeneity in community acceptance (WTA) and consumer preferences (WTP) highlights the importance of tailoring aquaculture models to diverse socio-economic and cultural contexts.

POLICY IMPLICATIONS

- Business models must be locally adaptive, incorporating preferred employment structures such as salary or profit-sharing.
- Shorter, flexible contracts may lower entry barriers in communities with governance concerns.
- Strong local market linkages and consumer-aligned production can improve acceptance and profitability.
- Pricing should consider WTP differences across demographic groups and sensitivity to price changes.
- Clear resource-access, benefit-sharing and management guidelines can reduce conflict and strengthen long-term sustainability.

SMALL RESERVOIRS

AQUACULTURE

YOUTH LIVELIHOODS

FOOD SECURITY

INCLUSIVE INVESTMENT

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SUSTAINABLE AQUACULTURE / INCLUSIVE INVESTMENT / NORTHERN GHANA