Spatial Inequality in Cameroon during the 1996-2007 Period

POLICY BRIEF English Version

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1. Problem investigated and the issues.

According to official statistics, Cameroon witnessed a reduction in poverty during the period 1996-2001, since the incidence of poverty at the national level decreased from 53 % in 1996 to 40% in 2001 (National Institute of Statistics (NIS), 2002). However, inequality in household expenditure remained relatively constant at the national level during that period. For instance, the Gini coefficient, which was estimated at 0.406 in 1996, barely increased to only 0.408 in 2001 (NIS, 2002). The persistence of expenditure inequality in Cameroon has thus become one of the major preoccupations for both the country's public and decision makers.

It has been shown that inequality has significant negative impacts on poverty, social performances, and regional public finance. For any given level of average income, for instance, a higher degree of inequality generally implies higher levels of poverty. Moreover, Ravallion ((1997), (2004)) shows that higher inequality levels are usually associated with lower rates of decrease in poverty levels. In addition, increasing inequality in many developing countries further reduces the impact of overall economic growth on poverty, thus causing poverty to fall at unacceptable rate. This situation clearly suggests that it is not enough to focus research and economic policy on the determinants of overall economic growth, but that it is rather crucial to examine the determinants of pro poor growth – meaning the kind of economic growth which has a particularly strong impact on poverty reduction.

As to social performances, inequality at the regional level affects health, education, and the frequency of crime and violence (Deaton (1999)). The levels and heterogeneity of the regional impact of inequality may also have some effects on tax collection and may affect the optimal degree of decentralization and the provision of public services (Bardhan and Mookherjee (1999)). As a consequence, new theoretical advances in development economics have put more emphasis on equitable income distribution as being a social performance indicator of major significance (Alesina and Rodrik (1994); Persson and Tabellini (1994); Aghion and Bolton (1997)).

Spatial inequality within individual developing countries has received relatively less attention in the development literature. This may probably be due to the fact that there is a tendency to consider a developing country as a homogenous economic, political, and social entity. Up to now, large disparities have most often been observed among different regions within a developing country. Curiously, this problem has attracted little attention at the decision-making level in developing countries, including Cameroon.

Considering the existence of spatial variations in endowments and socio-economic infrastructures in the country, a sound grasp of income distribution becomes imperative in the formulation of integrated regional strategies likely to be effective, both in achieving sustainable poverty reduction, as well as in boosting economic growth. It is in this sense that the present study is opportune and instructive.

The overall objective of this paper is to analyze the major features of growth in the Cameroonian economy, and to investigate trends in the evolution of spatial poverty and income inequality in Cameroon during the period 1996-2007, using data from three different household surveys which are comparable and representative at the national level. The study focuses on poverty and inequality at the national and regional levels, in the urban and rural areas, and on regional inequalities as well as on the urban-rural income gap, with a view to capture the different aspects of poverty and inequality during a period in which the country witnessed a serious economic crisis which forced the government to implement drastic economic and structural reforms in order to shift the country back to its economic recovery and growth path, to reduce poverty and inequalities, and to improve the living conditions and welfare of its population.

The study also carries out an empirical analysis of the factors underlying the urban-rural income gap, examines the relationship between economic growth, poverty, and income inequality over the period 1996-2007, and investigates the major sources of growth as well as the constraints linked to growth in the Cameroonian economy.

After the introduction, Section 2 deals with the methodology of the study. Section 3 presents the results of the study, and Section 4 concludes the study with policy recommendations based on the results of the study.

2. Method of analysis

Changes in poverty during the study period were analysed with the help of a number of empirical tools such as FGT (Foster, Greer and Thorbecke, 1984) - poverty indexes, the Watts poverty index, and first-order stochastic dominance curves. In addition, the spatial inequality trends of the rural, urban, and regional dimensions were examined by simultaneously using the Lorenz curves, the Gini coefficient, and three inequality measures of the generalized entropy class of inequality measures. The contribution of spatial inequality to total inequality was determined by decomposing inequality into population sub-groups. The factors underlying the urban-rural income gap was empirically analyzed by means of Oaxaca-Blinder decomposition method. The link between growth, inequality and poverty was analysed both with the help of growth incidence curves (GICs) and pro poor growth rates (PPGRs) proposed by Ravallion and Chen (2003) and, the Datt and Ravallion (1992) method of the decomposition of poverty changes over time into growth and redistribution components. In addition, the sectoral decomposition of poverty changes over time into inter and intra-sectoral components was analyzed by means of Huppi and Ravallion (1991) method. The data used in the study was derived from 3 household surveys (ECAM1, ECAM2 and ECAM3) which are comparable and representative at the national level. Methodology and data are further explained in Fambon and Tamba (2011).

3. Key findings.

The results of the study indicate that:

3.1. Economic growth in Cameroon was not regular during the study period, for it varied over time in accordance notably with the major changes in economic policy orientations and the vagaries of domestic and external shocks. The sub-period 1960-1977 which preceded the advent of oil exploitation, was marked by an average annual real GDP growth rate of about 4.6 % generated mainly by agricultural sector development. During the sub-period 1978-1986, the country witnessed a particularly sustained rate of economic growth, with GDP increasing by about 8.8% per annum owing largely to the production and exportation of oil. The sub-period 1987-1993 was marked by a serious economic crisis which resulted in a plunge of about 40% in real GDP between the outbreak of the crisis in 1987 and the bottommost point of the trough in 1993, the year when a trend reversal occurred and led the economy to recover its growth path and to accelerate at the rate of 4.5% per annum during the sub-period 1995-2000, only to slow down again over the sub-period 2000-2007 with an average annual growth rate of 3.4%.

3.2 With fluctuations in macroeconomic performances, monetary poverty at the national level decreased substantially between 1996 and 2001, and then dropped only marginally over the sub-period 2001-2007 (See, Table 1). In fact, the poverty ratio for the country as a whole decreased significantly from 53% in 1996, to stand five years later at 40% in 2001, and only dropped to 39.9% in 2007. Throughout the three survey years of the study period, urban poverty remained considerably lower than rural poverty: it decreased significantly from 41% in 1996 to 22% in 2001 and to 12% in 2007. On the other hand, the poverty ratio in the rural area decreased from 60% in 1996 to 50% in 2001, only to rise again to 55% in 2007 (See, Table 1).

On the spatial level, we note wide disparities in poverty ratios between 2001 and 2007. In the cities of Douala and Yaoundé, poverty clearly fell by about 5 percentage points between 2001 and 2007. In addition, the incidence of poverty fell in all the regions of the country, with the exception of the East, the Extreme-North, and the North regions (See, Fig. 1).

3.2 The main results of the analysis of income inequality may be summarized as follows:

Firstly, at the national level, the Gini coefficient of total household expenditures per adult equivalent slightly rose between 1996 and 2001, before decreasing marginally from 0.404 in 2001 to 0.390 in 2007(See Table 2).

Secondly, income inequality declined in the urban area and rose in the rural area during the period 1996-2001. The period 2001-2007 is characterized by a significant fall in inequality in both areas, with a sharper drop witnessed in the urban area than in the rural area. Urban inequality remained higher than rural inequality throughout the study period. This is the way, for instance, that in 2007, urban inequality still remained higher than rural inequality, with Gini coefficients of 0.351 and 0.322 respectively for the urban area and the rural area (See Table 2).

The higher inequality level in the urban area suggests that this phenomenon became more marked in the cities than in the countryside, and it was due to a combination of several factors, of which the most important were the increased unemployment in the cities brought about by the economic crisis which set in the country between 1986 and 1993 on the one hand, and the acceleration of the exodus of rural job seekers towards urban centres on the other. Generally speaking, this increased demographic pressure and rapid urbanization of the cities accentuated the demand for labour and unemployment, and the lack of access to such basic needs as housing, education, health, and other public services, which consequently enlarged the inequality gap within the population.

Thirdly, the analysis of inequality by regions reveals wide differences across the national territory. In effect, the cities of Douala and Yaoundé, and the regions of Adamaoua, the Centre, the East, the Littoral, the West, the Northwest, and the Northeast, all witnessed a decline in income inequality during the period 2001-2007, whereas the regions of the South and the Extreme-North experienced increases in inequality instead, with the extreme-North province showing the largest increase in income inequality (See, Table 3).

The study has also shown that consumption expenditure per adult equivalent gradually increased in Cameroon over the period 1996-2007 at the national level, in the rural and urban areas, and in the regions, except for the regions of the East, the Extreme-North, and the North which are among the poorest regions of the country. Although there was an upward trend in household consumption expenditures during the period under study, there was also, at the same time, an increase in « consumption expenditure disparities » between rural and urban areas. The relative rural-urban income gap was low (less than 3%) compared with that of other developing countries. This rural-urban income gap may be due notably to the fact that: 1) the majority of poor live in rural area; 2) there is lack of job opportunities in rural area; 3) the poor live on subsistence agriculture; 4) the poor have high birth rate with rapid increase, so that agriculture land increasingly became scare, causing rural exodus towards urban centres; and 5) the lack of infrastructure (education, health, etc...) in rural area.

Fourthly, the decomposition of overall inequality into between and within components shows that during the period 1996-2007, spatial inequality (i.e. between-areas or between-regions inequality) was not a determining factor in overall inequality, for it only contributed 3 and 9 % to total inequality. By

contrast, a large part of total income inequality is explained by the within-areas (or within -regions) component. More specifically, by considering GE (0) it may be noted that the within - areas inequality component accounted for 97% in 1996, slightly decreased to 96% in 2001, and to 93% in 2007. Therefore, the decline in income inequality observed during the period 2001-2007 was to a large extent due to a decline in within -areas (or within- regions) inequality, rather than to the spatial inequality component.

Finally, with the help of the Oaxaca-Blinder decomposition method, the study empirically examined the factors explaining the expenditure gap between the urban and rural areas. The results of this decomposition show that, after controlling for household characteristics, the residence region is the most important factor which explains the urban-rural expenditure gap. The other important household characteristic which contributes in a non negligible way to this urban-rural expenditure gap is education.

3.3. The growth incidence curves (GICs) and the pro poor growth rates (PPGRs) proposed by Ravallion and Chen (2003) reveal that: economic growth in Cameroon was pro poor in relative terms over the sub-periods 1984-1996 and 2001-2007, suggesting that the poorest households benefited more from growth than the other households during both of these sub-periods. On the other hand, during the sub-period 1996-2001, growth was not strictly pro poor according to the absolute definition of poverty, and it was accompanied by an increase in social inequalities.

It is growth which contributed to poverty reduction, as opposed to redistribution. The decomposition of variations in the incidence of poverty over the period 2001- 2007 using the Datt-Ravallion (1992) method, actually shows that growth is responsible for the bulk of poverty reduction in the country taken as a whole, as well as in many regions of Cameroon.

In addition, decomposition by sector of changes in the incidence of poverty over the period 2001-2007 using the Hupi-Ravallion method, shows that the within-sectors effects mainly explain the changes in poverty which occurred between 2001 and 2007, whichever definition of population groups is retained. The domestic migration played an important role in the improvement of the living conditions of the poor by enabling them to earn higher incomes in urban areas. Given the existence of increasing inter-regional income gaps, we may predict that migration will become even more important in the future. Public infrastructures and urban development planning should therefore take potential future rural-urban migration into account. Public social security networks must also recognize the needs of the migrants.

5. Finally, the analysis of the evolution of real GDP by sector of activity clearly shows that between 2000 and 2007, economic growth was above all driven by the service sector, and notably by telecommunications which achieved a growth rate exceeding 25% per year during this period. The contribution of this sector to growth is more important than those of the primary and secondary sectors combined. Moreover, the negative growth rate of total factor productivity (TFP) over the period 1960-2000 had unfavourable effects on the overall growth of the economy.

By contrast, economic growth during this period was driven by both capital and labour, but more so by the factor capital.

The analysis also revealed several obstacles to growth in the Cameroonian economy, more particularly, poor governance and shortage of basic infrastructures, as well as public spending ineffectiveness, insufficient funding of the agricultural sector and the limited access of the poor to finance.

4. Policy Recommendations

The results of the study have shown that during the sub-period 1996-2001, Cameroon achieved an annual average real GDP growth rate of 4.5% and that, while the incidence of poverty fell significantly from 53% in 1996 to 40% in 2001, economic growth during the period was not pro poor. On the other hand, real GDP growth fell by about 3% per year during the sub-period 2001-2007, while monetary poverty fell marginally, but economic growth was in favour of the poor. Such results call for several kinds of policy implications.

A stronger growth rate of at least 7% should be achieved while accelerating the growth process to realize the monetary poverty reduction objectives set down by the Cameroon government.

Obviously, the achievement of strong and sustained economic growth is one of the major preoccupations of Cameroon. This is necessary to develop job opportunities, increase per capita income, and reduce the poverty level. Moreover, higher future growth is an essential prerequisite in Cameroon for sustaining past success in the attainment of still better human and social development performances.

Similarly, higher economic growth is required to generate the public resources needed to increase the quantity and improve the quality of social services and infrastructures. Accelerated economic growth is also crucial for implementing an in-depth structural change process in the economic and social lives of the individuals who will provide the basis for more rapid improvements in, social indicators such as reducing fertility, ensuring civic and human rights, and promoting good governance.

In addition, achieving stronger and rapid economic growth would help reduce consumption expenditure disparities in the different strata of Cameroon's society, notably between urban and rural areas or within these areas.

Furthermore, a rapid and sustained reduction in poverty requires pro poor growth. Pro poor growth policies notably comprise adequate public spending for basic education, health, and family planning services, easy access to micro credit, the promotion of small and medium entreprises, and investment in infrastructures. Human and physical capital investment for the poor will improve their productivity and their contribution to the country's economy.

Given the structural characteristics of Cameroon's economy, however, there exist both economic and non economic constraints which operate at the macro- micro- levels to limit the feasibility of attaining a higher growth path.

The results of the study have also shown that spatial inequality was not a determining factor of overall inequality, and that total expenditure inequality is mainly explained by its within-areas (or within-regions) component which decreased over the period 1996-2007.

These results suggest that in the present context, any policy measure aiming to reduce between-areas or between-regions inequalities by bringing income distribution inequalities among households to the level of national average income without affecting income distribution within areas or regions, could to some extent slightly reduce total income inequalities in the country.

On the other hand, correcting for within-areas and within-administrative regions inequalities by equalizing household incomes to the average income of these areas or regions could reduce a large proportion of the total economic iniquities discussed in the preceding paragraphs. Consequently,

contrary to the perception according to which differences in development between areas or regions underlie the disparities in the distribution of income, the results of this study show that within-regions inequalities constitute the major cause of inequality in total income in Cameroon. Thus, any policy decision aiming to find a solution to the increasing problem of inequality in the country should perforce target the country's within-areas and within-administrative regions inequalities. The proportion of overall inequality explained by between-areas and between-regions inequalities exists and is generally small.

In the final analysis, to facilitate the present unequal and unbalanced regional growth process, and at the same time promote inclusive development, the government should encourage economic integration both within and across the regions of the country. More specifically, this requires the improvement of public services in all the areas and all the regions, and the connection of isolated and backward regions to the more developed ones by providing them particularly with transport infrastructures among others, both within and between regions as the main levers of private sector investment and economic growth.

This study has demonstrated the existence of inequalities between areas and between regions, and found that inequalities are more pronounced within areas and within regions. Effective overall inequality reduction policies in Cameroon should therefore aim at reducing both within-and between-areas inequalities as well as within- and between-regions inequalities. This type of information may serve as a guide for the conception of effective policies whose objectives are to reduce income inequality and eventually poverty.

The study's results have also shown that the expenditure gap between the urban and rural areas is mainly explained by the residence region and education of the household head. Decision makers should therefore focus their attention on the determinants and consequences of educational levels in both the urban and rural areas. In addition, with a view to reduce the consumption gap between the urban and rural areas, the public authorities should adopt development policies which are likely to increase the efficiency or performance of household characteristics by improving, for instance, the flexibility of the labour market and investment in infrastructures in the rural areas.

The study's results also shows that, economic growth during the 1960-2000 period was driven by both capital and labour, but more so by the factor capital. Under these conditions the country could not achieve sustained growth, given that productivity rather than the capital stock which is crucial in the growth process. Boosting productivity will require institutions and policies which affect the incentive to generate and disseminate innovations in the country.

Finally, the study's results suggest that the government of Cameroon could actually reduce poverty and income inequalities, and promote stronger and sustained growth by adopting the following recommendations:

- improve the macroeconomic framework, the business environment, and governance; this would strengthen the commitment of the poor to economic growth by increasing their incentives, job opportunities, and entrepreneurship;

-     Widen the fiscal space in order to finance increasing priority investments, chiefly in the areas of agriculture and infrastructures, by mobilizing additional non oil revenues and reducing support to public enterprises;

-       Improve the effectiveness of public spending, more particularly, public spending on infrastructures (road, railway, and other transport infrastructures), and spending linked to human capital, health, etc..;

-       Develop basic infrastructures (education, health, agriculture, etc.);

   -    Invest in human capital (education, health, etc.). Education is the most important of these factors, as it tends to reduce poverty in the short-run and decrease inequality in the long run.
   -    Create salaried employment opportunities, for example, by increasing agricultural productivity among farmers as well as self-employment opportunities.

   -    Improving the flexibility of the labour market and investment in infrastructures in rural areas, which could expand the flows of goods and services and labour mobility toward the regions which provide the best market opportunities.

   -    Take into account potential future rural-urban migration in public infrastructures and urban development planning.

-       Increase access to the major factors of production such as credit;

-       Keep on investing in programmes targeted at poverty reduction, while making sure that specific investments are consistent with the long-term development strategy of the country.

Given that improvement in the living standards of the population is the fundamental objective of economic development and a crucial factor in increasing domestic demand and boosting sustained economic growth, public authorities should reinforce measures to create more jobs, increase the incomes of populations, achieve an equitable distribution of income, and ensure a more comfortable live for the populations

Table 1: *Trends in Monetary Poverty over the 1996 - 2007 Period*

	Cameroun			**Urban**			**Rural**		
	1996	**2001**	**2007**	**1996**	**2001**	**2007**	**1996**	**2001**	**2007**
P_0	0.5327 (0.0326)	0.4022 (0.0146)	0.3988 (0.0134)	0.4137 (0.0297)	0.2211 (0.0115)	0.1217 (0.0085)	0.5964 (0.0464)	0.4988 (0.0193)	0.5502 (0.0176)
P_1	0.1908 (0.0167)	0.1414 (0.0085)	0.1231 (0.0062)	0.1466 (0.0134)	0.0631 (0.0039)	0.0281 (0.0024)	0.2145 (0.0242)	0.1832 (0.0122)	0.1750 (0.0086)
P_2	0.0900 (0.0095)	0.0698 (0.0061)	0.0503 (0.0031)	0.0691 (0.0074)	0.0266 (0.0020)	0.0096 (0.0010)	0.1012 (0.0138)	0.0928 (0.0090)	0.0724 (0.0045)
Watts	0.2665 (0.0249)	0.2091 (0.0174)	0.1611 (0.0086)	0.2054 (0.0199)	0.0850 (0.0056)	0.0351 (0.0032)	0.2992 (0.0362)	0.2753 (0.0257)	0.2299 (0.0123)

Note: Figures in parentheses represent standard errors

Figure 1: *Regional Poverty incidence in 2001 and 2007*
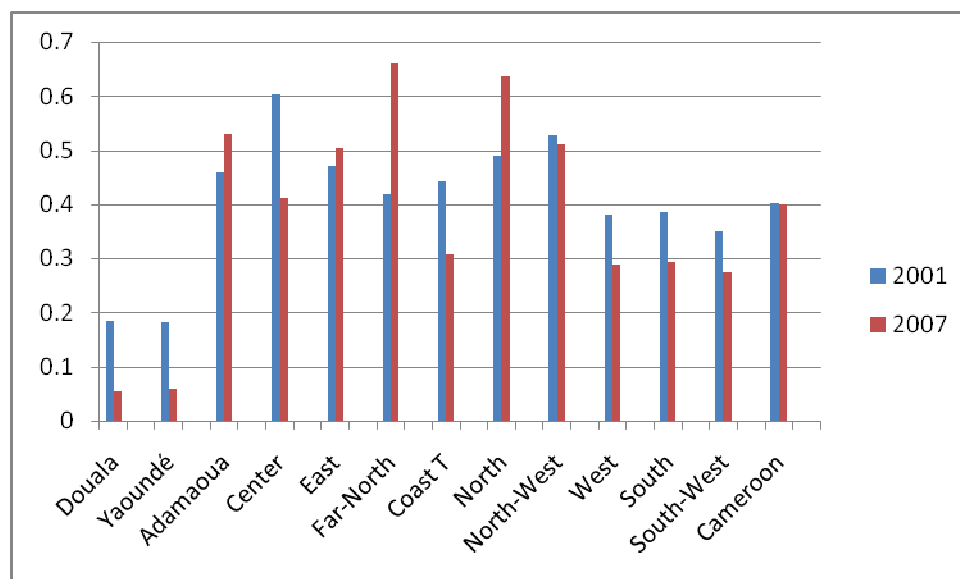
Table 2: *Inequality Indices According to Residence Areas*

	Survey period			Percentage change	
	1996	**2001**	**2007**	**1996-2001**	**2001-2007**
Cameroon					
Gini coefficient	0.4062 (0.0169)	0.4078 (0.0078)	0.3896 (0.0060)	0.0016	-0.0182
GE(0)	0.2722 (0.0227)	0.2906 (0.0142)	0.2477 (0.0077)	0.0184	-0.0429
GE(1)	0.3174 (0.0300)	0.3163 (0.0155)	0.2787 (0.0106)	-0.0011	-0.0376
GE(2)	0.5442 (0.0786)	0.5556 (0.0528)	0.4449 (0.0286)	0.0114	-0.1107
Rural					
Gini coefficient	0.3459 (0.0274)	0.3690 (0.0087)	0.3223 (0.0062)	0.0231	-0.0467

GE(0)	0.1960 (0.0310)	0.2406 (0.0161)	0.1666 (0.0065)	0.0446	-0.074
GE(1)	0.2160 (0.0367)	0.2387 (0.0116)	0.1875 (0.0090)	0.0227	-0.0512
GE(2)	0.3090 (0.0641)	0.3212 (0.0203)	0.2694 (0.0225)	0.0122	-0.0518
Urban					
Gini coefficient	0.4490 (0.0203)	0.4060 (0.0096)	0.3519 (0.0075)	-0.043	-0.0541
GE(0)	0.3384 (0.0308)	0.2783 (0.0132)	0.2056 (0.0087)	-0.0601	-0.0727
GE(1)	0.3763 (0.0397)	0.3208 (0.0205)	0.2287 (0.0118)	-0.0555	-0.0921
GE(2)	0.6178 (0.0932)	0.5741 (0.0653)	0.3475 (0.0275)	-0.0437	-0.2266

Note: Figures in parentheses represent standard errors

Source: *Computed by the Authors from ECAM1, ECAM2 and ECAM3 Data Survey.*

Table 3: *Inequality Indices According to Residence Regions*

	2001				2007			
Regions	**Gini**	**GE(0)**	**GE(1)**	**GE(2)**	**Gini**	**GE(0)**	**GE(1)**	**GE(2)**
Douala	0.4100	0.2814	0.3280	0.5851	0.3387	0.1872	0.2173	0.3361
Yaoundé	0.4327	0.3168	0.3785	0.7221	0.3315	0.1815	0.2107	0.3339
Adamaoua	0.3546	0.2079	0.2156	0.2795	0.3375	0.1827	0.2120	0.3131
Center	0.416	0.3379	0.3219	0.5018	0.2807	0.1268	0.1413	0.1907
East	0.3660	0.2308	0.2328	0.3132	0.3288	0.1719	0.1899	0.2602
Far-North	0.3386	0.1917	0.1969	0.2508	0.3652	0.2124	0.2507	0.3853
Coast T	0.4004	0.2827	0.2863	0.4168	0.3185	0.1663	0.1925	0.2858

North	0.3727	0.2316	0.2649	0.4912	0.3533	0.2012	0.2465	0.4048
North-West	0.4475	0.3591	0.3532	0.5029	0.3824	0.2354	0.2765	0.4494
West	0.3383	0.1900	0.2089	0.3078	0.2973	0.1437	0.1580	0.2117
South	0.3336	0.1846	0.1871	0.2312	0.3458	0.1987	0.2361	0.3906
South-West	0.4136	0.3022	0.3043	0.4304	0.3324	0.1808	0.1968	0.2811
Cameroon	0.4078	0.2906	0.316	0.5556	0.3896	0.2477	0.2787	0.4449