Is the use of the investment resources allocated to municipalities in Cameroon efficient?

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Abstract

The aim of this study is to assess the technical efficiency of the use of investment resources allocated to municipalities in Cameroon. The data used come from the Special Inter-municipal Equipment and Intervention Fund (FEICOM), the National Participatory Development Programme (PNDP) and the Public Investment Budget (BIP), for the period 2010 to 2020, and the Data Envelopment Analysis (DEA) method. The results shows that the BIP counter has the highest efficiency score, at 1 for the whole period, while the scores of the FEICOM and PNDP windows are 0.896 and 0.857 respectively. Secondly, the pooling of resources from the different windows increases the efficiency score obtained, an average of 0.96 for the whole period, even if the new scores remain lower than those of BIP. These results, which highlight the good performance of the BIP window, justified by the significant learning effects from which this window benefits.

Keywords: decentralisation, technical efficiency, municipalities, local development, Cameroon

1 INTRODUCTION

The efficient use of resources allocated to decentralised local authorities for investment projects is at the heart of many concerns about the effectiveness of decentralisation policy (De Calan and Coquart, 2013; Saoudi, 2017). Indeed, it is accepted that decentralisation brings greater economic efficiency by matching people's tastes and preferences to the services offered by local authorities (Tiebout, 1956; Oates, 1972). The existing literature reports numerous previous studies on the efficiency of decentralised local authorities, although only single sources of funding are usually considered (Narbón-Perpiñá and De Witte, 2018a; 2018b; Moreno and Lozano, 2018; Titl and De Witte, 2022; Milán-García, Rueda-López and De Pablo-Valenciano, 2022).

In Cameroon, between 2010 and 2020, as part of the decentralisation process, the State has transferred no fewer than forty-three (43) powers, out of the fifty-six (56) provided for by the legislator since 2004, to the municipalities in various sectors relating to the country's economic and social development. Cameroon's local authorities are, however, experiencing many difficulties in mobilising their own resources. For example, the share of own resources in their total resources was less than 30% in 2020 (Kom Tchuente, 2020). Faced with this weakness in local own resources, the State, within the context of fiscal decentralisation, has provided for other funding measures in the form of grants or tax sharing for the communes. In addition to this system put in place by the central government, which is implemented through the Public Investment Budget (BIP), there are two other structures responsible for funding decentralisation, namely: the Special Inter-municipal Equipment and Intervention Fund (FEICOM), a sort of "local authority bank" whose resources come from the public treasury, and the National Participatory Development Programme (PNDP) which is financed by international donors as part of development aid (World Bank, Agence Française de Développement, etc.). Between 2010 and 2020, these three windows have allocated financial resources estimated at around FCFA 2,280 billion to the communes, primarily for local

investment projects. However, people's limited access to basic amenities such as water (64.7% of the population), electricity (64.1% of the population), and refuse collection (33.0% of the population), as well as the worsening level of monetary poverty among people living in rural areas, where the incidence of poverty stood at 56.8% in 2014 compared with 55.0% in 2007 (INS, 2019), are in contrast with the ever-increasing financial resources allocated by the various funding sources for the implementation of investment projects. The discrepancy between the measures taken by the public authorities and the results achieved on the ground in terms of local development raises questions about the efficient use of the investment resources allocated to the municipalities.

The aim of this study is to assess the technical efficiency (Farell, 1957) of using investment resources allocated to municipalities in Cameroon. The contribution of this paper lies in the fact that, on the one hand, it analyses the efficiency of municipalities by taking account of the origin of funding, which is still rare in the empirical literature. On the other hand, this study evaluates the efficiency resulting from pooling the resources of the various funding windows in the form of a single window in order to estimate the efficiency losses associated with a multiplication of players in the decentralisation funding chain in Cameroon. In order to achieve this objective, the article uses the data envelopment analysis (DEA) method, which analyses data from the annual activity reports of the various funding windows for communal investments in Cameroon, for the period from 2010 to 2020.

This paper is of interest on at least two levels. Firstly, this study is a contribution to the debate on the relevance of the decentralisation policy implemented in Cameroon and in many developing countries, including those in Africa, where the issue of the efficient use of resources allocated to local public administration is becoming increasingly important (De Calan and Coquart, 2013). Secondly, taking into account the origin of resources in the evaluation of the efficiency of local public services makes it possible to improve the contribution of the "fragile" funding windows and to consolidate the contribution of the most efficient windows, which is important for improving the overall use of the resources allocated by the State and the various partners.

The rest of the article is structured as follows: section 2 is devoted to a literature review, section 3 presents the methodology, section 4 comments on the results and section 5 concludes.

2 LITERATURE REVIEW

This literature review presents the concept of efficiency in local public services and the problems associated with its assessment, as well as the approaches used to measure this efficiency.

2.1 THE CONCEPT OF EFFICIENCY IN LOCAL PUBLIC SERVICES AND THE PROBLEMS ASSOCIATED WITH ASSESSING IT

From an economic perspective, efficiency implies a rational use of resources, which implies an absence of waste. On the other hand, municipalities are a type of public service that are developing as a consequence of decentralisation, which implies a

transfer of powers and responsibilities in the management of public affairs from central government to lower levels (Oates, 1993). According to Milán-García, Rueda-López and De Pablo-Valenciano (2022), interest in the study of local government efficiency and its determinants has intensified in recent years (Moreno and Lozano, 2018). Specifically, the various recent economic and financial crises have highlighted the need to improve efficiency and reduce the costs of public service delivery at all levels of public administration, including local (Andrews and Boyne, 2011) and regional (Titl and De Witte, 2022) governments. Therefore, measuring efficiency is essential for assessing the outcomes of local public policies (Lo Storto, 2016). However, estimates of efficiency that do not take into account the variables that condition it are of limited value (De Witte and Kortelainen, 2013). It is therefore equally important, from the point of view of policymakers, to identify the main determinants of local efficiency in order to be able to articulate measures likely to affect them directly or indirectly. A summary of empirical work on municipality efficiency, highlighting trends and determinants, is presented by Milán-García, Rueda-López and De Pablo-Valenciano (2022). According to this summary, it is possible to identify two streams of empirical research. On the one hand, some studies focus on the evaluation of a particular local service, such as refuse collection and street cleaning (Benito-López, del Rocio Moreno-Enguix and Solana-Ibañez, 2011), water services (García-Sánchez, 2006), street lighting (Lorenzo and Sánchez, 2007), local police (Davis and Hayes, 1993), fire services (Jaldell, 2019), libraries (De Witte and Geys, 2013), education services (Ferraro et al., 2021), waste collection and street cleaning (Benito et al., 2021), regional road maintenance (Kalb, 2014) and urban transport (Campos-Alba et al., 2020). A second stream includes studies that assess the efficiency of municipalities from a holistic perspective, for which local governments are complex organisations responsible for providing a wide variety of services (Da Cruz and Marques, 2014).

Since the early 1990s, a great deal of scientific research has focused on the evaluation of the efficiency of local public services (Benito, Bastida and Garcia, 2010; Balaguer-Coll, Prior and Tortosa-Ausina, 2013; Monkam, 2014). However, there are a number of difficulties associated with this evaluation work (Balaguer-Coll, Prior and Tortosa-Ausina, 2013). One of these is the lack of a standardised definition of a unit of public product and of prices that can be evaluated as units of non-market production (Mandl, Dierx and Ilzkovitz, 2008). At municipal level, another difficulty is that it is not always possible to rely on disaggregated information about the number of inputs used to carry out the different services provided (Zafra-Gómez, Antonio and Muñiz, 2010).

Despite these difficulties, Milán-García, Rueda-López and De Pablo-Valenciano (2022) found that other studies have preferred to focus on analysing the technical efficiency at municipal level. For these authors, municipalities are multi-product organisations in which the joint use of inputs generates a variety of products. In addition, citizens often evaluate local government management on the basis of the set of public services they receive (Bosch-Roca, Espasa and Mora, 2012). In this line of analysis, some authors construct a composite indicator of public output by applying identical weights to the partial indicators (Afonso and Venâncio, 2020) or by using differentiated weights according to the relative expenditure of the

public service they represent (Bosch-Roca, Espasa and Mora, 2012) or by using specific weights according to the nature of the service (Nakazawa, 2014).

A clear measure and decomposition of economic efficiency was first proposed by Farrell (1957). However, the concept of efficiency is not new to economic analysis. Until the early 1950s, the possibility that firms might exploit their resources inefficiently was implicitly ruled out in empirical studies. It was assumed that firms allocated their resources efficiently, given the constraints imposed by production technology, market structure and the objectives that motivated entrepreneurs. This omission of the treatment of efficiency has characterised the work of several renowned economists such as Koopmans (1957) and Debreu (1951). Koopmans was the first to propose a measure of the concept of efficiency and Debreu the first to measure it empirically. Debreu proposed the resource utilisation coefficient, which was essentially a measure of the output-input ratio.

2.2 WORK ON MEASURING THE EFFICIENCY OF LOCAL PUBLIC SERVICES

The empirical literature on the efficiency of decentralised municipalities reveals, on the one hand, a diversity of approach methods and, on the other, a complexity in the choice of variables (Narbón-Perpiñá and De Witte, 2018a; 2018b; Milán-García, Rueda-López and De Pablo-Valenciano, 2022; Romano and Molino-Senante, 2020). With regard to the diversity of approach methods, the literature uses different techniques to analyse the efficiency of local governments. On the one hand, the non-parametric tools most commonly used in the literature on local government efficiency are the Data Envelopment Analysis technique (Charnes, Cooper and Rhodes, 1978), and its non-convex version, the Free Disposal Hull (Deprins, Simar and Tulkens, 1984). On the other hand, some studies have used parametric approaches. They determine the frontier from a specific functional form using econometric techniques. Deviations from the best practice frontier derived from parametric methods can be interpreted in two different ways. While deterministic approaches interpret any deviation from the best practice frontier as inefficiency (standard ordinary least squares (OLS) or corrected ordinary least squares (COLS)), the stochastic frontier approach (Aigner, Lovell and Schmidt, 1977; Meeusen and Van den Broeck, 1977), decomposes the deviation from the best practice frontier between the effect of measurement error and inefficiency. Furthermore, environmental variables can easily be treated with a stochastic frontier. They can adopt different cost or production functions, for example Cobb-Douglas or Translog.

With regard to the complexity of the choice of variables, the literature notes a diversity in the choice of inputs used to evaluate the efficiency of municipal resources. The selection of inputs may vary from one country to another because it depends on specific accounting practices and the characteristics of local governments (Narbón-Perpiñá and De Witte, 2018a; 2018b). In addition, it should be noted that most studies have used inputs in terms of costs since data on prices and physical units are not available. Public sector goods and services are often not priced as they are non-market in nature (Kalb, Geys and Heinemann, 2012). Although some authors have

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attempted to decompose physical inputs and input prices, most of these input price variables coincide with input variables in terms of costs. Regarding outputs, it is acknowledged that measuring local government outcomes is a complex task, which is explained by the difficulty of collecting data and measuring local services (Balaguer-Coll, Prior and Tortosa-Ausina, 2013). This is because different studies use different outcome measures, even those that analyse efficiency using data from the same country. In addition, the number of outcome variables included in the different studies varies, as some studies aggregate various council services into an overall index, while others assess a set of specific local services.

An important limitation of the different approaches to measuring the efficiency of local public services is that they do not take into account the effects of the funding source and its delivery mechanisms on the efficiency of local public services. So, the contribution of this paper lies in the fact that it assesses the efficiency of local public services by taking into account the variety of funding windows, thus setting itself apart from other previous empirical studies. In particular, the aim is to highlight the specific features of each funding window on the one hand, and to assess the efficiency in the case of pooling all these windows, in the form of a single window, on the other.

3 METHODOLOGY

The methodology is broken down into two points: the data sources, the efficiency assessment tool and the choice and justification of the variables selected.

3.1 DATA

The data used in this study comes from activity reports and various surveys conducted with FEICOM, PNDP and MINEPAT over the period from 2010 to 2020. Data are presented in appendices 1 and 2. The reports were obtained from the websites www.pndp.org and https://feicom.cm. However, there were a number of difficulties in collecting the data, including: (i) the unavailability of the PNDP's 2020 annual report on that organisation's website, (ii) the incomplete nature of some of the information provided by the FEICOM annual reports, which necessitated recourse to additional surveys in order to obtain complete data on the municipalities' own resources, (iii) the unavailability of data relating to the public investment budgets (BIP) for the financial years 2010 and 2011, (iv) the absence of information on the outputs of the various windows by municipalities. This last difficulty explains the decision to use the various years of the period selected as the decision-making units for this study.

3.2 METHOD AND VARIABLES FOR MEASURING THE EFFICIENCY OF RESOURCES ALLOCATED TO INVESTMENT IN MUNICIPALITIES

The data envelopment analysis (DEA) method is used to measure the technical efficiency derived from the use of investment resources allocated to municipalities. There are at least three reasons for choosing this method: (i) it allows multiple inputs and multiple outputs to be taken into account simultaneously, even when they are all expressed in different units of measurement; (ii) it does not require any particular specifications or a priori knowledge of the weights and prices of the inputs or

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outputs; and (iii) it does not impose any restrictions on the functional form of the production function (Coelli and Perelman, 1996). This study looks at the technical efficiency, one of the three components of the economic efficiency of organisations proposed by Farrell (1957). It refers to the capacity of a decision-making unit to produce as many outputs as possible with a given amount of inputs, or conversely, its capacity to produce a given level of outputs with a minimum quantity of inputs.

More specifically, the hypothesis adopted is that of variable returns to scale (VRS) rather than constant returns to scale (CRS) since we assume that the size of Cameroon's communes is not optimal and the environment in which they operate is imperfect due to difficulties in accessing information on the direct and indirect costs associated with the production of local public services. In this study, we adopt an output orientation for the calculation of efficiency scores (Huguenin, 2013), since communal decision-makers in Cameroon exercise greater decision-making power over the outputs of their investment activities, because the inputs, which are the financial resources mobilised, are generally beyond their control.

With this in mind, n decision units are evaluated, where each consumes a variable quantity of m different inputs in order to produce s different outputs. More precisely, decision unit j uses x_{ij} of input m and produces a quantity y_{rj} of output s. An intuitive way of introducing the DEA method is to use ratios (Coelli, Rao and Battese, 1998). For each decision unit, a measure of the ratio of all outputs to inputs (R_0) is obtained as follows:

$$\mathrm{R}_0 = \frac{u' y_r}{v' x_i} \tag{1}$$

With: u a vector M x l of output weights; v a vector N x l of input weights.

Assume that each decision unit produces s different outputs, $y = (y_1, y_2,\ldots, y_s)$ using m different inputs, $x = (x_1, x_2,\ldots, x_m)$ and that there are n decision units, $N = (1, 2, ..., n)$. For each unit i ($\mathrm{i} \in \mathrm{N}$), the outputs $y_i = (y_1, y_2,\ldots, y_{si})$ are the realisations obtained from the inputs $x_i = (x_1, x_2,\ldots, x_{mi})$ used.

Charnes, Cooper and Rhodes (1978) show that the relative efficiency of a given decision unit i can be obtained by solving the following linear programme

$$\begin{cases} Max \dfrac{\sum_{r=1}^{s} u_r y_{r0}}{\sum_{i=1}^{m} v_i x_{i0}} \\ s/c \dfrac{\sum_{r=1}^{s} u_r y_{r0}}{\sum_{i=1}^{m} v_i x_{i0}} \\ \mathrm{j} = 1,\ldots,\mathrm{n};\ u_r, v_i \geq 0;\ \mathrm{i,r} \end{cases} \tag{2}$$

Note that the optimal weights (u^*, v^*) are interpreted as the marginal contribution of one unit of each input or output to the R_o efficiency score.

4 RESULTS AND DISCUSSION

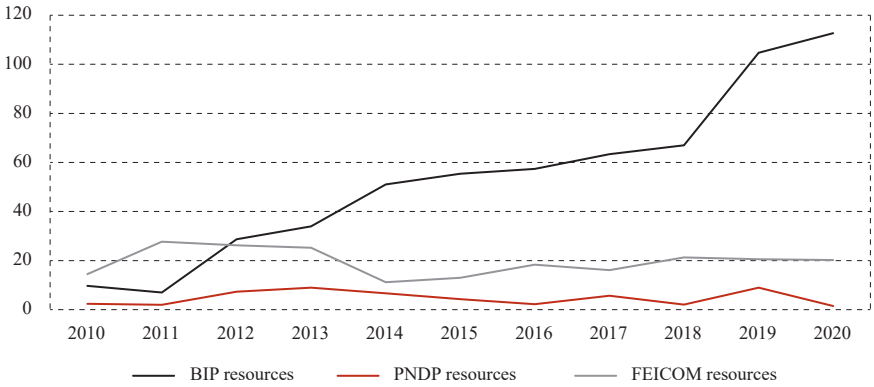
The results of this study comprise the descriptive statistics of the variables selected, as well as the efficiency scores calculated using the DEA method. All of these results are accompanied by comments that provide a better understanding of their significance in the case of Cameroon's councils.

4.1 DESCRIPTIVE STATISTICS

As table 1 shows, the BIP window is the one for which the average values of the various variables between 2010 and 2020 are the highest, i.e. FCFA 56,802,765,947 for the explanatory variable. This makes it the window that has allocated the most resources to the communes over the entire period, while also being the window that has enabled the largest number of investment projects to be carried out at local level over the same period. This situation therefore implies that the BIP window is a priori the one for which technical efficiency should be the highest. The superior efficiency of the BIP window over the other windows can also be seen in the change in the amount of financing mobilised (the explanatory variable), as illustrated in figure 1 below.

FIGURE 1

Evolution of investment resources allocated to the municipalities between 2010 and 2020 (in bn CFA francs)



Sources: Based on data from FEICOM, PNDP and MINEPAT, 2010-2020.

For the BIP window, the standard deviation is FCFA 24.99 bn, illustrating the strong increase in resources allocated to communal investments by this window between 2010 and 2020, greater than the FEICOM and PNDP windows, whose standard deviations are FCFA 5.50 bn and FCFA 2.84 bn respectively.

On the other hand, the minimum and maximum values, means and standard deviations of the explanatory and explained variables in the single window are closer to those of the BIP. This implies that the introduction of a one-stop shop could generate results close to those of the BIP in terms of technical efficiency. All of this needs to be verified on the basis of the results of estimating the efficiency scores of the various windows using the DEA method.

Table 1

Descriptive statistics on outputs and inputs for measuring the efficiency between 2010 and 2020

Origin of resources	Statistics	Number of projects financed and amount of financing mobilised						
		Construction or rehabilitation of						
		water infrastructure (Output 1)	electrical infrastructure (Output 2)	transport infrastructure (bridges and roads) (Output 3)	health infrastructure (Output 4)	school infrastructure (Output 5)	Manufacture of bench-tables for schools (Output 6)	Amounts of funding mobilised (Input) in mn of CFA francs
FEICOM	Means	7.364	4.545	1.909	2.545	10.364	1.182	19,501.8
	SD	7.075	3.205	0.832	3.857	6.217	0.603	5,502.4
	[Min-Max]	[1-21]	[1-12]	[1-4]	[1-14]	[1-22]	[1-3]	[11,163.4-27,750.9]
PNDP	Means	283.1	33.7	6.8	20.4	169.1	305.2	5,059.8
	SD	94.189	36.683	1.932	30.241	82.853	202.948	2,840.1
	[Min-Max]	[171-481]	[2-120.5]	[3-10]	[1-88]	[42-331]	[0.5-579.5]	[1,992.5-8,982.5]
BIP	Means	503.667	97.556	487.444	313.667	643.444	762.778	56,802.8
	SD	207.227	91.942	274.833	44.048	251.431	263.071	24,991
	[Min-Max]	[174-806]	[2-250]	[47-809]	[240-388]	[401-1,083]	[183-1,158]	[23,710-98,729.9]
Funders unique	Means	676.818	115	406.909	277.727	690.545	902.727	48,811.3
	SD	329.596	114.128	313.915	143.094	374.826	579.176	22,590.1
	[Min-Max]	[174-1,289]	[6-361.5]	[8-811]	[4-427]	[124-1,375]	[1.5-1,738.5]	[16,826-85,339.4]

SD: Standard deviation.

Source: Based on FEICOM, PNDP and MINEPAT data for 2010-2020.

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4.2 THE RESULTS OF ESTIMATING THE EFFICIENCY SCORES OF THE VARIOUS WINDOWS

Table 2 shows the efficiency scores for the various funding windows determined by the DEA method. Overall, it shows that the BIP window has the highest technical efficiency score, equal to 1, higher than the scores of the FEICOM and PNDP windows, which are 0.896 and 0.857 respectively. This superiority of the BIP window is mainly explained by the considerable experience acquired over time by the ministerial departments involved in transferring powers and resources to the communes as part of the decentralisation process. This experience is reflected in the fact that the resources of this window are managed without waste, as illustrated by the efficiency score under the VRS hypothesis, which is equal to 1 (Huguenin, 2013). Of the three funding windows studied here, BIP is the one that has existed the longest, having been set up in 1962, while FEICOM and PNDP were created in 1974 and 2004 respectively. As Arrow (1962) and Barro and Sala-i-Martin (1995) show, the experience acquired by operational players is a decisive factor in reducing the "waste" associated with the performance of the tasks entrusted to them.

Furthermore, the inefficiency of the PNDP and FEICOM windows is mainly due to the delays in delivery suffered by a large number of projects financed by these windows. For example, the percentage of unfinished projects was 20% for FEICOM in 2020 (FEICOM, 2020), whereas for PNDP, this rate remained at an average of 24% until 2014 (Folléa et al., 2016). Also, projects that are not completed even though the corresponding resources have been mobilised reduce the value of the output/input ratio for each of these windows, which explains their low efficiency of scale scores of 0.898 and 0.614 respectively for FEICOM and PNDP. With regard specifically to the PNDP, whose resources for the financing of communal investments come from development partners (World Bank, Agence Française de Développement, etc.), its technical efficiency under the assumption of variable returns (VRS) of 0.857, which is the lowest score of all the financing windows studied here, shows that this window is the one whose resource management is the most perfectible (Huguenin, 2013). This situation has also rekindled the debate on the effectiveness of development aid, whose ability to promote the economic and social development of beneficiaries has often been contested. Indeed, for many authors, development aid reduces the incentives that should lead beneficiaries to adopt good practices (Bauer, 1976; Monga, 2009).

Table 2

DEA scores for the technical efficiency of the different municipal investment financing sources

Years	Technical efficiency scores											
	FEICOM			PNDP			BIP			Funders unique		
	Constant returns to scale	Variable returns to scale	Scale efficiency	Constant returns to scale	Variable returns to scale	Scale efficiency	Constant returns to scale	Variable returns to scale	Scale efficiency	Constant returns to scale	Variable returns to scale	Scale efficiency
2010	1.000	1.000	1.000	0.517	0.600	0.862	–	–	–	0.818	1.000	0.818
2011	1.000	1.000	1.000	0.722	1.000	0.722	–	–	–	0.513	0.558	0.921
2012	0.503	0.761	0.660	0.234	0.814	0.287	1.000	1.000	1.000	0.998	1.000	0.998
2013	0.572	0.817	0.700	0.190	0.718	0.264	0.920	1.000	0.920	1.000	1.000	1.000
2014	0.953	1.000	0.935	0.247	0.800	0.309	1.000	1.000	1.000	1.000	1.000	1.000
2015	1.000	1.000	1.000	0.487	0.838	0.582	0,998	1.000	0.998	1.000	1.000	1.000
2016	0.987	0.999	0.988	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2017	0.670	0.677	0.991	0.394	0.802	0.491	1.000	1.000	1.000	1.000	1.000	1.000
2018	1.000	1.000	1.000	1.000	1.000	1.000	0.943	1.000	0.943	1.000	1.000	1.000
2019	0.507	0.636	0.796	0.625	1.000	0.625	1.000	1.000	1.000	1.000	1.000	1.000
2020	0.778	0.963	0.808	–	–	–	0.988	1.000	0.988	0.904	1.000	0.904
Means	0.814	0.896	0.898	0.542	0.857	0.614	0.983	1.000	0.983	0.930	0.960	0.967

Source: Based on FEICOM, PNDP and MINEPAT data for 2010-2020.

On the other hand, pooling the resources of the various windows (FEICOM, PNDP and BIP) in the form of a single funding window generates an efficiency score of 0.96, higher than that of FEICOM and PNDP taken separately, but lower than that of BIP. However, the loss of efficiency in relation to BIP is small, at less than 0.04 when variable returns are taken into account and less than 0.02 when the technical efficiency of scale is taken into account; whereas the efficiency gains in relation to the other two windows (PNDP and FEICOM) are respectively 0.064 and 0.103 when variable returns are taken into account, and 0.069 and 0.353 for the technical efficiency of scale. This means that it would be wiser to implement projects financed by FEICOM and PNDP on the BIP model in order to improve the technical efficiency of decentralisation in Cameroon. In other words, extending the procedures applied by the BIP window to all communal investment financing windows would not only make the management of the FEICOM and PNDP windows more efficient, but also improve optimisation of the size of their interventions.

5 CONCLUSION

The aim of this study was to assess the efficiency of using the investment resources allocated to municipalities in Cameroon. The DEA method used produced at least two important results. Firstly, the resources allocated by the BIP window are those whose use shows the best efficiency scores compared with those of the FEICOM and PNDP windows. This situation is justified by the learning effects or phenomena from which the BIP branch benefits because it has been in existence longer than the other two branches. Secondly, pooling the resources of the various windows through a single window produces higher efficiency scores than the FEICOM and PNDP windows on their own, but lower than the BIP window. These results suggest an important economic policy implication, mainly that the use of investment resources allocated to municipalities through BIP mechanisms appears to be the most appropriate way of improving technical efficiency in Cameroon's municipalities. More specifically, it emerges from this study that the PNDP, a window whose resources come from international donors in the context of development aid, is the one whose efficient management is the most perfectible; this brings to mind the debate on the effectiveness of development aid, presented by certain authors as being incapable of promoting the economic and social development of those who benefit from it. For policymakers, the technical efficiency score of the PNDP window, like that of the FEICOM window, suggests a better institutional framework for the use of resources whose management is left to autonomous entities within the framework of fiscal decentralisation, in order to increase the resulting efficiency. However, these results could be further improved if we had, on the one hand, outputs for each of Cameroon's 360 communes and, on the other hand, sectoral data concerning the environment of these communes. In this respect, there are three main avenues to explore in greater depth. Firstly, the study of the efficiency of the communes by highlighting the outputs per commune; secondly, the questioning of the sources of the observed efficiency, and finally the questioning of the levels of efficiency with regard to the operating expenditure of the communes.

Disclosure statement

The authors have no financial or other conflicts of interest to declare that could be interpreted as influencing the results or interpretation of their manuscript.

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APPENDIX

Table A1

Evolution of resources mobilised for municipalities between 2010 and 2020 (in mn CFA francs)

Funders	Type of financing granted	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
FEICOM	Investment credit (CIC) FEICOM	14,443.5	27,750.9	26,296.3	25,260.2	11,163.4	12,977.2	18,368.7	16,117.9	21,292.1	20,595.1	20,253.6
PNDP	PNDP grants	2,382.5	1,992.5	7,322.2	8,968.0	6,640.0	4,329.5	2,265.4	5,661.6	2,053.7	8,982.5	1,500.0
BIP	Investment resources transferred as part of the transfer of responsibilities	–	–	21,210.0	23,779.0	38,430.6	44,719.3	46,643.4	51,056.0	56,483.3	55,002.1	61,396.4
	Operating DGD	5,000.0	5,000.0	5,000.0	5,000.0	5,000.0	5,000.0	5,000.0	5,000.0	5,000.0	13,800.0	13,900.0
	One-off investment transfers	–	–	–	2,664.8	2,574.8	626.5	679.6	2,260.9	510.3	800.4	1,333.6

Sources: Based on FEICOM, PNDP and MINEPAT data for 2010-2020.

Table A2

Number of municipalities projects funded between 2010 and 2020

Type of projects	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
PNDP											
Water points built/rehabilitated	171	175	286	284	262	304	337	188	343	481	–
Rural roads built/rehabilitated	6	7	8	6	8	8	5	3	10	7	–
Classrooms built/rehabilitated	124	113	134	147	143	175	214	42	268	331	–
School tables and benches acquired	–	–	–	–	–	–	–	–	–	–	–
Health centres built, renovated or equipped	4	5	8	20	27	9	10	12	59	59	–
Rural markets built	1	5	8	3	7	9	5	13	65	88	–
Storage warehouses built	2	2	9	3	10	11	6	18	32	23	–
BIP											
Construction and rehabilitation of boreholes, wells and water networks	–	–	174	195	493	496	571	638	497	806	663
Construction, rehabilitation of power stations, transport networks and public lighting	–	–	12	13	2	86	101	95	79	240	250
Construction and rehabilitation of roads and bridges	–	–	47	53	444	480	575	650	566	763	809
Construction and rehabilitation of classrooms and latrines in schools	–	–	401	450	465	509	571	585	689	1038	1083
Acquisition of tables and benches for schools	–	–	685	768	183	687	794	854	963	1158	773
Construction, rehabilitation and equipping of health centres	–	–	240	269	339	335	316	314	284	338	388
FEICOM											
Construction and rehabilitation of boreholes, wells and water networks	3	18	3	1	3	6	14	2	21	2	8
Construction, rehabilitation of power stations, transport networks and public lighting	7	12	6	7	2	3	2	3	3	1	4
Construction and rehabilitation of roads and bridges	4	1	2	–	–	1	–	–	1	2	2

Type of projects	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Construction, rehabilitation and equipping of health centres	3	2	2	1	1		–	–	14	–	–
Construction and rehabilitation of classrooms and latrines in schools	7	11	1	–	–	17	14	8	22	6	16
Acquisition of tables and benches for schools	1	1	1	–	–	–	–	–	3	–	–

Sources: Based on FEICOM, PNDP and MINEPAT data for 2010-2020.