

Williams College – Center for Development Economics

Assessing the Impact of the Financial Inclusion Pillar of the Parish Development Model on Incomes of Subsistence Households in Uganda using a Microsimulation Model

Michael Kiwanuka-Okot

A. Introduction

I. Background

The Parish Development model (PDM) is a wealth creation strategy adopted by the Government of Uganda aimed at delivering social-economic transformation by decentralizing planning, budgeting and service delivery to the smallest administrative unit of Government which is the Parish/Ward.

The primary objective is “to increase household incomes and improve the quality of life of Ugandans with a specific focus on the total transformation of the subsistence households (both on-farm and off-farm, in rural and urban settings) into the money economy, as well as eradication of poverty and vulnerability in Uganda”. (Operation Manual)

In pursuing this objective, PDM will rely on the effective implementation of one of the key pillars of the model, defined as financial inclusion. This pillar entails the provision of subsidized credit estimated at approximately USD 26,000 per parish, across 10,512 parishes to catalyze social economic transformation.

The rationale for the intervention is premised on the fact that since a majority of households (39%) in Uganda are currently involved in subsistence production¹, they are unable to accumulate savings and/or acquire assets to either access credit and/or engage in investment activities. This reinforces their persistently low incomes. Given this market failure, intervention in rural credit markets by the Government can be considered as not only a viable response to rural development but also a preferable option to the politically sensitive traditional approach of redistributing assets through taxation. (Besley, 1994). Therefore, the extension of heavily subsidized credit to these households will remove this constraint, in turn improving household productivity as reflected in the growth of household income.

II. Theory of Change:

a) Operations of the Parish Development Model -Financial Inclusion Pillar

The basic PDM formulation is that subsistence households engaged in production along the value chain for 18 listed priority commodities will be eligible for receipt of Government subsidized credit (interest rate of inflation + 1%). To access the funds, Households belonging to a community savings group will submit proposed projects to a Parish Development Committee. Upon approval, these will be submitted to the Central Government, triggering disbursement of funds from the Treasury directly to the Household Saving Groups Digital Accounts (e-wallets) to fund the aforementioned Investment Projects.

b) The Productivity of Capital

There is a strong empirical basis for the hypothesis of high productivity of capital in low-income scenarios. For instance, (Besley, 1994) alludes to research by Binswanger and Rozenweig (1990) which showed that the presence of high risk and low access to credit ensures that “small farmers fail to exploit good investment opportunities”. This finding is supported by more recent work done by (Duflo & Banerjee, 2010) which demonstrated that the marginal returns to even small amounts of additional capital for very small firms in developing countries can range between 55% - 63% annually.

¹ Subsistence households: those households that are engaged in the production of goods and/or services whose returns are only enough or unable to meet their basic food and non-food requirements. They include households engaged in subsistence farming; earning a wage or salary; operating a business; and completely not working. - (Financial Inclusion Pillar - Operations Manual)

Based on the above, the PDM is motivated by the idea that closing the capital gap through extending credit to low-income, subsistence households will boost productivity and enhance incomes. This outlines the overall transmission mechanism of the intervention. That notwithstanding, given the variability of household, government as well as parish administrative behavior, the outcomes cannot be expected to follow a linear path.

III. Research Question

Against the above background, my analysis will test the **expected impact** of the program as it is currently constructed; on the reduction of poverty, on household incomes, as well as assessing the cost efficiency within the program budget constraint. This will be done by simulating **realistic** use-case scenarios for household credit, estimating a range of outcomes across a heterogeneous sample of eligible households behaving differently.

The results from this simulation will be relevant firstly as a useful estimate of the impact of the current policy intervention, and furthermore, will serve as a useful baseline for simulating other scenarios with respect to eligibility criteria, such as: targeting the poorest, affirmative action for underrepresented groups. This is consistent with the Government of Uganda's future desire to introduce affirmative action in the allocation criteria of the program.²

B. Situational Analysis

Household Survey data shows that the rate of poverty is increasing rapidly among subsistence households. For instance, among households headed by subsistence farmers, the percentage poor increased from 20.3% to 38.2% between 2012/13 and 2016/17 surveys; Poverty increased from 23% to 36% among those reporting crop farming/subsistence farming as their main source of income; and the absolute numbers of people living in poverty in rural areas rose from 6 million in 2012/13 to 8.7 million in 2016/17. This situation is exacerbated by Uganda's exceptionally high rate of population growth. (3.21% in 2021) (World Bank Development Indicators)

² (Ministry of Finance, 2021)

Resultantly, households are unable to accumulate savings to invest in income-generating projects that can help them escape the poverty traps. In addition, Subsistence households are systematically locked out of the formal financial services market due to low eligibility for credit financing. As such, the savings-investment gap is maintained and the condition of poverty of subsistence households endures.

C. Methodological Approach

a. Data

The data set used for this analysis is the Uganda National Household Survey FY 2019/20 conducted by the Uganda Bureau of Statistics. The survey collected socio-economic data required for measurement of human development and monitoring social goals, with focus on measurement of poverty and unemployment". The survey dataset includes 13,736 households which represent a population of 40.01 million people. For this study, only the required data is extracted to a separate database. This extracted database acts as the baseline or counterfactual scenario.

Below is a list of the main variables of interest to conduct the analysis.

- i. Size and composition of Households i.e., women, men, and children
- ii. Main Household Economic Activity: Subsistence versus Commercial production
- iii. Household Income: Annual earnings of the Household in Money terms
- iv. Region: Location of the Parish, whether Rural or Urban
- v. Poverty status: Whether a household is considered poor or not i.e., belongs to the 40% of poor subsistence households
- vi. Access to digital e-wallet: Implies households that have any form of a digital wallet which is a prerequisite for access to the subsidized credit
- vii. Credit history: Refers to whether a household has obtained credit within the previous year

b. Assumptions

- i. A Successful Project is one that generates returns that are at least sufficient to cater for loan repayment (inflation + 1%).
- ii. Failed Project will have 0% return
- iii. Inflation of 5% - Central Bank of Uganda target
- iv. All eligible households receive a similar loan amount
- v. Households with digital wallets and previous borrowing are likely to have a successful project with high returns
- vi. Relatively larger Households may produce lower returns due to low productivity arising from a high dependency burden
- vii. 97% uptake of available credit from the Government will be consumed by Households
- viii. 3% leakage of funds meant for credit through administrative failures (e.g., corruption)
- ix. Poverty Line - \$1.75

c. Coding the Policy Intervention

- i. Calculate the baseline poverty rate and household income using the available household income data from the Household Survey for FY 2019/20
- ii. Selection of Households
Identify the households that meet the criteria for loans (i.e. poor/subsistence households)
- iii. Allocation of Credit funds
Distribute the Credit (loan amount) across all the eligible households across the country
- iv. Construct Household Productivity Measure
Predict Household Productivity with additional capital (coded as High/Low) assessed using the based on the size of the household (below or above the average HH size), the credit history, and the possession of a digital wallet (a pre-requisite for access to funds). Those with all at least 2 can be considered high, and those with 1- Low
- v. Productivity of Capital
The Investment Project performance will be measured in terms of returns to funds and will depend on the predicted productivity of the eligible households.

- vi. Estimated Returns to Capital
Projected returns (Loan amount X High/Low scenario) will be measured by matching respective Households productivity with Projected Productivity of Capital.
- vii. New Household Income
Arrived at by adding the returns to the baseline Household Income
- viii. Estimate poverty and efficiency metrics to estimate the impact of the program

d. Benchmark Key Indicators.

Total Number of Subsistence Households - 3 Million

Population – 42 Million

D. Results

i. Baseline

The Table below contains a summary of the Baseline Scenario

Table 1: Baseline from Household Survey FY 2019/20

Variable	Description	Figure
Households		8,914,159
Subsistence/Poor Households	Income Decile 1- 4	3,023,452
Poverty Gap	Distance from the Poverty Line	6,945,885,070,409
Poverty Headcount	Number of Poor Individuals	12,672,007,597

ii. Analytical Approach

The simplified analytical approach in the microsimulation, driven by our earlier assumptions, is as follows; we apply the eligibility criteria (40% of poor subsistence households) by extracting Households belonging to the 4 lowest income deciles in the data. This process indicated that there are 3,023,452 eligible Households, each of which was then allocated a similar average loan amount of Ushs. 327,440/=. Following this, we construct the household productivity estimates³

³ hhprod=relative hhsize + digitalwallet + credit history³

Where:

- Relative household size = 1 if below median, 0 otherwise
- Digital e-wallet = 1 if available, 0 otherwise
- Credit history = 1 if borrowed in the last 12 months, 0 otherwise

which enables an estimation of returns to the credit and thus the change in household income and cost effectiveness of the PDM credit fund.

iii. Results (Microsimulation)

The results of some of the scenarios are summarized in the Table below:

Table 2: Impact of the Financial Inclusion Pillar of the Parish Development Model

Poor/Subsistence Households	Poverty Reduction	Poverty Gap	Poverty Headcount Reduction	Return on Investment
40%	2.1%		14.33%	14.29%
30%	1.9%		27.54%	13.8%
10%	1.63%		31%	11%

Source: Author's Calculations

From the above Table, we note only modest changes to reduction in poverty gap. It is worth noting that distributing credit to only the poorest 30%, or 10% does not have a visible impact on reducing the poverty gap. In fact, it diminishes the impact of the intervention. This is potentially because the poorest households are generally less productive (using the assumptions of the analysis). However, the reverse is true with respect to the poverty headcount reduction, which increases as we move down along the income distribution. This is partially because, keeping the total size of the credit fund fixed (1 Trillion Shillings), the absolute amounts receivable by the few poorest households (706,000 households in lowest 10%) will be higher and thus more likely to enhance their incomes even if their productivity is low. In a scenario where the loan amounts to these households remain fixed despite the exclusion of higher income deciles, the poverty headcount reduction would be much less significant.

However, this impact estimate should be put in the context of the microcredit approach which requires repayment of funds received. This is a distinct difference from other common poverty reduction approaches like social transfers. This points to the fact that this intervention is not the silver bullet for poverty eradication, at least in the short run period. That notwithstanding, the revolving nature of the credit fund is suitable for affordability and sustainability of the intervention.

iv. Policy Implications & Recommendations

Although the estimated initial impact on poverty gap reduction is low, the revolving fund can be reapplied to subsequent lending without necessity for new financing.

Due to the anticipated muted effect of the intervention in the short run, from a political economy standpoint, it would be beneficial to manage expectations of stakeholders, especially among the poor about the realistic outcomes of the Project.

It is imperative that careful attention is paid to building productive capabilities at household level to enhance productivity and ensure credit is used profitably for the enhancement of household income. To maximize the benefits of the intervention, therefore, the Government should invest in extension of Business Development Services to increase the likelihood of households undertaking projects that will emerge as successful.

In order to embed the gains from the credit provided, the Government can consider changing the loan tenor from 1 year to have an extended grace period to allow households compound returns. However, this weakens the sustainability aspect and may compromise repayment of the loan. Alternatively, a one-off grant transfer can be undertaken with no repayment. This can have significant effects on poverty reduction.

Given that the poorest households are less likely to benefit from this intervention, a different approach for the enhancement of this category's household income may be necessary. This can include social transfers or the use of larger credit transfers that may enhance their income despite apparent pre-existing productivity gaps. A more practical long-term approach would be to focus on building capacity for the poorer households by extension services in the short and medium term and more substantially, ensure wide coverage of basic education as well as auxiliary financial services technology.

v. Conclusion

The bold aspirations of the Parish Development Model are reliant on the Financial Inclusion Pillar unlocking the productive potential of poor households. Resultantly, significant expectations from both the public and the local policy crowd have been attached to this magic formula. It is for that reason, that the anticipated outcomes need to be moderated by soundly developing a realistic outlook for the program. This will facilitate the Government in effectively mapping out how to deliver the intervention with respect to cost, process, targeting among other dimensions.

On the above basis, this microsimulation has sought to provide a robust initial estimate of the credit transmission into the economy in regards to how it will affect the economic prosperity of poor Ugandans living in subsistence households. This has been achieved through harnessing the different household characteristics along different dimensions such as household size, current income, current location and digital & credit participation to enable a realistic estimation of outcomes.

More specifically, by applying realistic assumptions of household productivity to a heterogenous set of households, we are able to construct a set of feasible scenarios that identify the challenges and opportunities for successful implementation of the program. Importantly, this microsimulation provides room for further elaboration through modeling additional features of the intervention, and augmenting productivity measures with other evidence based non-money-metric drivers of productivity. This deeper leveraging of heterogeneity can be even more powerful for accurate ex-ante assessment that should more concretely drive policy.

References

- Besley, T. (1994). How do market failures justify interventions in Rural Credit Markets
World Bank Research Observer .
- Duflo, E., & Banerjee, A. (2010, July). Giving Credit Where it is Due. *Journal of Economic Perspectives*, pp. 61-80.
- Ministry of Finance, P. a. (2021). *A Quick Guide to the Parish Development Model*.
Kampala: Government of Uganda .