How to learn from the most successful households

Prioritizing rural development interventions by "Positive Deviance" analysis

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A novel research methodology that uses quantitative household data to identify households with particularly successful livelihoods, and employs in-depth qualitative research with these households to uncover locally proven, innovative practices and behaviors.

What is "Positive Deviance"?

Although facing similar resource constraints and trade-offs, some households achieve higher livelihood success than others. These "positive deviant" households likely do things differently! Empirical, qualitative research with these strong performers may reveal their success strategies (see Baxter *et al.* 2016). We aimed to detect potentially uncommon, innovative behaviors that are proven to work in local context. These can be crucial inputs to rural intervention strategies and useful to other households.

Background

Rural households often face **trade-offs between dimensions of livelihood**, e.g., food security, income, and a healthy nutrition. Development interventions targeted at one goal may have negative implications for another one.

We are trying to develop a research method that

- Identifies opportunities for development interventions that **avoid strong trade-offs**

- Is **highly empirical** by looking at "what is seen to work" in context, instead of requiring strong assumptions about causalities

- Departs from **existing success cases** of successful households to kick-start innovation processes

- Is **scalable and low-cost** and can be implemented by grassroot agencies.

We tested whether our new approach, "Positive Deviance analysis", is able to identify uncommon, innovative practices that deal smartly with livelihood trade-offs in rural Sub-Saharan Africa.
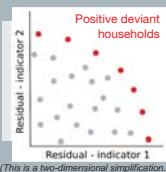
Methods

1. Lean data survey. We performed a lean data survey (RHoMIS, Hammond *et al.* 2016) with 521 households in South-Eastern Tanzania. We collected data about household composition and the farming system (e.g., land size, livestock holdings, market access), as well as about livelihood outcomes (e.g., yields, income).

2. Five indicators of livelihood performance per household. We determined each household's livelihood performance in five independent key dimensions of successful, sustainable rural livelihoods: **Diet diversity, Food security, Cash income, Gender equity,** and **(low) Greenhouse gas emissions.**

3. Performance models. To each of the five dimensions, we fit a linear performance model, using key household resources as covariates. These models accounted for household resources. **Positive residuals** thus indicated strong livelihood performance that was **not explained** by the resources, such as farm size, livestock holdings, etc.

Household with positive residual (= "better than predicted")

Household with negative residual

Household performance

Vector of household characteristics

Positive deviant households

Residual - indicator 2

Residual - indicator 1

(This is a two-dimensional simplification.)

4. Identifying Pareto-optimal livelihood performance. We extracted each household's five model residuals and determined the five-dimensional Pareto-front. There were 54 Pareto-optimal households ("positive deviants"), which show strong performance **and** seem to be less affected than other households by trade-offs between dimensions.

5. Qualitative interviews, farm visits, and identifying successful practices. We visited 15 positive deviant households and performed thorough on-farm observations and in-depth interviews with household heads.

Results

- **54 out of 521 households** were positive deviants. They performed "surprisingly well" in at least some dimensions of livelihood.

- **Trade-offs exist** between the dimensions of livelihood (no obvious "win-win situations"). But positive deviants cope comparatively well with these trade-offs (see examples in Figure A).

- Positive deviants are **particularly "deviant"** for Food security, but also for Cash income and GHG mitigation (data not shown).

- In 15 interviews and farm visits, we identified 14 successful practices. These relate to agronomy, on-farm innovation, and off-farm engagement (see Figures B, C).
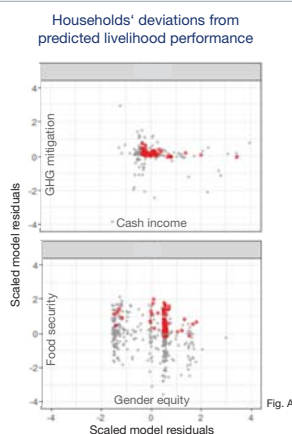
Households' deviations from predicted livelihood performance

GHG mitigation / Cash income

Scaled model residuals

Food security / Gender equity

Scaled model residuals

Fig. A

Conclusions

Positive deviance analysis…

- **effectively identified successful households** that dealt smartly with existing trade-offs in achieving livelihood success.

- **uncovered a variety of uncommon, innovative practices**. These were embedded in local context and differed from the technologies and practices that are commonly proposed for similar context.

- **required relatively little costly fieldwork** due to the highly targeted selection of key households. This makes the methodology accessible for low-resource organizations, such as local NGOs.

- **facilitates practice-oriented discussions about development interventions** that are conscious of trade-offs in rural livelihoods.

How to integrate the practices in development efforts remains to be tested. We are currently exploring ways to use lean data and the experiences of positive deviant households to further **target intervention options to individual households**.

Fig. B: Resource-efficient style of intercropping maize and pigeon pea

Fig. C: Commercial tree nursery

References

Baxter R, Taylor N, Kellar I, Lawton R (2016) What methods are used to apply positive deviance within healthcare organisations? A systematic review, *BMJ Quality & Safety*, 25, pp.190-201.

Hammond J, et al. (2017) The Rural Household Multi-Indicator Survey (RHoMIS) for rapid characterisation of households to inform climate smart agriculture interventions: Description and applications in East Africa and Central America, *Agricultural Systems*, 151, pp.225-233.