7. Multidimensional Measurement of Poverty - Albania Case

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Abstract:

It exist different definition and different methods for poverty measure. In this paper are analyze different monetary and non-monetary factors influencing the poverty level. In non-monetary terms are included factors related with living condition, possessing assets and having basic needs, social participation and other factors related with environment where the people live. These factors are important to the long term assessment poverty. The analysis is based on data from the Living Standard Measurement Survey and using structural equations model.

Keywords:

Poverty, multidimensional, SEM, deprivation

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Poverty measure

There are different definitions of the nature and measurement of poverty. The methods used depend from country to country. The poverty can be measured in monetary terms, non-monetary terms or subjective terms. So monetary measurement and definition of the poverty line according to the aspect of deprivation of having a significant level of income or consumption has some limitations which leads to further applications and measuring multidimensional nature of poverty. Non monetary poverty and subjective poverty is more related with a long term period and judgment. So poverty is considered as multidimensional and subjective perception as a broader concept also as a measure of welfare, utility or well being (Van Praag, B. and Ferrer-i-Carbonell, A., 2006). So is important to analyze poverty based on the effects of different factors associated with quality of life, social welfare and having assets or materials deprivation. Different countries use different definitions and different ways of calculation the poverty level. Some researchers have used the multidimensional poverty index, measuring the poverty from different deprivation but in the same time the intensity of deprivation, how many deprivations individuals or households experienced in the same time. Measuring the poverty in monetary terms does not tell us the standard of living or materially deprivation from number of assets (Headey, B. 2006). Also other measures like UBN (INSTAT, 2013) have different concept from the non-monetary poverty. Deprivation refers the people unmet needs, whereas the concept of poverty refers to the lack of resources required to meet those needs (Noble, M. at al.,2013). Taking in consideration the Albanian characteristic is needed to reflects the severe deprivations that people face at the same time and finding the inter connections among those deprivations. Mainly we have analyze the influence of different factors like region, household composition etc. The geographic aspects play an important role in the possibility of having more met needs and not being deprivation. Marshall, D. and McBurney, C. (2010) says that not all deprived people live in deprived areas.

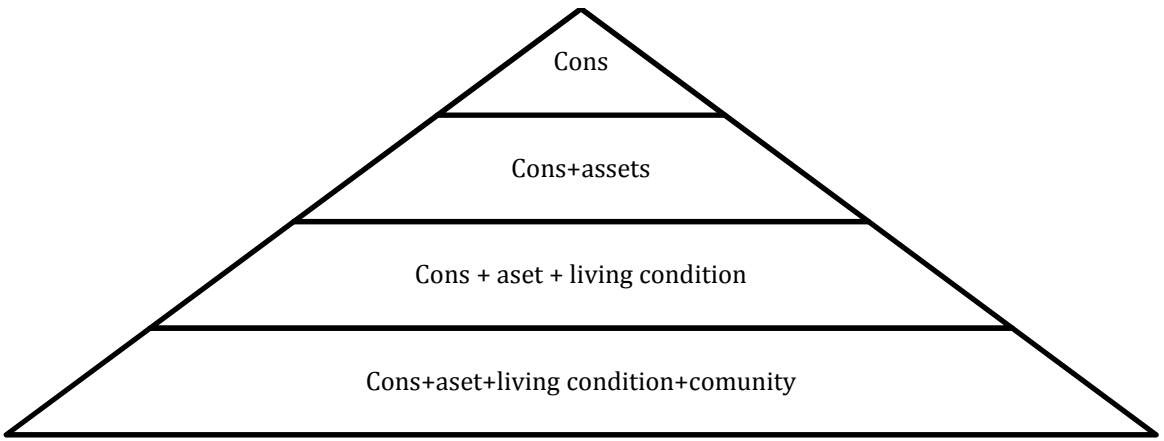
In Albania it is calculated the absolute poverty line based on the consumption as a better measure till now. The percentage of the poor people based on the absolute poverty line is 14.3 %. This percentage measured by relative poverty as people that live under 60% of median per capita consumption is 12.2 %.The percentage of the people based on the monetary concept is different from the poverty measure from the non-monetary terms (subjective or unmet basic needs). So based on the method used also it change the results (Table 1).

Table 1: Poverty level by different poverty measures

Absolute poverty	Relative poverty	Subjective poverty	Unmet basic needs	S90/10
14.3	12.1	12.2	8.9	4.6

Source: Living Standard Measurement Survey 2012

Sometimes it have been suggested that the most appropriate method is the one that is the best explained step by step what we have done and why we did this method. Atkinson, (1998) suggest not being limited during calculation the poverty level, not only to the lack of money or material possessions. UNDP (2014) also suggests that one deprivation alone may not represent poverty. In our paper we tried not to analyze separately the monetary indicators or non-monetary indicators but to have a picture of both, where in the monetary terms are added the different non monetary deprivations. We take the definition of poor individuals limited by a series of deprivation, Baulch, B. (1996) and further Walker, R. at al. (2009) using the pyramid shape. At the top of the pyramid stay the individuals who do not have the necessary level of consumption or income, it allocated for expenses covering food and non-food needs. Given the way the estimated poverty in Albania (with the expenditure side), on top of the pyramid will remain individuals who do not meet their needs sufficient levels of food intake. By moving from the top of the pyramid, the terms of poverty takes multidimensional nature and take into account the other deprivation and limitation.



Income and income sources are different; also the goal of spending and spending shape and purpose is different in different households. From this point we suppose that also are other factors that influence the nature of poverty. The analyze is made using the SEM equation. The idea of using structural equations looks the same as the pyramid shape where the definition of poverty include other influential factors related to lifestyle or environmental level where the households and individuals lives but that are not related to income or expenditures. Mazaheri, M. (2010) tested the effect of different factors using student assessments to measure quality of life and impact on poverty using structural equations.

Methodology

The only data source to measure poverty and other possible indicators that influence the risk of being poor are based on the data from Living Standards Measurement Survey. This survey has a trend and comparability by years related with indicators produced and the methodology used to collect the information. The data are cross-sectional and according to the purpose of the information collected are by individual or household level.

There are a number of variables that are supposed influence in poverty and the probability of being poor. It is intended that the analysis should be use Structural Equation (SEM) that reduces the number of variables in a set of factors. SEM analysis is very useful practice when there are many variables in the model categorical but treated as continuous and normal distribution. We have to determine in advance the set of variables (factors) that will include in the model. In many qualitative assessments used factorial analysis from which a large number of variables are reduced to a number of factors grouped and small. But the application of factor analysis has its limitations because not take into account the measurement error of the original variables, the use of rotate factorial analysis will bring complications for comparability across time and space and also the factorial analysis is mostly exploration technique. Therefore it is necessary the use of SEM. Each variable has a term SEM error and any variable influencing variables should be clearly determined.

There are supposed that are other dimensions that influence the poverty level. We have take in consideration poverty defined by World Bank methodology which measures the poverty level by absolute poverty line of per capita consumption. To this monetary deprivation (agap0) we add other deprivation related with financial limitation or factors related with material deprivation, social deprivation, social participation and environment. At this step we will include some of them that are supposed as more deterministic. Based on this grouped variable are a set of observed variables. The variables are grouped in the factors generated from a set of variables which are:

Monetary deprivation: Based on the methodology of Ravallion and Bidani, (2004) it is calculated the absolute poverty line from the per capita consumption. With "1" are considered poor and "0", non poor.

Financial Limitation (L1): Deprivation of having a positive feeling for current financial situation or the perception for life in the future. To this context the given variable and its definition are using a

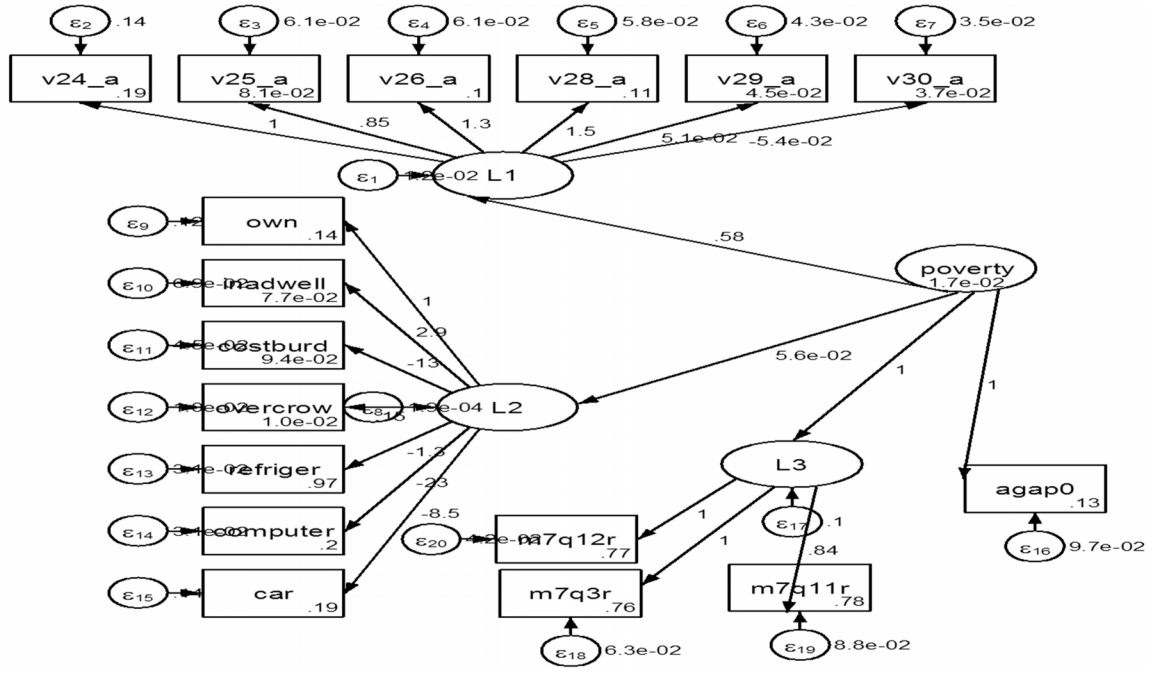
number of variables such as satisfaction with life, feeling for current financial situation, feeling for financial situation in the next 12 months, self assessment for the quality of life in the past three years and the life situation in the next 12 months. All variables are used as dummy variable and the negative perception are coded as "1" and with "0" are coded the perception good and very good. With these variables must be taken long-term difficulties and current hardships of the household budget.

Material deprivation (L2) and assets: Indicators that measure material prosperity include a series of dummy variables where the "1" coded for those who do not own a number of assets: TV, car, computer, central heating, ownership, overcrowded, not good conditions of the dwelling. Lack of a number of assets in the family that determines the non-monetary poverty is considered as a significant long-term situation of the family and not so much related to individual financial aspect of the person. Indicators used in the assets group include a set of dummy variables where the "1" coded for those who do not own a number of assets: TV, car, computer. With "1" would encoded families who do not own any of the equipment and the "0" those who possess these assets. An individual may have furniture but no sufficient income because currently is unemployed. So the combination of long and short term poverty defines the "Financial pressure".

Environment (L3) includes accommodation and environmental conditions around where the household or individuals lives. It is created from a set of variables like bad light, destroyed walls and windows, leaking wood, damp, noise from the neighborhood, crime. It was used as dummy variable where with "1" is coded if having negative option and "0" otherwise.

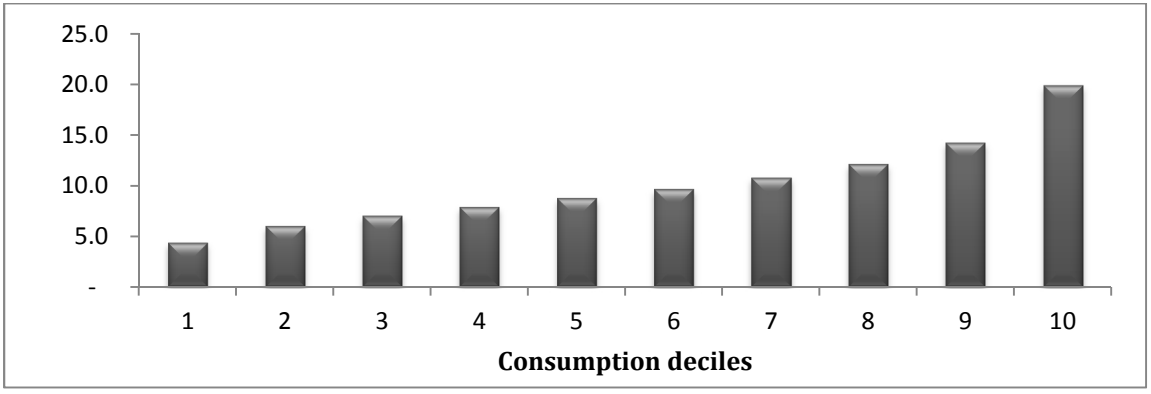
Results of applying Structural Equation in measuring multidimensional nature of poverty

Structural equations are used in different studies seeking to measure poverty and returning a set of variables into factors. Through this technique unlike simultaneous testing of variables on the probability of being poor, gives the effect of several dimensions in poverty by sharing the effect of each. Supposing that different deprivation influence the poverty level measured by consumption not always is that case that this influence should correlate. Ayala, L. at al. (2009), have given the example of Spain where the relationship between income poverty and multidimensional poverty in is likewise neither linear nor significant. As in other countries, a reasonable hypothesis would be that these two phenomena reflect different dimensions of households' well-being. Structural equation modeling (SEM) is a methodology for representing, estimating, and testing a network of relationships between measured variables and latent constructs (Suhr,D. 2006). The SEM model (the followed figure) shows latent variables (L1, L2, L3), parameters and the error terms. The latent variables are regressed on the measured variables to estimate structural slopes and determine poverty level. The error terms indicate the amount of variance in each specified variable.



Each of the deprivation is related with economic status and the poverty level. Ferragina, E. at al. (2013) have analyze a set of deprivation depended from the income deciles. In Albania we have see the consumption pattern from this deprivations. The share of consumption is increased with the increase of the deciles from the bottom to the top.

Figure 1: Share of consumption by consumption deciles



Individuals that live in the households that are not poor have more possibilities to possessing a set of the assets listed like computer, car or refrigerator. Moving from the first quartile to the fifth the percentage of the individuals that possess one of the assets is higher (Table A1 and A2).
The financial deprivation is related also with short run situation of the individuals. The poor individuals are more affected from this deprivations compared with non poor individuals. Their life in past 3 years is improved or somewhat improved more for the individuals in the highest quartiles. Also they feeling for life or future economic situation in next 12 months is more positive compared with the lowest quartile.
The poor have more possibilities to be materially deprivate or to live in the bad conditions. The condition of the dwelling, dwelling being too dark, small, bad condition, having environment problems etc, influence more the individuals being in the lowest consumption level or the ones that are poor. More than 90% of the individuals being in the top quartile live in the dwellings that are in the very good condition or at least appropriate for living. Townsend defines poverty and material deprivation in relation to each other: he defined poverty as the income level that is empirically associated with deprivation in the population.

The ownership is a phenomenon that is not so much influenced by consumption pattern. This maybe is explained by the phenomenon of heritage from the parents. They have the apartment or dwelling from their parents or maybe they have spent all income on buying that and for the moment they do not have sources of getting income. For this reason they are owner and maybe poor.
The poverty even is defined with consumption and this level association with the set of deprivation, Sodha, S. and Bradley W. (2010) define the income or poverty level is a proxy for multi-dimensional deprivation. The consumption patterns or the income level could not explain all necessities of the individuals. For this reasons and also the problems that we checked before (like ownership) measure the poverty in a broader concept, could get not only poverty level of the country but also the quality of life. All the set of deprivations are supposed that are related with the poor and they are in the financial pressure.

Conclusion

Analysis the multidimensional poverty and the variety of factors that influence the probability of being poor is important to assessment the short run poverty but also the long run. The poverty is related not only with having a necessary level of consumption or income but also with having good living condition, possessing assets, living in a good environment and being safety and also being socially involved and participate in the social life. These are important factors that together with the monetary poverty give a real situation of the persons or the households.

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Annex

Table A1: Economic status by a set of deprivation

		Non poor	poor
Costs as a financial burden	1 A heavy burden	95.9	4.1
	2 Somewhat a burden	98.4	1.6
	3 Not a problem	95.6	4.4
	4 Don't know	98.2	1.8
Condition of dwelling unit	1 Very good condition	93.4	6.6
	2 Appropriate for living	84.5	15.5
	3 Inappropriate for living	60.7	39.3
	4 Under construction	62.5	37.5
Feeling about future 12 months	1 Improved a lot	100.0	-
	2 Somewhat improved	91.5	8.5
	3 Remain the same	86.4	13.6
	4 Somewhat deteriorated	80.9	19.1
	5 Deteriorated a lot	65.6	34.4
Life in past 3 years	1 Improved a lot	99.4	0.6
	2 Somewhat improved	92.2	7.8
	3 Remained the same	87.5	12.5
	4 Somewhat deteriorated	81.3	18.7
	5 Deteriorated a lot	68.4	31.6
Life in next 12 months	1 Improved a lot	97.7	2.3
	2 Somewhat improved	92.8	7.2
	3 Remain the same	84.9	15.1
	4 Somewhat deteriorated	79.2	20.8
	5 Deteriorated a lot	65.5	34.5
Inadequate heating	0 no	87.7	12.3
	1 yes	78.4	21.6
Dwelling too small	0 no	87.6	12.4
	1 yes	76.7	23.3
Dwelling too dark	0 no	86.7	13.3
	1 yes	71.3	28.7
Leaking roof	0 no	86.9	13.1
	1 yes	71.6	28.4
Damp walls, floor or basement	0 no	86.7	13.3
	1 yes	78.5	21.5
Windows/ doors in bad confition	0 no	87.1	12.9
	1 yes	71.8	28.2
Pollution from industry or traffic	0 no	85.8	14.2
	1 yes	82.8	17.2
Problem with neigbours	0 no	85.4	14.6
	1 yes	92.1	7.9
Noisy from the road	0 no	84.7	15.3
	1 yes	94.6	5.4
Problem of crime in the area	0 no	85.7	14.3
	1 yes	78.8	21.2
inadwell	0 no	87.4	12.6
	1 yes	60.8	39.2

own ownership of dweling	yes	86.9	13.1
	no	79.6	20.4
Refrigerator have?	no	57.9	42.1
	yes	86.4	13.6
computer have	no	82.8	17.2
	yes	96.3	3.7
car have?	no	83.2	16.8
	yes	95.8	4.2

Table A2: Deprivations by consumption quartile

		Quartile					
		Bottom	Second	Third	Fourth	Top	Total
Costs as a financial burden	1 A heavy burden	38.1	39.9	23.2	18.8	10.6	18.6
	2 Somewhat a burden	40.8	51.3	44.8	58.9	54.1	52.6
	3 Not a problem	19.8	8.2	28.0	19.0	30.1	24.8
	4 Don't know	1.2	0.6	3.9	3.3	5.2	3.9
Condition of dwelling unit	1 Very good condition	15.7	21.3	29.0	36.5	51.4	31.1
	2 Appropriate for living	68.6	70.7	66.2	59.9	46.9	62.2
	3 Inappropriate for living	15.3	7.6	4.5	3.4	1.5	6.4
	4 Under construction	0.4	0.5	0.3	0.2	0.2	0.3
Feeling about future 12 months	1 Improved a lot	0.3	1.1	0.9	2.5	4.9	2.0
	2 Somewhat improved	15.5	17.9	22.6	25.4	28.4	22.1
	3 Remain the same	43.7	44.4	46.2	45.5	39.5	43.8
	4 Somewhat deteriorated	14.2	13.2	11.6	10.0	9.2	11.6
	5 Deteriorated a lot	11.6	8.3	4.7	3.5	4.0	6.4
Life in past 3 years	1 Improved a lot	0.4	1.1	1.2	3.2	6.7	2.6
	2 Somewhat improved	12.5	14.6	17.1	23.9	26.8	19.1
	3 Remained the same	43.1	48.9	49.6	45.9	45.9	46.6
	4 Somewhat deteriorated	21.6	20.6	18.6	19.5	14.9	19.0
	5 Deteriorated a lot	18.2	10.5	7.9	4.8	2.9	8.8
	6 Don't know	2.8	2.9	4.5	2.3	2.2	2.9
	7 Refuse to answer	1.4	1.4	1.1	0.4	0.5	1.0
Life in next 12 months	1 Improved a lot	0.7	0.8	0.8	2.1	4.5	1.8
	2 Somewhat improved	12.7	15.3	19.2	24.7	28.7	20.3
	3 Remain the same	44.7	45.0	44.7	41.0	38.1	42.6
	4 Somewhat deteriorated	14.0	13.3	10.5	10.8	8.4	11.4
	5 Deteriorated a lot	10.7	6.9	4.6	3.4	2.7	5.6
Inadequate heating	0 no	70.0	77.8	78.6	78.5	83.8	77.8
	1 yes	29.9	22.2	21.4	21.5	16.2	22.2
Dwelling too small	0 no	75.0	80.7	80.9	84.8	89.4	82.3
	1 yes	25.0	19.3	19.1	15.2	10.6	17.7
Dwelling too dark	0 no	89.5	91.1	93.6	94.4	97.7	93.3
	1 yes	10.5	8.9	6.4	5.6	2.3	6.7
Leaking roof	0 no	86.1	91.0	92.2	93.3	96.4	91.8

	1 yes	13.9	9.0	7.8	6.7	3.6	8.2
Damp walls, floor or basement	0 no	79.3	84.1	86.0	91.4	93.1	86.9
	1 yes	20.7	15.9	14.0	8.6	6.9	13.1
Windows/ doors in bad confition	0 no	83.5	87.6	90.0	93.9	96.9	90.5
	1 yes	16.5	12.4	10.0	6.1	3.1	9.5
Pollution from industry or traffic	0 no	93.7	94.8	96.1	96.1	95.7	95.3
	1 yes	6.3	5.2	3.9	3.9	4.3	4.7
Problem with neigbours	0 no	96.7	97.8	95.9	97.2	95.7	96.7
	1 yes	3.3	2.2	4.1	2.8	4.3	3.3
Noisy from the road	0 no	93.3	92.5	92.2	88.1	88.1	90.8
	1 yes	6.7	7.5	7.8	11.9	11.9	9.2
Problem of crime in the area	0 no	99.1	99.7	98.9	99.3	99.5	99.3
	1 yes	0.9	0.3	1.1	0.7	0.5	0.7
inadwell	0 no	84.3	91.9	95.2	96.4	98.3	93.3
	1 yes	15.7	8.1	4.8	3.6	1.7	6.7
own ownership of dweling	yes	78.8	83.9	83.2	85.1	84.8	83.2
	no	21.2	16.1	16.8	14.9	15.2	16.8
have refrigerator?	no	6.5	2.7	1.9	1.3	0.7	2.6
	yes	93.5	97.3	98.1	98.7	99.3	97.4
have computer	no	94.2	88.0	82.7	75.9	54.7	78.8
	yes	5.8	12.0	17.3	24.1	45.3	21.2
have car?	no	94.8	91.6	87.2	78.4	52.5	80.5
	yes	5.2	8.4	12.8	21.6	47.5	19.5

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CITATION FORMAT- APA:

Bici, R., & Mancellari, P. (2015). Multidimensional Measurement of Poverty - Albania Case. S O C R A T E S, 3(2), 80-90. Retrieved from http://www.socratesjournal.com/index.php/socrates/article/view/152

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