Income Diversification and Seasonality for Smallholder Farmers in Kilosa, Tanzania

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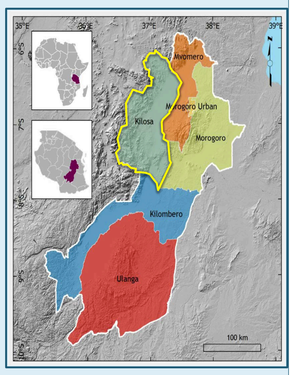
1. Kilosa, Tanzania

Tanzania is an Eastern African country. Nearly 80% of the population depends on agricultural livelihoods and the poverty rate for rural farmers is 34% (FAO, 2011; source). Improving the livelihoods of rural farmers is important in order to achieve the first Sustainable Development Goal of "no poverty by 2030"[1].



2. Host Organization

The Tanzania Forest Conservation Group (TFCG) is an NGO composed of a multidisciplinary team of foresters, biologists and communicators who are committed to conserving Tanzania's forests and improving the livelihoods of those who depend on them. TFCG was established in 1985 and is the largest non-profit organization in Tanzania working on forest conservation.

Currently, TFCG is implementing a five-year multi-sectoral sustainable charcoal project funded by the Swiss Development Corporation (SDC). There are three main components of this project: 1) sustainable forest management and charcoal production; 2) village savings and loans groups; and 3) farmer field groups.

Figure 1. TFCG Village Savings and Loan Group

3. Field Practicum Objectives

- What are the main activities that farmers working TFCG engage in to earn income? What is their level of diversification? How does this change with level of income?
- What seasonal income patterns do farmers working with TFCG experience? Do these vary with level of income or diversification?

4. Methods

The methods I used for my field practicum data collection were:

- **Focus group discussions**
- **Surveys**
- **Participant Observations**

I conducted 2 focus groups with small groups of farmers to inform the survey design. The surveys were conducted with 75 farmers in total, 15 farmers from 5 villages in the Kilosa district, who were members of TFCG's farmer field groups. Of the survey respondents 52% were female and 48% were male.

★ **Income Diversification** – the number of activities that generate income within a livelihood strategy as well as the share of income derived from different types of activities (i.e. crops, livestock, small business etc.)

★ **Income Seasonality** – the variation in income between the months/seasons in the year due to temporal changes in climate and agricultural production

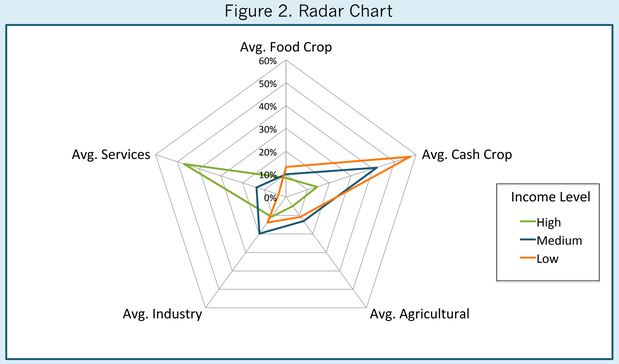
5. Results

Income diversification was present throughout income levels among farmers. Share of income from non-crop sources was highest for the wealthiest farmers and lowest for the poorest farmers.

Income Quintile	Avg. Income	Crop Income	Non-Crop Income
1 (poorest)	$124.55	86%	14%
2	$328.66	49%	51%
3	$634.46	52%	48%
4	$1,285.63	59%	41%
5 (richest)	$3,679.87	26%	74%

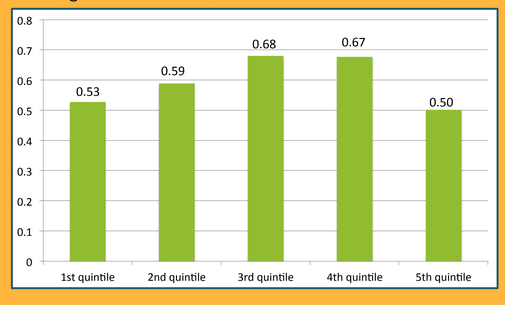
Another way to visualize the different patterns of income diversification between farmers with different levels of income is with a radar chart.

Figure 2. Radar Chart



Another method to calculate income diversity is the the Herfindahl-Hirschman Index[2] – farmers in the middle income quintiles had higher levels of diversity than farmers in the highest or lowest quintile.

Figure 3. Herfindahl-Hirschman Index and Income

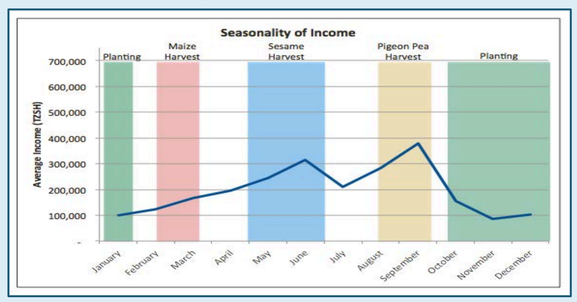


For farmers working with TFCG, cash crops such as pigeon pea and sesame were important sources of income for farmers – farmers in all income quintiles grew approximately 2 food crops on average, but the number of cash crops grown changed with the level of income.

Income Quintile	Avg. Number of Food Crops	Avg. Number of Cash Crops
1 (poorest)	1.93	1.71
2	1.93	1.33
3	2.13	2.40
4	2.13	3.00
5 (richest)	1.93	2.80

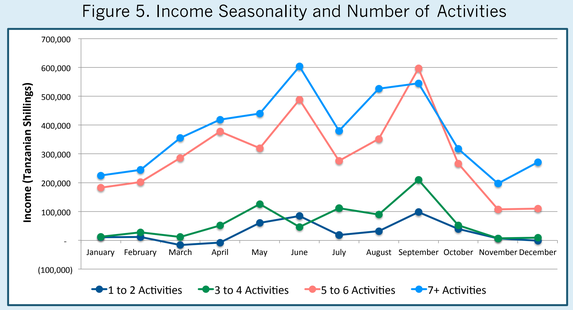
Average income varied over the course of the year with peaks in income visible for the sesame and pigeon pea harvests.

Figure 4. Income Seasonality



This income seasonality was also present at varying levels of income and numbers of activities.

Figure 5. Income Seasonality and Number of Activities



6. Recommendations

Support Cash Crop Production

Sesame and pigeon pea are an important source of income for farmers and income from these crops may be used to diversify into more profitable non-farm activities. TFCG could support cash crop production by facilitating access to inputs and market linkages.

Support Non-Farm Activities

Wealthier farmers earn a higher share of their income from non-farm activities than poorer farmers, however there are significant capital barriers that impede entry into these business activities. TFCG could use the Village Savings and Loans Groups to support entry into these non-farm activities.

Address Income Seasonality

Farmers sampled experienced income seasonality and poorer farmers may not be able to smooth income or consumption. TFCG could address seasonality through savings mechanisms in the Village Savings and Loans groups and by supporting off-season income generating activities.

Figure 6. Surveying Farmers in Kigunga

7. Acknowledgements

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1) UNDP 2015, http://www.undp.org/content/undp/en/home/presscenter/pressreleases/2015/09/24/undp-welcomes-adoption-of-sustainable-development-goals-by-world-leaders.html
2) Dimova and Sen 2010, Is Household Income Diversification a Means of Survival or a Means of Accumulation? Panel Data Evidence from Tanzania (April 6, 2010). Available at SSRN: https://ssrn.com/abstract=1688433