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Gbetoton Nadege, Djossou and Gilles Quentin, Kane and Novignon, Jacob

Department of Economics and Management, University of Abomey Calavi, Benin, Department of Economics and Management, University of Yaoundé II, Cameroon, Department of Economics, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

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Is growth pro-poor in Benin? Evidence using a multidimensional measure of poverty

Gbetoton Nadege Djossou

Department of Economics and Management, University of Abomey Calavi, Benin

Email: nadeged2001@yahoo.fr

Gilles Quentin Kane

Department of Economics and Management, University of Yaoundé II, Cameroon

Email: kanegilles@yahoo.fr

Jacob Novignon

Department of Economics, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana. Email: jnovignon@knust.edu.gh

Abstract

In recent years, economic development discourse has moved beyond increasing economic growth to ensuring that growth also leads to reduction in poverty and inequality. This motivates the current study to examine the relationship between economic growth and poverty in Benin. We used data from the 2006 and 2011 Benin Demographic and Health Surveys (DHS) and computed a multidimensional poverty index using the Multiple Correspondence Analysis (MCA). Growth pro-pooriness was then estimated using the Pro-Poor Growth Rate (PPGR) and Poverty Equivalent Growth Rate (PEGR). The distribution of growth pro-pooriness was also analysed using the Growth Incidence Curves (GIC) and Non-Income Growth Incidence Curve (NIGIC). Average multidimensional poverty rate was estimated to be about 55.3%. The findings show that while growth has generally been pro-poor in Benin, there exists disparities across rural and urban households, women as well as the elderly. The findings reinforce the need for broader poverty measures and refocusing poverty reduction strategies to marginalised groups in Benin.

Keys Words: Multidimensional poverty, pro-poor growth, Benin

JEL Codes: I32, D63, P46

1. Introduction

Poverty reduction and eventual eradication has been a major global policy concern over the years. The first Millennium Development Goal sought to half poverty by 2015. This goal is also pursued in the recently adopted Sustainable Development Goals (UN, 2015). This is particularly important for developing regions, such as Sub-Sahara Africa (SSA), where high poverty and inequality levels pose significant challenges to individuals welfare and economic growth as a whole. Several attempts have been made across countries in SSA to reduce poverty through enhancing economic transformation over the years. Key among these efforts is the Structural Adjustment Programmes (SAPs) that sought to achieve rapid economic transformation which was expected to translate into reduced poverty and inequality (Heidhues and Obare, 2011). However, questions still remain about the nexus between economic growth and poverty reduction. The concept of “Pro-poor growth” has emerged in recent years and is defined to reflect growth that translates into significant reduction in poverty (IMF, 2000; OECD, 2001). Indeed, while economic growth is considered as a sign of improved economic standards of a country, this is not always beneficial to the poor. The trickle-down effect of economic growth is not always obvious.

The situation is pertinent in most developing countries where economic growth over the years has not led to poverty and inequality reduction. Such growth cannot be referred to as comprehensive as it is mostly biased in favour of the rich. For instance, in Benin economic growth increased from 4.6% in 2007 to 5.4% in 2012. However, on the contrary, poverty headcount ratio increased from 33.3% in 2007 to 36.2% in 2011 (INSAE, 2013). This trend raises important research and policy questions; who benefits from economic growth in Benin? Does economic growth reduce the inequalities between the poor and rich?

The forgoing discussion suggests that understanding the exact nexus between economic growth, poverty and inequality is crucial for policy directions. Policies directed towards poverty reduction could either directly target empowering the poor or be biased towards economic growth which can be expected to improve the lives of the poor. Unfortunately, the literature on pro-poor growth is scant in Benin and indeed in many developing countries. Existing studies have only conducted separate analysis of income poverty (Attanasso, 2004) and multidimensional poverty (Hounkpodote, 2009) in Benin with no emphasis on the linkages with economic growth trends in the country. (Hodonou *et al.*, 2010) used a Markov model to analyse poverty dynamics in Benin. Their results show that a large number of households exited extreme poverty due to the poverty policies implemented between 2006 and 2007.

It is against this backdrop that the current study sought to estimate the relationship between economic growth and poverty in Benin using a multidimensional measure of poverty. Specifically, this study (i) constructed a multidimensional poverty index; (ii) examined the dynamics of multidimensional poverty (MDP); and finally (iii) assessed the pro-poorness of growth in Benin between 2006 and 2011. This paper deviates from studies on Benin that have employed income measures for poverty analysis (Attanasso, 2004) and have only analysed multidimensional poverty without linking it with growth (Hodonou *et al.*, 2010; Hounkpodote, 2009). The findings of the study will contribute significantly to national and international efforts to improve population wellbeing through reduced poverty. Particularly, examining the pro-poorness of growth will help in reshaping future poverty reduction strategies.

The remainder of the paper is organized as follows; section 2 summarizes the profile of economic growth and poverty in Benin. Section 3 presents a brief literature review related to multidimensional poverty and the concept of pro-poor growth. Section 4 explains the methodologies used, and section 5 presents the results. Finally, section 6 discusses the results and section 7 concludes and provides policy recommendations to reduce poverty in Benin.

2. Brief profile of growth and poverty in Benin

Benin is among the least developed countries (LDCs) in the world with high levels of economic vulnerability attributable to the lack of production diversification. Benin's index of vulnerability was estimated to be 36.2 in 2012 (UNCTAD, 2015). The country is ranked at the 11th place out of 49 LDCs and 5th place among the most vulnerable countries of the Western African Economic and Monetary Union (WAEMU) zone (Alofa *et al.*, 2011). Between 2006 and 2011, Benin experienced a saw-tooth economic growth. In 2006, growth rate of Gross Domestic Product (GDP) was 3.8% and increased to 5% in 2008. However, after 2008, the growth rate declined to 2.8% in 2010, before an eventual increase to 3.5% in 2011 (INSAE, 2013).

Further, around a third of the population has been considered to be income poor since the 90s. In 2007, 52 % of individuals in Benin were living on less than a dollar a day. In the 1990s, this indicator was 53 % and dropped only one point in 2007 (INSAE, 2007). Between 2006 and 2011, income poverty (using the national poverty line) experienced erratic evolution, with a relatively high level. After a decline of 2.3% between 2006 and 2009, the incidence of income poverty increased by 1% between 2009 and 2011. It stood at 36.2% in 2011 compared to 35.2% in 2009 and 37.5% in 2006. With regard to non-income poverty, it was estimated that 44.1%

and 29.5% of individuals were poor in 2006 and 2011, respectively, representing a decline of 14.6% (INSAE, 2013).

It is worth mentioning that, there are some disparities in the levels of poverty across the country. Income poverty is more widespread in rural areas than in urban areas. The reverse is noted regarding non-income poverty. Between, 2006 and 2011, the proportion of households affected by non-income poverty in urban areas almost doubled unlike rural areas where non-income poverty increased by 7% (INSAE, 2013).

3. Literature review

3.1 Multidimensional poverty: concept and evidence

Two major approaches are recognised in the literature for analysing poverty, these are the “welfarist” and the “non-welfarist” approaches. The former is solely based on “utility” level as assessed by individuals (Ravallion, 1994). The level of satisfaction derived by individuals from goods and services they consume is assumed to determine the level of their wellbeing. Since utility cannot be directly observed, income or consumption expenditures per capita has mostly been used as proxy to measure individuals’ quality of life (Appiah-Kubi *et al.*, 2007). But, there are limitations in such single dimensional approaches to measuring poverty and inequality. Income obviously affects the living standard of an individual and household. However, even within the same income group, differences or disparities of living standards exist depending on the characteristics and nature of the individual or household (Jung *et al.*, 2014). Consequently, the monetary approach is not sufficient to capture the multiple aspects of poverty.

A multidimensional poverty measure takes into account both the monetary and non-monetary aspects of poverty. It also places welfare in the space of freedom and accomplishments that affect human existence. For instance, individuals must be adequately fed, have access to education, be in good health, participate in community life, be free, appear in public without shame, etc. The main dimensions that are often taken into account in multidimensional poverty analysis can then be summarized as follows: income, education, health, water, sanitation, nutrition, housing, employment, access to productive assets, access to market, etc. (Asselin, 2009). The method identifies the interaction between various deprivation dimensions and aggregates them into a composite poverty index.

Empirical studies on assessing multidimensional poverty have recently emerged in developing countries. In Sub-Sahara Africa, such studies have focused on specific countries and varies in strategies used. For instance, Appiah-Kubi *et al.* (2007) analysed multidimensional poverty and

living condition in Ghana using the fuzzy-set theoretic framework on micro data from the Ghana Living Standard Surveys conducted in 1991/1992 and 1998/1999. The results reveal that the composite deprivation degree was 0.21 for the whole country and is lower than the head count index of 0.39. Hounkpodote (2009) also employs a fuzzy subsets approach on the integrated modular survey on household living conditions conducted in Benin in 2006, and found a multidimensional poverty score of 53.90%. The results also revealed disparities in the level of multidimensional poverty across department and gender. Batana (2013) showed that the lack of schooling is the most important contributor to multidimensional poverty among women in fourteen Sub-Saharan African countries. Alkire and Housseini (2014) found that multidimensional poverty in Benin was 0.412 in 2006 and that population growth wiped out gains from poverty reduction in the country.

In a comparative analysis of four WAEMU countries, Djoke *et al.* (2010) found that factors such as access to vitamin A, use of iodized salt, breastfeeding, vaccinations against polio, diphtheria, measles and yellow fever explain child multidimensional poverty. Body *et al.* (2007) carried out multidimensional poverty and inequality analysis in Togo using the 1988 and 1998 Demographic and Health Surveys. The authors computed a composite poverty indicator from a multiple correspondence analysis and found that 74.4% and 59.8% of the population were affected by non-monetary poverty in 1988 and 1998, respectively. Many other authors have used the same method for specific country case studies. Ki *et al.* (2005) found that in Senegal, the incidence of multidimensional poverty reached 60% compared to the monetary poverty score that stood at 48.5%. Rural areas are particularly affected by non-monetary poverty whereas urban areas were affected more by monetary poverty. Foko Tagne *et al.* (2007) showed that in Cameroon, poverty based on living conditions is more severe than monetary poverty in 2001. The proportion of households that do not have access to basic commodities was estimated at 69% whereas only 30% of households were living below the monetary poverty threshold. In Tunisia, Ayadi *et al.* (2007) showed that multidimensional poverty has decreased between 1998 and 2001, even though poverty remained a rural phenomenon that mainly affected more deprived areas such as the northern and Midwestern regions.

3.2 Pro-poor growth: concept and evidence

As mentioned earlier, pro-poor growth assesses the correlation between growth, poverty and inequality. Economic growth is said to be pro-poor when it benefits the poor and provides them opportunities to improve their economic situation. Indeed, evidence has shown that in some cases, growth can have an adverse cost and severe impact on the very poor (Kacem, 2013;

Kakwani and Son, 2008). Thus, the extent to which the poor benefit from economic growth has become increasingly widespread in academic and policy circles especially, in the context of reaching the Sustainable Development Goals (SDGs). Several definitions have been proposed for pro-poor growth (Grosse *et al.*, 2008; Kakwani and Pernia, 2000; Klasen, 2008; Ravallion and Chen, 2003). These definitions can be broadly grouped into relative and absolute.

The relative concept defines pro-poor growth as growth that benefits the poor proportionally more than non-poor and reduces inequality (Kakwani and Pernia, 2000). Klasen (2008) states that, if economic growth can benefit the poor while the average growth rate is kept unchanged, consequently there will be faster poverty reduction. The relative pro-poor growth concept suggests that income growth rate of the poor exceeds the average income growth rate. Income of the poor increase at higher rate than that of the rich and consequently relative inequality falls.

By contrast, in the absolute sense, economic growth is said to be pro-poor if it involves absolute benefits for poor people (Klasen, 2008; Ravallion and Chen, 2003). The extent to which growth is pro-poor by this definition depends on the variation of both inequality and the average living standards (Ravallion, 2004). The literature distinguishes strong and weak absolute pro-poor growth. According to Klasen (2008), strong absolute pro-poor growth means that absolute income gain of the poor is greater than that of the rich. Under this definition, the growth process is associated with improvement in both poverty and inequality levels since welfare does not depend only on income but also on the gap between poor and non-poor. On the other hand, growth is said to be weak absolute pro-poor if the growth rate of the poor is above 0. What matters for poverty reduction is high income growth for the poor, not how that growth is compared to the growth of the non-poor (Grosse *et al.*, 2008). According to Ravallion (2004) weak pro-poor growth is the growth that reduces poverty, however small it is.

Analysing pro-poor growth in Ethiopia between 2004 and 2009, Kacem (2013) found that in rural areas, the poorest households have better evolution in monetary perspective. But, when all wellbeing dimensions are taken into account, the growth is anti-poor. In a pro-poor growth case study in Nigeria, Oyekale (2015) showed that growth is pro-poor with disparities across time and regions. For example, he found that between 1999 and 2003, there was pro-poor growth in non-income dimensions in the north-western zone of Nigeria with urban areas benefiting more than rural areas. During the same time period, the North Central zone had no benefits from economic growth. Grosse *et al.* (2008) assessed pro-poor growth using Bolivia data from 1989 to 1998. They found that growth is pro-poor in the absolute and relative sense both for income and non-income indicators. Kakwani *et al.* (2003) found evidence from Asia

that while Korea and Vietnam experienced a pro-poor growth pattern in the 1990s, Thailand's growth has on the whole not been pro-poor.

4. Methodology

4.1 Measuring multidimensional poverty index (MPI)

Alkire and Foster (2011b) stated that how poverty is measured, influences its understanding and policies to alleviate it. The economics literature proposes several multidimensional approaches to quantify poverty rather than the single dimensional method which relies on income or consumption expenditures per capita. Atkinson (2003) proposed two approaches to identify the poor. The first one is union identification and considers as poor, persons who are deprived in any retained dimension. The second is intersection identification, only persons who are deprived in all dimensions are considered as poor. Bourguignon and Chakravarty (2003) specified a poverty line for each deprivation dimension. Individuals who fall below the poverty line are considered as poor with respect to the specific dimension. The multidimensional poverty measure is obtained by combining the various poverty lines.

Alkire and Foster (2011a) proposed a dual cut-off method to identify whether a person is deprived enough to be called poor. The method consists of a first step, to determine the deprivation cut-offs within each dimension and to identify individuals that are deprived according to a specific dimension. In the second step, the deprivation dimensions are counted to see the breadth of individuals' deprivation across dimensions. The overall poverty cut-off employs the Foster Greer and Thorbecke (FGT) (Foster et al., 1984) measures to account for multidimensionality and evaluates overall poverty levels. Another non-monetary method widely used in the literature to analyse the multidimensional poverty is to compute a composite poverty index based on Multiple Correspondence Analysis (MCA) technique (Araar, 2009; Asselin, 2009).

To construct multi-dimensional poverty index (MPI) in this study, we relied on the Multiple Correspondence Analysis (MCA) proposed by Benzécri (1977) for the construction of a composite poverty indicator following (Araar, 2009; Asselin, 2009; Ezzrari and Verme, 2013). The MCA is an efficient tool for the study of multidimensional poverty represented in a set of categorical ordinal indicators (Asselin, 2009). Since we are measuring poverty from a multidimensional perspective and based on variables available in the data sets used, we focused on housing and durable goods dimensions, for which we compute a set of primary non-

monetary indicators (basic indicators) that are strongly related to the livelihood dimension they represent. The level of poverty of individual i for a given dimension was quantified as:

$$P_i = \frac{\sum_{k=1}^K \sum_{j_k=1}^{J_k} W_{j_k} I_{i,j_k}}{K} \quad (1)$$

where K is the number of indicator categories, J_k the number of categories for indicator k , I_{i,j_k} the binary indicator taking 1 if the individual i has the category j_k and w_{j_k} is the weight (normalized first axis score of the category j_k).

4.2 Measuring pro-poor growth

So far, the measures of pro-poor growth have focused on income dimensions using the Growth Incidence Curve (GIC) proposed by Ravallion and Chen (2003). The GIC is focused on income dimensions and plots the rate of growth over time at each percentile of income or consumption group distribution. It shows how the gain from growth has been distributed. The GIC is expressed as follow:

$$GIC = g_t(p) = \frac{y_t(p)}{y_{t-1}(p)} - 1 \quad (2)$$

Where $y(p)$ is the income at each percentile p of the distribution at time, t . The higher the growth incidence curve shifts upward, the greater is the reduction in poverty. If the GIC is above 0 for all poor percentiles ($g_t(p) > 0$ for all p), then it indicates weak absolute pro-poor growth. If the GIC is negatively sloped throughout it indicates relative pro-poor growth (Grosse *et al.*, 2008).

In this regard, Grosse *et al.* (2008) extended the GIC analysis to non-income poverty dimensions and proposed the Non-Income Growth Incidence Curve (NIGIC). The NIGIC assesses the improvement of welfare at various points of the distribution of specific multidimensional poverty indicators as well as at various points of the welfare distribution. There are two different ways to measure NIGIC; (i) the unconditional NIGIC that gives the distributional pattern of improvements in the particular non-income poverty indicator. It highlights the wellbeing progress realised by individuals in this indicator. (ii) the conditional NIGIC which provides information about the gains of growth received by the income poor. This has been found to be a useful tool to analyse how improvements in a particular aspect of wellbeing is distributed across income groups (Klasen, 2008).

The pro-poor growth rate (PPGR) was also proposed by Ravallion and Chen (2003) as a measure of growth pro-poorness. This measure is derived from the GIC and is equal to the rate of change in the Watts index of poverty normalized by the headcount index. Kakwani *et al.* (2003) proposed the poverty equivalent growth rate (PEGR) that satisfies the monotonicity criterion. The monotonicity axiom implies that the magnitude of poverty reduction is a monotonically increasing function of the pro-poor growth rate. The PEGR is defined to account for both growth and the distribution of growth benefits (inequality) among the poor and gives the effective growth rate for poverty reduction. Kakwani and Pernia (2000) computed the pro-poor growth index (PPGI). This index is defined as the ratio of total poverty reduction and the poverty reduction that would occur if growth were distribution-neutral. Growth is said to be pro-poor when PPGI is greater than 1.

In this paper, we generated a multidimensional poverty index (MPI) and used this to construct the GIC to assess the extent of growth pro-poorness in Benin. Berenger (2010) and Boccanfuso *et al.* (2009) have both showed that the interpretation of the GIC is the same when applied to non-income poverty as to income poverty measures. Further, to understand the distribution of growth across specific non-income poverty indicators, we construct the NIGIC for housing and durable goods.

4.3 Data

Data from the 2006 and 2011 Benin Demographic and Health Surveys (DHS) conducted by the *Institut National de la Statistique et de l'Analyse Economique (INSAE)*¹ was used in this study. These data sets allow to better understand different aspects of the population's living conditions in the perspective of poverty reduction. The DHS is a representative survey at national, departmental and municipal level. It collects, among others, rich information on non-monetary dimensions of well-being, such as living standards and access to public goods. In total, the data sets used in this study contain 17, 511 and 17,422 households in 2006 and 2011, respectively.

5. Results

5.1 Description of wellbeing dimension indicators

Table 1 presents a summary description of the indicators used to construct MPI in this study. It shows that, in general rural households had less access to electricity than urban households.

¹ Benin's National Institute of Statistics

This explains why generators are used more in rural areas than in urban areas. For example, in 2011, 69.39% of households in rural areas owned generators compared to 30.61% of urban households. However, it is worth mentioning that, access to electricity has improved between 2006 and 2011 in Benin and this improvement is relatively more important in rural areas compared to urban areas. Indeed, the proportion of household with access to electricity in urban areas, decreased from 82.37% in 2006 to 74.97% in 2011; whereas it increased from 17.63% in 2006 to 25.03% in 2011 in rural areas.

In Benin, wood and charcoal are mostly used as cooking fuel. The small proportion of the population (5.21% in 2006 and 4.51% in 2011) that uses gas to cook are mainly based in urban areas. Moreover, sanitation in households remains problematic. In 2006, only 1.83% and 36.49% of the population had hygienic garbage systems and toilets, respectively. In general, fewer households owned radio in 2011 (68.24%) compared to 2006 (72.13%). Table 1 showed that ownership of mobile phones in rural areas has doubled between 2006 (22.12%) and 2011 (51.75%). Furthermore, the proportion of rural households owning fridges had increased from 9.75% in 2006 to 15.25% in 2011.

Table 1: Description of wellbeing indicators

<i>Wellbeing dimension</i>	<i>Indicators</i>	<i>Modalities</i>	<i>2006</i>			<i>2011</i>		
			<i>Total</i>	<i>Urban</i>	<i>Rural</i>	<i>Total</i>	<i>Urban</i>	<i>Rural</i>
<i>Housing</i>	Electricity	Yes	26.11	82.37	17.63	34.08	74.97	25.03
		No	73.89	26.76	73.24	65.92	23.13	76.87
		Gas	5.21	87.72	12.28	4.51	94.78	5.22
	Cooking material	Charcoal	20.00	81.56	18.44	22.91	80.51	19.49
		Wood	74.79	27.27	72.73	72.58	24.91	7.54
	Garbage vacation	Hygienic	1.83	95.63	4.38	18.47	75.64	24.36
		Not hygienic	98.17	40.27	59.73	81.53	32.91	67.09
	Toilet	Hygienic	36.49	70.72	29.28	30.58	26.62	73.38
		Not hygienic	63.51	24.36	75.64	69.42	40.80	59.20
	<i>Durable goods</i>	Radio	Own	72.13	45.08	54.92	68.24	45.68
Don't own			27.87	31.43	68.57	31.76	30.32	69.68
Internet		Own	4.05	85.53	14.67	1.88	83.23	16.77
		Don't own	95.95	39.42	60.58	98.12	39.98	60.02
Fridge		Own	5.16	90.25	9.75	5.53	84.75	15.25
		Don't own	94.84	38.61	61.39	94.47	38.22	61.78
Mobile phone		Own	21.71	77.88	22.12	69.37	48.25	51.75
		Don't own	78.29	31.13	68.87	30.63	23.93	76.07
Generator		Own	3.61	29.75	70.25	9.90	30.61	69.39
		Don't own	96.39	41.71	58.29	90.10	41.92	58.08

Source: Authors' computation

5.2 Multidimensional Poverty in Benin

The multidimensional poverty results from the Multiple Correspondence Analysis (MCA) groups households based on three characteristics; association to social groups, housing and durable goods². We found that the richest households are in urban areas and possess goods such as: washing machines, stoves, computers, fridges, cars, have access to internet and cook with liquefied petroleum gas. Between 2016 and 2011, most middle class households had access to generator due to the erratic electric power supply in the country over the period. Middle class households also had access to hygienic garbage, clean water and toilet facilities. Poor households mostly had solid roof, possess radio, phone and moto. The poorest households were in rural areas and did not have access to basic facilities such as treated water and cook with wood. Their residence is constructed with rudimentary materials.

Our results suggest that there is no homogeneity in the distribution of multidimensional poverty across the population. About 55% of the total sample are poor. The middle and the richest classes represent 25% and 20% of the population, respectively (Table 2). The results also show that the proportion of poorest have reduced over time and have shifted into the middle and richest classes. Specifically, the proportion of poorest reduced from 63.45% in 2006 to 47.07% in 2011 whereas, the proportion of richest increased from 15.56% in 2006 to 24.10% in 2011. When we decomposed the analysis by population sub-group, we found that women exhibit a similar behaviour as the entire population. However, the situation is different when considering the elderly. This population sub-group suffer the most from the lack of durable goods and mostly live in poor housing conditions.

Table 2: Multidimensional poverty estimates for Benin (2006/2011)

<i>Poverty groups</i>	<i>Percentage of population affected by the Multidimensional Poverty</i>				
	Total sample	Women	Elderly	2006	2011
<i>Poorest</i>	55.28	55.17	69.16	63.45	47.07
<i>Middle</i>	24.90	25.32	18.98	20.99	28.83
<i>Richest</i>	19.82	19.51	11.87	15.56	24.10

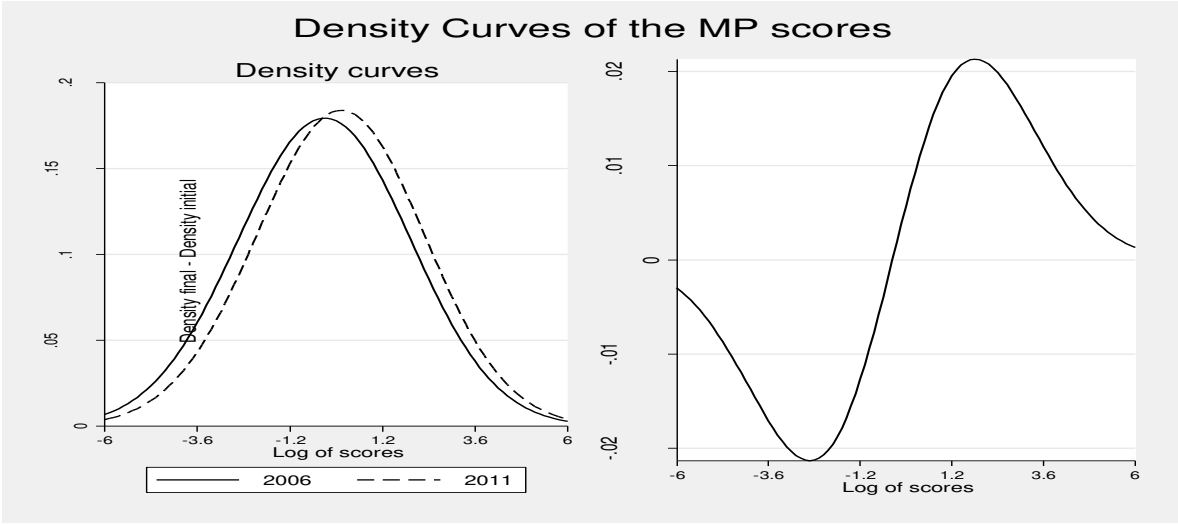
Source: Authors' computation

² Further details on the household characteristics are presented in the Appendix

5.3 Analysis of pro-poor growth in Benin

Figure 1 presents results for the density curves of the log of households' multidimensional poverty scores computed using the MCA. It shows a general overview of the evolution of multidimensional poverty between 2006 and 2011. The density curve follows a normal distribution for the entire population. More importantly, this curve shift to the right side in 2011 suggesting an improvement in overall wellbeing in the country.

Figure 1: Density curves and log of scores curves per group categories



Source: Authors' compilation

Table 2 presents two different indices on pro-poor growth analysis in Benin between 2006 and 2011, which are: (i) the pro-poor growth rate (PPGR) proposed by Ravallion and Chen (2003) and (ii) the poverty equivalent growth rate (PEGR) by Kakwani and Son (2008). In general, the results show that growth has been pro-poor in the entire country, though the poor in urban areas have benefited less from growth than the poor in other parts of the country.

The living conditions of households in rural areas have been considerably improved between 2006 and 2011, compared to those in other parts of the country. Indeed, Table 3 shows that the growth rate in rural areas (0.57) is higher than the one of the entire population (0.41) and for urban areas (0.27). However, the PPGR and the PEGR suggest that the benefits of growth have not been equally and proportionally shared across the population and across living areas.

For the overall population, the growth rate (0.41) is less than the PPGR (0.45). It shows that growth has been pro-poor in general but it involves inequalities. This is also confirmed by a higher PEGR (0.33) relative to the growth rate (0.41). While similar inequalities were observed in rural areas, the situation was different in urban areas, where inequalities were in favour of

the poor. The growth rate in rural areas (0.57) is higher than the PEGR (0.32). This result suggests that there is inequality in the distribution of the growth benefits among individuals in rural areas. In other words, the rural non-poor have benefited proportionally more of the growth than their poor counterparts. By contrast, the urban poor have benefited more proportionally from growth than the non-poor. The growth rate (0.27) is less than both the PPGR (0.34) and the PEGR (0.29).

When we extend the analysis to the marginalized population groups such as women and the elderly (65 years and above), we found that their living conditions have been improved more than the one of the population in general between 2006 and 2011 (Table 3). However, it appears that these improvements have benefited the non-poor more than the poor with unequal distribution in both women and elderly subgroups (the PEGR is less than the growth rate for both women and elderly).

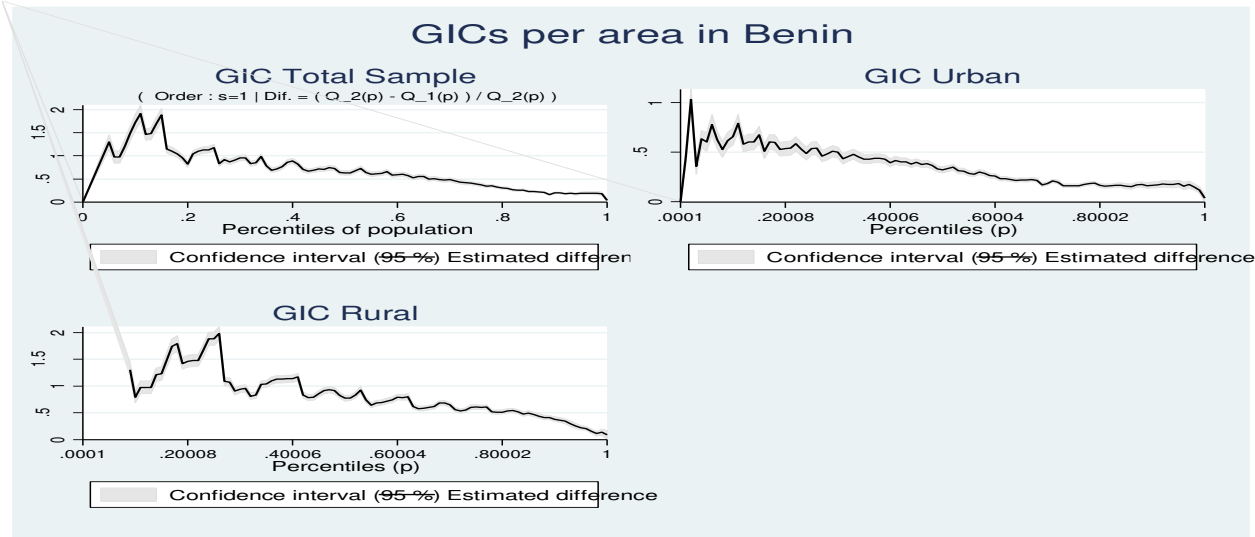
Table 3: Multidimensional pro-poor growth in Benin

	<i>All</i>	<i>Urban</i>	<i>Rural</i>	<i>Women</i>	<i>Elderly</i>
<i>Growth rate</i>	0.41	0.27	0.57	0.44	0.64
<i>PPGR</i>	0.45	0.34	0.46	0.34	0.48
<i>PEGR</i>	0.33	0.29	0.32	0.30	0.37

Source: Authors' compilation

Figure 2 presents the GICs for households in Benin and disaggregated for rural and urban areas. The curves offer more accurate analysis of the evolution of multidimensional wellbeing between 2006 and 2011 in Benin. It confirms that economic growth has been pro-poor in Benin over the period of the study, as the GICs lie above 0 for all percentiles. More specifically, the GIC of the entire population rose initially to about 2 % between the first percentiles and declined till the upper percentile. This shows that the growth benefits for the poorest is far greater than for the poor, the middle class and the rich. In urban locations, the GIC rose at the 1st percentile and constantly declined till the 15th percentile. On the contrary, the GIC increased between the 10th – 25th percentiles for rural areas. This suggests that the rural poor households enjoyed more of the growth than the urban poor households.

Figure 2: The Growth Incidence Curves per areas in Benin between 2006 and 2011

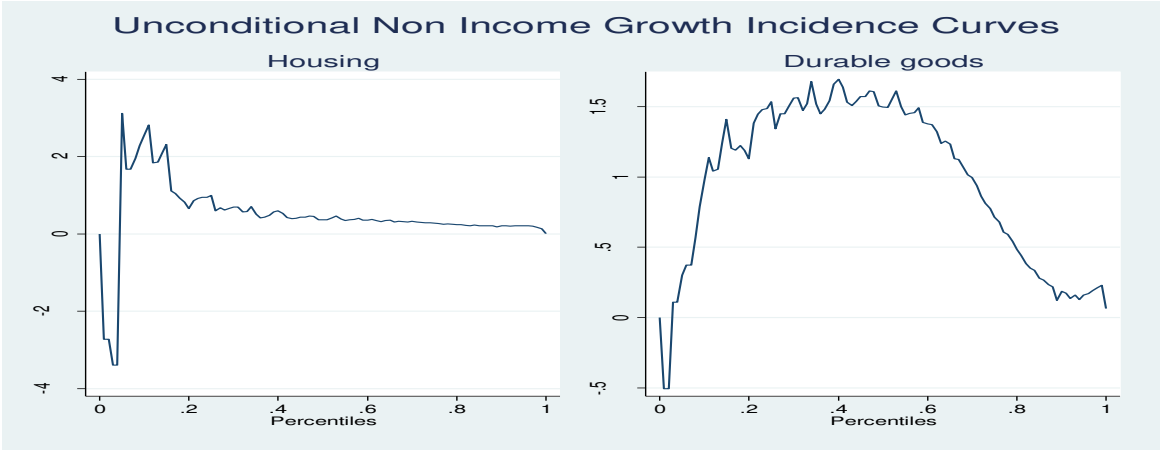


Source: Authors' own construction

5.4 Analysis of unconditional Non-Income Growth Incidence Curve (NIGIC)

Figure 3 presents the distribution of improvements in two wellbeing indicators (housing and durable goods). This was disaggregated by income groups and over the years 2006 and 2011. It shows that the housing conditions for non-poor households have improved compared to the poorest. For instance, the unconditional NIGIC for housing declined up to about -0.35 from the first percentile to about 7th percentiles. This was followed by a rise up to 0.3 and a decline in NIGIC but above 0, between the 7th – 60th percentiles. Meaning that the middle class benefited more from the improvement in housing. After the 60th percentile, the NIGIC for housing was around 0, implying that the housing condition of the upper percentiles (the rich) did not change.

Figure 3: Unconditional NIGIC



Source: Authors' construction

Similar situation was observed in the unconditional NIGIC for durable goods. A wider portion of the middle class (7th – 85th percentiles) acquired more durable goods between 2006 and 2011 and found their wellbeing improve in that dimension. By contrast, the poorest did not benefit from the improvement in durable goods dimension.

6. Discussions

The study provides important insight in the nature and trend in economic growth and poverty in Benin. The question we sought to answer was how economic growth translates to poverty reduction and inequality improvement. Given the countries poverty situation, understanding this linkage is important for policy design and targeting. As mentioned earlier, the study also fills an important gap in the empirical literature, especially in Benin. Deviating from existing studies, we used a broader and more comprehensive multidimensional measure of poverty. The findings of the study suggest that multidimensional poverty in Benin declined from 63.5% in 2006 to 47.1% in 2011. This suggests general improvement in wellbeing from 2006 to 2011. However, the estimates are significantly higher than the national income based poverty estimates. Income poverty in Benin was estimated to be 37.5% in 2006 and 36.2% in 2011 (INSAE, 2013). This confirms the hypothesis that, relative to multidimensional poverty, income poverty measures are narrow and may be misleading for poverty policies. Particularly, effective targeting of the poor should consider much broader poverty measures such as the multidimensional poverty index. This finding is corroborated by researchers like Jung *et al.* (2014) and Alkire and Foster (2011a) who suggest that monetary measures of poverty may not be sufficient in capturing all aspects of individual livelihood.

Moreover, we found that the reduction in multidimensional poverty in Benin was driven by economic growth over the years. Estimates from the PPGR and PEGR both confirm that growth has been pro-poor. This implies that the distribution of the gains from economic growth benefited the poor in the country. This suggests that benefits from economic growth are not constrained only to the wealthy. There was, however, evidence of spatial inequality in the distribution of the economic growth gains. We found that urban poor households benefited less than the rural poor. This is interesting in the sense that it does not conform with a-priori expectations that urban households are generally more likely to benefit from growth benefits. This may be explained by the numerous efforts to open up rural communities to harness the benefits of growth. These efforts include extending electricity networks and other infrastructure to these communities. Indeed, rural households' access to electricity has increased from 17.63% in 2006 to 25.03% in 2011. Moreover, possession of durable goods (such as fridges, mobile

phone and internet) has significantly improved in rural communities over the years. The results emphasize the need to improve the expansion of infrastructure to rural communities.

The disaggregated results also show some distinctions in growth benefits across some population sub-groups. We found that while there was general improvement in the livelihood of women and the elderly, this mostly favoured the non-poor, relative to the poor. This suggests that there is need for policies to focus on improving the livelihood of poor women and the elderly. Recent attempts have been made through improving access to microcredit mainly for women in Benin. While evidence has showed that this intervention can improve livelihood, there is need to ensure its implementation is effective and extended to marginalised population (Djossou *et al.*, 2016). Sustaining and scaling-up such interventions can go a long way to reduce the poverty and inequalities among marginalised population subgroups, including women. With regards to the elderly, there is a need to provide special policy focus to improve their livelihood. For instance, strategies such as effective retirement/pension schemes will help cushion the livelihood of the elderly and ensure they benefit from growth benefits.

There was also evidence to support policy focus on housing and durable goods in an attempt to improve multidimensional poverty through economic growth. The findings suggest that housing and durable goods are important aspects of multidimensional poverty and gains from economic growth can be translated through these indicators.

7. Conclusion

The study set out to examine growth pro-poorness in Benin between 2006 and 2011. To do this, we first estimated multidimensional poverty index using the MCA technique. We then analysed growth pro-poorness by constructing the GIC and NIGIC as well as computing the PPGR and PEGR indices. We used data from the DHS from both years. The results suggest that while multidimensional poverty has declined over the years, it remains higher than the national income based poverty estimates. We also found evidence that growth has been pro-poor in Benin, even though spatial and sub-group inequalities exist.

The findings are relevant for policy options in various ways. First, there is need for policy makers to expand poverty measures to include other aspects of livelihood that are not captured in single indicators such as income and expenditure. This will be important for effective policy design and targeting. Second, the findings also confirm calls for opening up rural communities to harness growth benefits through improved infrastructural development. Women and the elderly should also receive particular attention in designing poverty reduction policies.

6. References

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Appendix

Table A: Summary of dimension derived for the MCA

WEALTH	Urban Own stove Own computer Own washing machine Own Internet Cook with gas Own car Own fridge Hygienic water vacation Hygienic garbage vacation Own generator Finished wall Own radio Own phone Own TV Solid Floor Finished wall Hygienic toilet Have access to electricity Own moto Cook with charcoal Solid roof Treated water
POVERTY	Rural No stove No computer No washing machine No Internet No Generator No hygienic water vacation No car No hygienic garbage vacation No access to electricity No hygienic toilet No phone No radio No fridge No moto No treated water Rudimentary wall Rudimentary floor Rudimentary roof Cook with wood