

Poverty Alleviation in Burkina Faso: An Analytical Approach

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Abstract

The major challenge, the country of Burkina Faso has to overcome is the reduction of poverty and the population vulnerability to alimentary crisis. The country was stated 181th among 187 by UNDP in 2011 and the growth rate is just about 5.5% in average on the period 2003-2009 while the poverty rate decreased steadily from 48.6% in 2003 to 46.7% in 2009. This decrease of poverty rate by 1.9 points is equivalent to a paradoxical augmentation of the number of poor by 28.5%.

This study emphasizes the determinants of poverty rate in Burkina Faso. We first use the results of the recent survey on households living conditions in a logit model to analyze the demographic and socio-economic factors that determine poverty, and clarify the contribution of each factor. After that, we examine the dynamic approach of poverty in this small country that is fighting poverty for several years without any relevant result, so that we are able to decree on the inefficiency of the government policies of poverty reduction and formulate a general critic on the first indicator of MDG1: in a given country, the decrease of poverty rate can be coupled with a rapid increase of the number of poor people.

The second relevant conclusion is that, the government of Burkina Faso needs to improve his policies in deep details, because the poor people are not associated to the growth creation process. In addition to that, we also need to define a new statistical framework to analyze dynamically the poverty phenomenon. As a result, we can focus on the growth rate of poor population, instead of the poverty rate which is just good for static analysis.

Key words: demographic characteristics, dev-info, Logit, poverty rate, Socio-economic factors, stata,

1. Introduction

Burkina Faso is a little country in West Africa. With a population around 15 million inhabitants for 274 200 km², it were stated 181st by UNDP in 2011. Several policies of poverty reduction have been held in this country since 1960s, but we do not observe any significant progress from these reforms. The 2003 poverty assessment concluded that 48.6 percent of the Burkinabe live below the threshold of absolute poverty; actually the rate is just about 46.7 percent. In addition to that, the country can be classified as poor in terms of economic infrastructures, access of population to social services such as education, health, food, etc.

In this study, we used data from the more recent survey as we participated to that survey realization, to analyze poverty at a static point regarding the year 2009 coupled with a spatial appreciation of the phenomenon. We end with an historical approach as an assessment of progress towards welfare improvement targets.

2. Research objectives

- Explain why in Burkina Faso, we are fighting poverty for more than 50 years without any relevant result
- Find out the determinants of poverty using a logit model
- Discuss the regional disparities (dev-info for database and mapping)
- Discussions on poverty Dynamic (when can we say poverty is being reduced?) misspecification objective

3. Data

As mentioned above, the data employed in this study come from the integral survey on households living conditions, carried in Burkina in 2009-2010. This is a Household Budget Survey coupled with a unified questionnaire on basic welfare indicators module including health, education, assets, etc.

The data collection took more than one year, starting the 9th July 2009, and ending the 16th September 2010. It is a national survey, so it has been realized in the whole country.

The EICVM is important for:

- Following the poverty
- Obtaining weights for Consumer Price Index
- Estimation of private Consumption in National Account
- Studying the general structure of income and expenditure;
- Income distribution and disparities between sub-group of households
- Assessment of poverty and the welfare of disadvantaged groups
- Obtaining MDGs indicators related to households living conditions
- Measuring the Access of households to the social services

The sample is a two stage sample with enumeration areas as the first stage and households as the second and final stage. The sample is stratified for geographical zones, urban/rural and districts.

The overall response rate is 92, 8%. Because we were expected to interview 9 075 households in the first quarter, but we finally realized a 8 424 households interviews, because of moves, non-availability of some households, refusal to response...

4. The Model

The aim of this section is to regress toward a logit model, the poverty on its potential determinants in order to evaluate the weight of each factor. Therefore, we first build the dummy variable poverty (which is 1 if the household is poor and 0 otherwise). A person is poor if his/her consumption level is below the national standard of poverty threshold. After that, we explain all of the exogenous variables of the model and then we make the regression and make an analysis of the coefficients.

Let's build the variable "poverty" first

We follow the cost of basic needs methodology to construct the national specific poverty line. This national poverty line has two components: a food line and a nonfood component. The food poverty threshold is calculated by:

- Households total expenses in a representative retained list of food
- Prices of the all of the foods retained to calculate the food poverty threshold
- The caloric coefficient corresponding to each unit (100gr or 100ml) of the retained products
- The normative calorific value (ncv= 2 283 Kcal in Burkina Faso)

Taking these informations from the survey database, the estimation of the food poverty threshold is computed by the following formula:

$$Z_A = ncp \times \frac{\sum_{i=1}^n Q_i \times price_i^{ref}}{\sum_{i=1}^n Q_i \times C_i} \times 365$$

Where:

Qi = quantity of product i consumed daily

Ci= caloric value of product i

$price_i^{ref}$ = average price of product I in the referenced zone

Ncv= 2 283. It is the calorific threshold per adult equivalent retained by the nutritionist for Burkina Faso

Therefore, in the Burkina-Faso's country-case,

$$Z_a = 2283 * \frac{582}{5343.10} * 365 = 90\ 707.4 \text{ fCFA Equivalent } \$181.5$$

So the food poverty threshold is 181.5 \$. To eat 2 283 kcal in 365 days, one needs to expend 181.5\$ as minimum food level necessary for life in Burkina-Faso.

The non-food component of poverty approach means that the welfare of households is not limited to the alimentary dimension. Apart from eating, people need to be healthy, go to movies; expense for education, housing, etc.; so they make a lot of expenses on wearing, housing, health, etc.

The non-food line of poverty is an attempt to measure this non alimentary side of the households' welfare. It is computed as a part of food poverty threshold. Using these households, the cost of the minimum nonfood bundle estimated parametrically as the weighted average nonfood expenditure. To do that, we apply the parametric method of Ravallion. It is an estimation of the elasticity-revenue of the demand. Once we estimate this elasticity (called a in this application), the non-food side of the poverty line is:

$$Z_{na} = (1 - a) \times Z_a$$

Where a is the elasticity-revenue of the demand; a is the constant term of the result of the following linear regression:

$$S_i = f\left[P_i \times \frac{Q_i}{Z_A}, \left(P_i \times \frac{Q_i}{Z_A}\right)^2, \left(P_i \times \frac{Q_i}{Z_A}\right)^3\right]$$

And S_i is the share of revenue dedicated to the product i .

After application, we find that $a = 0,56$ in Burkina Faso. Thus, the nonfood poverty line is

$$Z_{na} = (1 - 0.56) * Z_a = (1 - 0.56) * 90767 = 39937.6 \text{ f CFA}$$

which is equivalent to 80\$ US, and the resulting monetary poverty line is $Z_G = Z_a + Z_{na} = 130,705 \text{ f CFA}$ equivalent to 261.5\$ Us.

All of the people whom annual consumption level is less than 130705 f CFA are poor, and those whom annual consumption level is high or equal to 130,705 f CFA¹ are non-poor people.

The first variable of our model is the dummy variable poverty (which is 1 if the individual is poor and 0 otherwise).

The other variables of the model

The survey covered households representing four basic socio-economic and demographic factors categorized in the table below:

Variable name	Meaning (and modalities)
I- DEMOGRAPHICAL CHARACTERISTICS OF THE HOUSEHOLDS	
taille	Household size (numeric variable)
cage	Number of household's members in a Age category (1:cage<10; 2:[10; 14[; 3:[14; 19[; 4:[19;24[; 5: [24;29[; 6:cage>30)
cagecm	Age of household head in categories of years (1: ≤19; 2: 20≤cagecm≤24; 3:≥30)
Sexcm	Sex of household head (1= female, 0= male)
gsecm	Socio-economic group of the household head (salaried-public, salaried-private, independent, employer, unemployed, inactive)
II- EMPLOYMENT AND OCCUPATION STATUS OF MEMBERS	
Oqp	A dummy variable: number of occupied individuals in the household, 0 if not
A set of dummy variables for job	list of dummy variables explaining the number of members ² in each type of job (unemployed, pluri-activity, independent, salaried, task)
III- EDUCATIONAL WELFARE	
niveduc	Number of members in each Highest Educational Level Attained category
IV- HOUSING VARIABLES AND PROPERTIES	
1- House standing	
loyer	housing rent standard
dummies for house Standard	Building, house, community, single room, hut
2- Occupation status	
propri	Dummy variable: 1 for owner-occupied housing and 0 otherwise

¹ This is equivalent to 261.5 us dollar. It is the minimal amount necessary for one adult to live in the whole year.

² The household head is not included in this count. He/she has already been registered in gse_cm

All the variables listed above are explanatory variables. After all these changes, we aggregate the data at a household level and estimate the coefficients of the econometric model.

For each household, the model we are about to estimate assume that poverty is a function of several factors classified in both demographical and socio-economical fields:

$$P(\text{poverty} = 1) = \mathcal{F}(X * \beta) = \mathcal{F}(x_i^j * \beta) = \mathcal{F}(\beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \dots + \beta_k x_{ki})$$

Where:

F is the distribution function of the logit model

β_i are the parameters of the model

X_{ij} value of the explanatory variable j for i-th household

K is number of explanatory variables

N is the sample size

5. The results

Dependent Variable: POVERTY				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-2.224856	0.276479	-8.047103	0.0000
TAILLE	0.268276	0.022110	12.13360	0.0000
CAGE	-0.022124	0.007991	-2.768714	0.0056
CAGECM	0.474527	0.081830	5.798906	0.0000
GSECM	0.073740	0.035335	2.086891	0.0369
HOUSE	-0.066863	0.037258	-1.794602	0.0727
HUT	-0.045072	0.012661	-3.559803	0.0004
LOYER	-1.29E-05	1.01E-06	-12.75975	0.0000
NIVEDUC	-0.062017	0.012515	-4.955238	0.0000
OQP	-0.079430	0.027447	-2.893909	0.0038
PROPRI	0.298233	0.079452	3.753606	0.0002
SALARIE	-0.159501	0.074898	-2.129583	0.0332
SEXCM	0.136163	0.078550	1.733456	0.0830
SINGLE_ROOM	-0.055217	0.011760	-4.695393	0.0000
Mean dependent var	0.383111	S.D. dependent var		0.486175
S.E. of regression	0.447710	Akaike info criterion		1.160743
Sum squared resid	1606.561	Schwarz criterion		1.172933
Log likelihood	-4645.804	Hannan-Quinn criter.		1.164915
Restr. log likelihood	-5343.835	Avg. log likelihood		-0.578628
LR statistic (13 df)	1396.063	McFadden R-squared		0.130624
Probability(LR stat)	0.000000			

6. Conclusion

The major limit of this model is that it does not take into account the agricultural land use area, which is an important determinant of rural household economic characteristics. As a result, it was not possible to distinguish the rural area to the urban one, despite these two zones are heterogeneous.

As result from the current study, we remark that demographic factors have a strong contribution on poverty advent in Burkina Faso. The weight of demographical factors is the most important, because the number of inactive members is the unique demographical positive input for poverty reduction. This denotes the lack of quality in human resource. If a nation like china that was an underrated country is taking off now, that's just because they have had to improve the educational level of their population. As we remarked from the logit model, education is a strong opposite to poverty expansion. But our population is not high-educated³, and not so healthy. So, to undertake a real struggle against poverty, we should focus on population capacity building first. Because we have a population that is not qualified, so we don't know the use of that population, they are not profitable for the country yet, they become a charge for executive governments.

Now, turning to the semantic field, I think, it is important for us to perform the poverty analysis in Burkina Faso, and may be in some other countries.

Because the target of our government is to decrease considerably the number of poor, that is the major object of the poverty reduction policies. But the poverty rate is not an efficient indicator to evaluate the public policies of poverty reduction in a temporal approach. The poverty rate is good for a static analysis.

When we say poverty has decreased because it fell from 48.6% in 1994 to 46.7% in 2009, we make a terrible mistake because the aim of poverty reduction policy is not to decrease the poverty rate but plummet the number of poor steadily.

We need to introduce a new comparison framework that could consist in constructing a new indicator combining the growth rate of poor population and the growth rate of the whole population, so that the new object of poverty reduction policies will target a decrease of the poor population growth rate.

References

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³ Alphanbetization rate of adults is about 28%