Redistributive Impacts of Public Resources for Basic Education in Cameroon

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Abstract

This article shows that the allocation of rare resources by collective decision-making procedures can cause inequity and inefficiency. By applying the model of Analysis benefit incidence in basic education, there is evidence that the allocation of public resources for basic education in Cameroon is a source of reproduction of inequalities and generates a social selectivity in the sense that the volume of public investment is not correlated with different levels of education on the one hand, enrolment and poverty rates by region, on the other hand. Given the fact that school is the main vector of social reproduction and the leverage by which we can hope to redistribute opportunities and chances equally, this paper suggests that redistributive policies should henceforth be based on the enrolment in each region and regional poverty profiles.

1 Introduction

The desynchronized economic developments experienced by Cameroon during the past four decades suggests that it has not been possible to maintain in the long-term, a sustainable growth of GDP and of national income necessary to process sustainable human development. Indeed, after enduring an economic crisis that lasted nearly 20 years, Cameroon has undertaken a series of reforms that enabled it to reach the completion point of the HIPC Initiative in April 2006, thus leaving behind a long period of austerity measures which contributed to restore a general economic framework capable to facilitate development process, even if the situation of public finances is not yet fully satisfactory.

In this vein, the trend path of public spending is parallel to that of the country's economic activity. Four significant changes can be retained. The first was a relatively strong growth

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of public spending until 1985/86, helped by buoyant commodity prices, especially oil. The second, which started during the fiscal year 1986/87, which is the starting point of the economic crisis, correspond to a reduction, sometimes drastic, of budgetary resources, due to the continuing economic downturn, reinforced by a prolonged and concomitant fall of dollar and the price of commodities, resulting in a shortfall of more than U.S. $ 1.047 billion. Following the monetary adjustment of 1994 and the conclusion of a three-year agreement with the International Monetary Fund in 1997, the evolution of public spending increased, but less proportionally to the growth observed after 2000, following the reaching of the Decision Point of the HIPC Initiative. The reaching of the completion point in April 2006 gave an upward trend of public expenditure in relation to the flow of additional resources freed.

Concerning social spending, they have experienced over the past decade, erratic changes, showing an "N" curve, with a tendency more bullish than bearish, following in this, the trend of public spending. But it is more the additional resources from debt relief (HIPC, MDRI, and C2D), which contributed greatly to the increase in budgetary allocations to social sectors. This keen interest in social spending comes from the fact that it is the categories of expenses, which affect productivity positively on the one hand, and contribute to lift vulnerable population out of poverty, on the other hand. Moreover, the fiscal priority allocated to education public spending can improve the productive capacity of economic agents, to reduce poverty and social inequality.

Cameroon's membership in several international initiatives related to basic education, as well as the ratification of various conventions in the field of education, are an evidence of the intention of the Cameroonian authorities to invest considerably in this sector, in the context of progress toward goals and standards set internationally. However, more than the intention, it is when put to tests that the will of "move some lines" can be better appreciated, especially by reviewing the efforts made and results achieved.

An analysis of disparities in public education resources has the advantage of evaluating the effectiveness of redistributive [2] policies, examining the beneficiaries of public resources made available on the one hand, and to assess whether the budget decisions are rational, on the other hand, especially through a greater control over the use of resources allocated to the sector. Public resources are one of the main transmission mechanisms of redistributive policies in the development of the potentialities of the poor. In fact, the allocation of public resources, in modifying the distribution of physical and human capital in favor of the poor, can increase their share in the national income [13]. The increase of their income that would result from an increase in economic activity becomes more important. Also, redistribution allows to increase poverty sensitivity with respect to growth, and to increase the pace of poverty reduction for a given rate of growth. Identically, a context governed by equity is accompanied by a reduction of inequalities observed in terms of educational opportunities.

This article suggest to evaluate redistributive effects of resources allocated to basic education in Cameroon, in order to highlight the extent of disparities according to regions, and to stress the urgency of extending opportunities in redistributing with more equity

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[2]The implementation of redistributive policies may intervene upstream or downstream. When it takes the form of wealth or income redistribution, it is an upstream intervention. The income redistribution, which consists in increasing, occasionally, the income of beneficiaries, represents a downstream action.

public resources for education between regions, according to criteria based on considerations of vulnerability, efficiency and equity[3].

2 The Model

Income distribution can be understood at three levels. The primary level is the distribution of wealth created between the actors (or factors of production) who contributed; the secondary level refers to the corrective measures taken to address inequalities relating to the primary distribution, through taxes (progressive) and transfers to the most disadvantaged. As for the tertiary income distribution, it shows the advantages obtained by different social strata of services and public spending. The analysis benefit incidence (ABI) according to Demery[4] approach allows operating such a measure.

2.1 The Analysis of Impact Applied to Education

In poor countries, there is a growing interest marked for the analysis of the redistributive impact of public spending in different social strata, especially the most vulnerable ones such as women, children and the rural populations and as well as the capacity to access and use of public services by these social strata [2]. The benefit impact approach, which was applied to several developing countries, as it is pointed out by [5] and [4], has developed to become an analysis tool for economic policy. In its classic form, the ABI is based on decomposition of subsidies granted for the use of services, following constituent groups of the population, gender, or any other discrete categories such as regions and ethnicities. Such decomposition is revealing in that it gives a clear idea of gender inequality or welfare. For instance, for a given country, from accurate information on inequalities in access to education, it can be shown that this low difference among wealthy households is a concern for the poor. The Informed-decision maker will react at least two ways: either he will correct the discrepancies noted by focusing on the students from poor households; or he will act on the distribution of subvention for a more equitable access to related social services.

More specifically, the implementation of the ABI combines elements of supply and demand of public services, while allowing to identify inefficiencies and inequities in the allocation of public resources for the coverage of social services, as well as in the use of such services. Normally, studies of the impact of average spending or benefit present survey data on the use of various services (health, education, infrastructure...) by households on the one hand, and data on budget allocations (finance laws) on the other hand. According [6], ABI is an instrument, which is easy to use - both for the *ex-ante*

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[3]Note that the search for equity must go together with that of efficiency, as the individuals most capable to seize their opportunities, regardless of socio-economic conditions of their parents, are selected from those who reach highest levels of education, hence the need to facilitate access to education for the poorest.

[4]The ABI reveals how public spending has an impact on the well being of different groups or individual households. This result is obtained through the combination of information on the unit cost of services provided, and information on the use of those services.

analysis and for *ex-post* evaluation exercises and monitoring of development projects. It is in this light that it was introduced as a tool for impact analysis of the World Bank[5].

2.2 The ABI Method

Impact analysis of public spending indicates the extent to which public spending affects the welfare of different groups or individual households. The approach is to impute household users of a particular service, the cost of providing this service. The imputed service corresponds to the amount that household income should increase if it had to pay the service it is benefiting from. As an illustration, if we consider an educational system consisting of three educational levels (primary, secondary and tertiary), the methodology can be described as follows:

$$X_j = \sum_{i=1}^{3} E_{ij} \frac{S_i}{E_i} = \sum_{i=1}^{3} \frac{E_{ij}}{E_i} S_i \qquad (1)$$

Where,

X_j: Amount of subvention in education that benefited the group j (individuals households)
S_i: Education public expense for education level.
E_i: Enrollment in educational level i
i : educational level (primary, secondary, higher education)
$\dfrac{S_i}{E_i}$:   Monetary medium Subvention for educational level i

The impact of the advantage of total expenditure in education allocated to group j is equal to: number of enrolled in the primary of group j (Eij) x unit cost of primary + number of enrolled in the secondary x + number of enrolled in the higher education x unit cost of the higher education.
The shares of the total spending for education allocated to group J correspond to:

$$x_j = \sum_{i=1}^{3} \frac{E_{ij}}{E_i} \left(\frac{S_i}{S} \right) = \sum_{i=1}^{3} e_{ij} \times s_i \qquad (2)$$

This share depends on two factors:
- e_{ij}: share of the group in the total service in use. It reflects the behaviour of the household.
- s_i: share of public spending in the different types of services. It reflects the behaviour of the State.
Furthermore, the graphical representation of results (Lorenz curve, concentration curves) allow to evaluate how your expenditures are targeted and graduated. Indeed, the concentration curves, which are above the Lorenz curve, are progressive and indicate that

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[5] Hence the publication of his user's guide (Demery, 2000), for its dissemination amongst the researchers of the World Bank in particular, and development economists in general.

the subvention or public spending is more evenly distributed than the income. In the case where the concentration curves are below the Lorenz curve, public spending is unevenly distributed. In addition, the comparison of the concentration curves with 45 ° diagonal can appreciate the targeting of poor groups. Concentration curves located above the diagonal indicate that the poorest quintile receives more than 20% of the total subvention, and the richest quintile less than 20%. In contrast, concentration curves, which are below the diagonal, indicate a lower targeting.

Given the importance of resources available to the education sector, it is useful to ask who benefits from the resources available for the sector of basic education. Are these resources distributed equitably among the regions? Does the allocation of these resources take into account the regional profiles of poverty? An attempt to answer these questions will be given below by evaluating unit costs by level of study and geographical selectivity of this distribution.

3 Redistributive Effects of Educational Public Resources

The approach consists first of all in determining essentially the unit cost of the provision of service by educational level of education. Then the geographical selectivity of public resources will be analyzed.

3.1 Disparity and Inequality in the Distribution of Public Resources

A first assessment of equity in the distribution of education public resources is based on the comparison of unit costs by level. The analysis is based on the assumption that the distribution of public resources is much less unequal than the increase of unit costs between primary, secondary and tertiary education which is low.

The aggregated approach match directly the volume of current public expenditure by level or by type of education, and enrolment in the public sector in each of these levels and allow calculating unit costs of schooling. There is another method of calculating unit costs, which is the analytical method of decomposition of unit costs[6].

The table below presents results for the fiscal year tableau 2010[7].

Table 1: Unit cost of enrolment by level of study in 2010

Level of studies	Current expenditures (millions $ US)	Size	Public unit cost ($ US)	**Index**
Basic education	**325,7**	3 827 118	**85,1**	1
Functioning	280,3		73,25	
Investment	45,3		11,84	
Secondary education	405,12	1 401 335	289,09	3.4
Higher Education	84,88	194 724	435,90	5.1

Source: Our calculations based on the "2010 Report on the situation and the economic, financial and social outlook of the nation".

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[6]The complexity of this method and the unavailability of data compel us to prefer the aggregated method.

[7]The choice of this year is mainly motivated by the availability of data on enrollment by region, which is highlighted in the 2010 MINEDUB statistical yearbook.

In 2010, the per capita expenditure is U.S. $ 85.10 for Basic Education (that is, U.S. $ 102.83 is for preschool and U.S. $ 83.50 for primary education), against U.S. $ 289.09 for secondary education and U.S $ 435.90 for higher education. Public authorities spend around 3.5 and 5 times more, respectively, for children in the secondary and higher education, than in the primary level. Thus, the allocation of public resources is uneven, because the proportion of the age group that has access to the first cycle of basic education is important, and the growth of unit costs with educational level is relatively low. In comparison with the results of [8] where in 2004, there were gaps between the respective unit costs by level of 7 and 14 times between primary, secondary and higher education; there is a marked improvement towards an equitable distribution of public resources in education. This improved result materializes the intra-sector distribution policy of the incentive framework for the Fast Track Initiative, which calls for a more and more increased allocation of education spending for primary education in the context of its rapid universalization by 2015. This initiative has resulted in an allocation within basic education, which allowed doubling the unit cost of this level of education between 2004 (U.S. $ 40.31) and 2010 (U.S. $ 85.105). However, this improvement was stopped in 2011, when the budgetary allocation to basic education fell sharply to 18.05% in relative value compared to the other two Ministry of education sector (see Table 2).

The per capita expenditure is categorized as follows: U.S. $ 73.25 as a unit cost of operation (that is a share of 86% of the total unit cost) and U.S $ 11.84 as the unit cost of investment (14% of total unit cost). In other words, public authorities invest on average 14% of their education spending per capita for a student. The direct investment rate for a student is lower compared to the different positions of capital expenditure, not directly related to education.

Table 2: Per Capita expenditures to basic education

Adamawa	187 238	9	8,14	43,50	1
East	213 361	8	4,76	22,35	3
West	507 601	3	5,04	9,93	10
South West	252 309	7	4,26	16,91	5
South	132 884	10	4,06	30,61	2
Centre	694 923	1	7,83	11,27	8
Littoral	437 903	4	6,82	15,57	6

<u>Source</u> : Our calculations.

3.2 Geographic Selectivity in the Distribution of Public Resources

The relationship between mobilized resources and the results obtained, measures the efficacy of the educative system. One of the global indicators for measurement of this efficacy is the educational life expectancy, or the average number of years of study put in by a pupil. Without the availability of data on educational profile, this analysis is solely attached to the selectivity measurement, which establishes the educational qualitative structure.

After the application of ABI, the results obtained (see table below) show that in Basic Education, four regions have more than half of the school enrollment, they are the Centre, Far North, West and Littoral, with a global rate of 59.4%; which gives them a relatively important part of the educational resources, evaluated at 64.4%. The third of the resources remaining is distributed to the six remaining regions. Also, the two least poor regions, which are the Centre and the Littoral with 29.6% of enrollment, receive 43% of resources

just for them alone. This inequality is more highlighted when a comparison by region is done. For example, the Far North region processes 16.6% of enrollment but only receives 9.3% of resources; the Littoral region, with 11.5% enrollment gets 17.7% for educational expenses.

Table 3: Regional selectivity in the appropriation of resources for basic education

Régions[8]	Pre-school	Primary	Total	%	Subvention (in $ US)	%
Far North	7495	626665	634160	16.6%	17,34	9.3%
North-West	33171	368197	401368	10.4%	19,66	10.5%
North	7762	358039	365801	9.6%	11,03	6%
Adamawa	6398	180840	187238	4.9%	6,37	3.4%
East	14423	198938	213361	5.6%	9,41	5%
West	34772	472829	507601	13.2%	22,53	12.1%
South-West	22884	229425	252309	6.5%	12,88	6.9%
South	12844	120040	132884	3.5%	7,02	3.8%
Centre	101846	593077	694923	18.1%	47,17	25.3%
Littoral	75557	362346	437903	11.5%	33,15	17.7%
Total	316722	3510396	3827118	100%	186,34	100%

Source : Our calculations.

Another analysis highlights the fact that the two regions which receive the least resources, which are the South and the Adamawa, have the lowest rate of school enrollment. Whereas, the Adamawa region in view of the report of the educated population and school-age population (10.58% in pre-education), should benefit from a significant amount of resources linked to childhood development. Likewise, in the North and Far North regions, the school enrollment respectively represents 6.3% and 3.6% of the educable population at the pre-school level.

Table 4: Gap between the school-age population and the educated population in 2010

Year 2009	Pre-school Enrollment			Primary enrollment		
	School-age	Educated	Relationship	Educabable	Educated	Relationship
Adamawa	60 454	6 398	10,58%	165 531	180 840	109%
Centre	211 588	101 846	48,13%	569 360	593 077	104%
East	47 665	14 423	30,26%	187 689	198 938	106%
Far-North	208 101	7 495	3,6%	579 810	626 665	108%
Littoral	172 060	75 557	43,91%	393 954	362 346	92%
North	123 233	7 762	6,3%	337 429	358 039	106%
North-West	108 119	33 171	30,68%	296 047	368 197	124%
West	106 957	34 772	32,51%	312 863	472 829	151%
South	41 853	12 454	29,76%	114 599	120 040	105%
South-West	82 542	22 844	27,68%	226 014	229 425	102%
Total	1 162 572	316 722	27,24%	3 183 296	3 510 396	110%

Source: Our calculations, from the 2010 Annual statistics

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[8]This classification in descending order takes into account the poverty profile per region between 2001 and 2007 according to the ECAM III report.

These results which show a tendency of inequality in the geographic distribution of public resources in education is as disturbing as the budgetary priority given to the education sector in general (all sections of education included), and represent an average of 80 % of state expenses these past ten years, with a peak of 94 % attained in 2007 [14]. More so, an examination of educational needs at the macro-economic level show that the basic education expenses rose to 1.14 % of the GDP in 2010, reducing by 0.30 % from 2009. This indication is important because it gives information on the basic education sector, taken separately.

4 Some Comments on the ABI Method

If the ABI method appears more and more like the ideal analysis tool of the impact of social policies in a number of developing countries, it is not beyond criticisms. In fact, the implementation of the ABI revealed a certain number of weaknesses, in its conceptualization as well as in its application [9]; [10] and [7]. Among these weaknesses, we note that:
Recourse to unit benefits is not an indicator of the value that users place on public services, since the value of the benefits that an individual will obtain from the use of a good or service is not directly link to its unit cost.

1) The hypotheses of the average cost defined as «proxy» of the marginal benefit is not theoretically defined, from the simple fact that it implicates relative prices and real revenues which are fixed;
2) Homogeneity can only be justified because the dimension of the programme does not remain fixed;
3) The long time effects of physical investments and accumulation in human capital are not taken into account;
4) The inefficiencies of budgetary allocations are not generally well quantified;
5) The results of the ABI strongly depend on the quality of the database and the degree of their disaggregation.
6) ABI only reveals the direct impact of a change of public policy. The real admitted objective of this analysis is to compare the distribution of welfare with or without public expenditure. Nevertheless, theory and facts show that public policies exercise a noticeable influence on individual economic behavior, such as decisions on job offer, consumption, savings and investments. Such reactions potentially recede implications as to the final impact of a public policy, and are unfortunately not taken into account during the analysis of the beneficial incidence.

Certainly, some authors recourse to the marginal consent approach to pay by [10] and that of [7] as an answer to certain insufficiencies of the ABI. In particular, Lopez-Acevedo and Salinas (2000) analyze the impact of public expenditure on average expenditure of households on education, and determine the amount that families agree to pay for their children to attend public schools. As for [7], they believe that the marginal incidence also depends on factors of economic policies rather than on those of service demand. According to them therefore, it is important to start by identifying the determinants for service demand so as to better grasp redistributive effects. In this case, an econometric

analysis has to be conducted. Unfortunately, each of the approaches is costly in material as well as in time.

However, the main advantage of the ABI is the ease with which results can be presented to the policy makers, added to which is the simplicity of their implementation as well as the less important relative quantity of material that it requires. Consequently, and in spite of the criticisms mentioned, the ABI method is better equipped for equity evaluation in education.

5 Conclusion

The efficacy of redistributive policies depends on their effects on potential beneficiaries. It is not enough to invest in education, rather it consists in giving the opportunity to all to cease the opportunities offered and better manage risks. However, as shown here below, there is a regional selectivity in the distribution of public resources for education, which comes with or harbors significant inequalities between regions. The Centre and Littoral regions, which are respectively the political and economic capitals of the nation, are already in priority, better equipped than the others to even more capture the essence of public resources in basic education. These results corroborate the point of view that redistribution policies greatly carry differential and contradictory effects that all government activities are egoist and distanced from the general interest [1].

The disparities noticed in the allocation of the said resources cause many problems. The first is that of the inequality which it engenders, which results in dispersion as concerns internal and external output brought in by the different regions. In other words, the mediocre educational performance of certain regions such as the Adamawa or the East can be explained by the disparities observed in the distribution of educational resources. A good redistribution of resources can result in the modification of policy equilibrium and bring forth favorable institutional changes to poverty reduction. [1] Shows in effect that free education during and after colonization in former African and Asian colonies enabled redistribution of power which still influences the functioning of political, economic and legal systems and in determining the global distribution of resources.

The second problem is that of global efficiency in the use of public resources in education, in the sense that the resources mobilized would have given better results if they were distributed with more equality. More so, there is the fear that the tendency in certain regions to obtain more public resources will create a displacement effect (Peacock and Wiseman), in the sense that the disparities that exist are of a nature to permanently uphold a higher level of public expenditure for the « rich » regions, thus creating a resources concentration process in benefit of the said regions. Finally, the problem of the inter-sectoral inequality between the different levels of teaching inverts the priority order in favor of higher education and secondary education respectively.

An action from the state can help to inequalize the rules of the game; widen the field of opportunities, define public policies which will be beneficial to the entire society, while fighting against inequalities at the level of the distribution of public resources for basic education. In fact, the allocation of public resources for basic education should be based an approach, which prioritizes an order of distribution based at the same time on the regional poverty profile and the school-age enrollment. Such an action is intrinsically significant, in the sense that the inequalities regarding of education contribute to

inequalities of other fundamental components of wellbeing such as income, health, capacity, to interact and communicate with others [15].

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