DETERMINANTS OF POVERTY AMONG HOUSEHOLDS IN RWANDA

I. INTRODUCTION

This study analysed the determinants of poverty among households in Rwanda. It was conducted using data from Integrated household living conditions survey 5 that was collected from October 2016 to October 2017 by National institute of statistics of Rwanda (NISR). The variables mainly used in this analysis are welfare status, the location of household, sex, education of the head of household, composition of household (members), marital and disability status of the head of household. Stata software was used during both data pre-processing and analysis.

II. STATEMENT OF THE PROBLEM

Poverty alleviation is a key policy debate in recent development literature. Many researchers of development economics, for example Emwanu et al. (1995), have argued that the fight against poverty is a necessary condition for growth. During the past years, Rwanda has experienced one of the most exciting and fastest periods of growth and socio-economic progress in its history. It was recorded as the tenth fastest growing economy in the world during the decade 2000 to 2009 (Economic Development and Poverty Reduction Strategy II, May 2013). Population growth is stabilizing and the country is making great strides towards achieving the Millennium Development Goals and middle income. Rwanda's annual GDP growth rate was 8.6% (NISR, GDP publications 2018) and the country's economy is shifting from subsistence agriculture based economy to manufacturing and services based economy. The share of service sector predominates other sectors of the economy with 46% share to the total GDP.

Despite government efforts to reduce poverty through initiatives such as Vision 2020, the National Strategy for Transformation (NST1), and the

Ubudehe program, poverty remains a significant challenge in Rwanda. According to the National Institute of Statistics of Rwanda (NISR), 38.2 percent of the population was poor in 2016/17, compared to 39.1 percent in 2013/14, a decline that was not statistically significant. This limited progress highlights the need for further research to better understand the factors driving poverty. Consequently, this study examines household-level determinants of poverty in Rwanda.

III. ECONOMETRIC MODEL

The study aims to analyze the determinants of poverty among household in Rwanda. The model used was **logit regression model** Since the explained variable (poverty) is qualitative and is a binary that describes whether a household is poor or not.

IV. DATA COLLECTION AND MODEL ESTIMATION

This study used secondary data which are also cross-sectional. The data are form Integrated household living conditions survey (EICV 5) collected from October 2016 to October 2017 (NISR, 2018). The dependent variable used is ***poverty***, a binary variable that describes whether a household is poor or not. The controlling variables used are **region**, **sex** and **education**, **marital and disability status** of the head of household which are all dummy variables as well as **family size.**

The model used is **logit regression model** as the dependent is qualitative response variable, so Ordinary Least Square regression model would not be a better choice given its limitations when the explained variable used is binary (Fallacious predictions, errors does not follow normal distribution, variance are not homoscedastic, etc…)

V. INTERPRETATION OF RESULTS

Stata software was used to preprocess data and regress the model. Regression output are summarized in the table below.

Command used: logit poverty ur Educ_HoH Sex_HoH size_HH Marital_HoH Disb_HoH [iw=weight], vce (robust)

Logistic regression **Number of obs = 14580**

Wald chi2(4) = 1170.31

Prob > chi2 = 0.0000

Log pseudo likelihood = -1523553.6 8 **Pseudo R2 = 0.1032**

Poverty	**Coef.**	**Robust Std. Err.**	**z**	**P>z**	**[95% Conf.**	**Interval]**
Region	1.4449	0.0838	17.2500	0.0000	1.2807	1.6090
Educ_HoH	-0.5559	0.0474	-11.7400	0.0000	-0.6487	-0.4630
Sex_HoH	0.3365	0.0691	4.8700	0.0000	0.2011	0.4720
size_HH	0.2886	0.0111	25.9200	0.0000	0.2668	0.3104
Marital_HoH	-0.1074	0.0675	-1.5900	0.1110	-0.2397	0.0248
Disb_HoH	0.0433	0.0712	0.6100	0.5430	-0.0962	0.1828
_cons	-2.9794	0.1289	-23.1100	0.0000	-3.2320	-2.7267

Regression equation

Poverty= -2.9794 + 1.4449 Region - 0.5559 Educ_HoH + 0.3365 Sex_HoH + 0.2886 size_HH -0.1074 Marital_HoH + 0.0433 Disb_HoH

Where

- ✓ **Dependent Variable** is

1. **Poverty**, a binary variable which describes whether a household is poor or not. **0**: non-poor and **1**: poor
    - ✓ **Independent variables** used are**:**
2. **Educ_HoH** explains whether the head of household has ever been to school or not. It is a dummy variable where **0** stands for head of household did not attended school and **1** represents the head of household attended school
3. **Sex_HoH:** This variable represents the gender of the head of Household. Its categories are **0** for male and **1** for female
4. **size_HH:** This variable represents the number of household members.
5. **Region**: This variable describes the location of the household. Where **0** stands for urban and **1** for Rural
6. **Marital status**: The variable depicts marital status of the household. Where **0** represents Head of HH is married whereas **1** records unmarried head of household.
7. **Disability** status is a binary variable where **0** stands for disabled household while **1** represents non-disabled head of household.

Coefficients interpretations

Delta-method						
	dy/dx	**Std. Err.**	**z**	**P>z**	**[95% Conf.**	**Interval]**
Region	0.2765	0.0149	18.5100	0.0000	0.2472	0.3058
Educ_HoH	-0.1064	0.0089	-11.9600	0.0000	-0.1238	-0.0889
Sex_HoH	0.0644	0.0132	4.8700	0.0000	0.0385	0.0903
size_HH	0.0552	0.0019	28.6300	0.0000	0.0515	0.0590
Marital_HoH	-0.0206	0.0129	-1.5900	0.1120	-0.0459	0.0048
Disb_HoH	0.0083	0.0136	0.6100	0.5430	-0.0184	0.0350

Command used: margins , dydx (ur Educ_HoH Sex_HoH size_HH Marital_HoH Disb_HoH)

Note: Based on coefficients, only marital and disability status are not statistically significant.

Region (Rural = 1, Urban = 0): Rural households are **27.7 percentage points more likely** to be poor than urban households, holding other factors constant.

Education of the head of Household (Attended school = 1, No school = 0): Households whose head attended school are 10.6 percentage points less likely to be poor than households whose head never attended school, on average.

Sex of the head of household (Female = 1, Male = 0): Female-headed households are 6.4 percentage points more likely to be poor than male-headed households, on average, holding other variables constant.

Household size: Each additional household member increases the probability of being poor by 5.5 percentage points, on average.

Marital status (Unmarried = 1, Married = 0): Households headed by an unmarried individual are 2.1 percentage points less likely to be poor than those headed by a married individual; however, this effect is not statistically significant.

Disability status (Non-disabled = 1, Disabled = 0)**:** Households headed by a non-disabled individual are 0.8 percentage points more likely to be poor than those headed by a disabled individual, but this effect is not statistically significant.

VI. CONCLUSION AND RECOMMENDATIONS

The objective of this study was to identify the key determinants of household poverty in Rwanda using data from the Integrated Household Living Conditions Survey (EICV5) and a logistic regression model. The analysis, based on average marginal effects, reveals several socio-economic factors that significantly influence the likelihood of household poverty and provides important insights for policy formulation.

The results indicate a strong and statistically significant rural–urban disparity in poverty. Households located in rural areas are substantially more likely to be poor than those in urban areas. This finding suggests that poverty reduction efforts in Rwanda should prioritize rural development. Policies aimed at improving rural infrastructure, expanding income-generating activities, and facilitating access to affordable financial services are essential. Strengthening rural credit systems and improving financial literacy could enable households to engage in productive economic activities and reduce regional poverty gaps.

The study also finds that female-headed households are more likely to be poor compared to male-headed households. This result highlights persistent gender-related economic vulnerabilities. Targeted interventions are therefore needed to support female heads of household, including access to vocational training, support for small and medium enterprises, and improved access to credit and productive resources. Enhancing women's economic participation could significantly contribute to household welfare and poverty reduction.

Education of the household head emerges as a key protective factor against poverty. Households headed by individuals who have attended school are significantly less likely to be poor. This underscores the importance of investing in education and skills development. Expanding access to formal education and strengthening vocational and technical training programs can improve employment opportunities and income generation, thereby reducing household poverty.

Household size is also found to be positively associated with poverty, with larger households facing a higher likelihood of being poor. This finding suggests the importance of promoting family planning and reproductive health programs. Ensuring access to birth control services and raising awareness about household resource management could help reduce economic pressure on households and improve living standards.

Although marital status and disability status of the household head were included in the model, their effects were not statistically significant. Nonetheless, their inclusion helps control for household demographic characteristics and strengthens the robustness of the analysis.

Overall, the findings suggest that poverty reduction in Rwanda requires a multi-dimensional policy approach that focuses on rural development, gender empowerment, education and skills training, and population management. Addressing these factors jointly can contribute to sustainable improvements in household welfare.

VII. ABBREVIATIONS

NISR: National institute of statistics of Rwanda.

EICV: Integrated household living conditions survey.

NST1: National strategy transformation.

EDPRS2: Economic development and poverty reduction strategy.

VIII. REFERENCES

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