Farm net Income, Agricultural Viability and Institutional Arrangements in Sierra Leone

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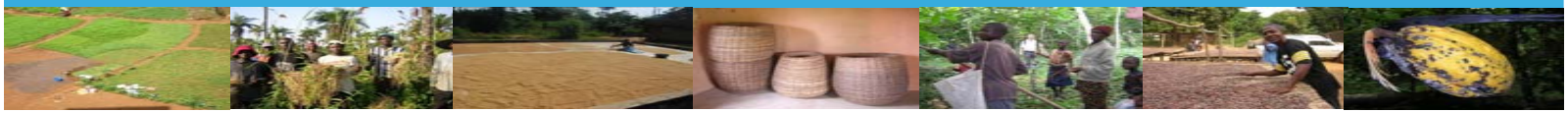
Measuring Farm Net Income & Viability: Lessons from a Case Study in Sierra Leone

By Silvia L. SARAVIA-MATUS, Szvetlana ACS and Sergio GOMEZ Y PALOMA



1. Introduction

The case study (based on 600 surveyed smallholders) illustrates that by engaging in a deeper analysis of the institutional context it is possible to:

(i) Adapt data analysis techniques in order to account for a series of non-monetary transactions which are of relevance to the farm household

(ii) Assess the interconnections of farm households with their immediate socio-economic and organizational context (i.e. village or community)

(iii) Improve farm household income measurement approaches so that a more complete picture of the rural poor's reality may be obtained

2. Agriculture in Sierra Leone

Shifting Cultivation & Tree Cropping Under Forest

- **Approximately 70% of population devoted to Small-Scale Farming** (i.e. 400 000 farm households with 0.5-2 cropped ha)
- **Highly inefficient input/output mixes** which favor risk minimization over cash-income generation (mainly in staple crops)
- Smallholders depend on **labor sharing schemes and non-monetary transactions** to access seeds and other inputs
- **Cocoa & Coffee** constitute main cash tree crops (**Eastern Region**) – **100% of output is marketed**
- Up to **15 different food crops** grown in mixed stands with rice as dominant crop (**Northern Region**) - **70% of output is destined for self-consumption**
- Substantial **pre & post harvest losses** (up to 40%)
- **Constraints to agricultural investment** (due to credit shortage and impossibility to use land as collateral)

3. Reproduction Threshold (RT)

➢RT is the minimum farm net income (revenue minus costs) level per Household Working Unit (hhWU) below which farmers in specific contexts are unable to adequately pay for all inputs and to completely restore capital productivity in order to begin a new production cycle.

➢Farms below the RT can survive in the short run by underpaying labor and/or by not replacing the capital depreciation; but in the medium-to-long run such survival strategies will inevitably exclude some farms from the market and imply their collapse.

Eastern Region RT =
Off-farm work: 700 000 Leones (130 Euro/year)

Northern Region RT = 0
No off-farm work opportunities *in situ*

4. Farm Net Income (FNI) Approaches & Measurement

	NA: Neoclassical Approach	PA: Peasant Farming Approach
Objective	Profit Maximization	Simple Reproduction of Household
Market Assumption	Competitive Markets	Competitive Product Market & No Labor Market
Output Valuation (Farm Revenue)		
Sales, Consumption & Stocks	Market price Market price	Market price 10% higher than market price
Input Cost Valuation (Variable & Fixed Costs)		
Household Labor	Wage (Opportunity Cost)	No cost (Opportunity Cost = 0)
Hired Labor	Wage	No cost – Food cropping Wage – Cash tree cropping
Seeds **Livestock** **Tools** **Land rent**	Market price Market price Depreciation cost Market price equivalent of bushels of rice paid	Market price Market price Depreciation cost Market price equivalent of bushels of rice paid

FNI = Farm Revenue – Variable & Fixed Costs

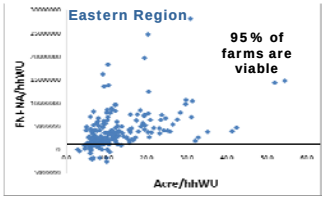
$$FNI = \sum_i (Crop_i * p_i) + \sum_j (Lstock_j * p_{js}) - \sum_{i,j} (Labor_{i,j} * p_w + Seeds_i * p_i) - \sum_t Tools_t * (p_t * d_t) - L\,Rent - \sum_j Lstock_j * (p_j * d_j)$$

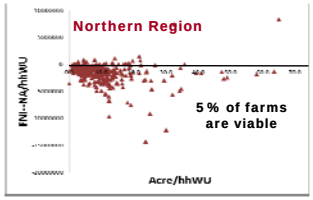
***p*: price ; *i*: crop type ; *j* : livestock type ; *t*: tool type ; *w*: wage ; *L*: Land**

The number of household working units (hhWU) per farm is obtained by adding the total reported numbers of hours devoted to each farm activity and dividing them by the full time equivalent working man power per year.

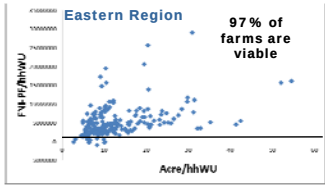
5. Farm Viability Assessments

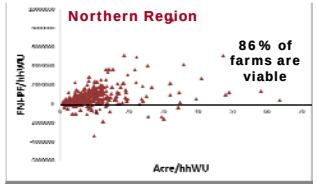
NA: Neoclassical Approach





PA: Peasant Farming Approach





6. Conclusions

❖**Farm Viability Assessments under the FNI Neoclassical Approach do not accurately reflect the reality of surveyed areas which are only marginally integrated to markets**. When the percentage of marketed farm output is high, the difference between FNI approaches is reduced.

❖Although deemed largely "unviable" under the Neoclassical Approach, (Semi) Subsistence Farmers in the Northern Region have been annually producing (mainly food crops) for the last decade, i.e. at least since the end of the civil conflict in 1992.

❖**Under the Peasant Farming Approach it is acknowledged that smallholders are highly dependent on their local socio-economic agricultural arrangements (i.e. non-monetary exchanges to secure labor, seeds and other inputs).** These village-level institutional agreements are not captured by FNI calculations guided by strict Neoclassical principles, thus leading to an underestimation of (semi) subsistence farm viability in Sierra Leone.

❖It is **important to adjust neoclassical principles** in order to capture that farm household's objectives may completely differ from profit maximization goals as issues concerning **food security, stability or community obligations** may play a more determinant role.