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MANAGEMENT OF FORESTRY ROYALTIES IN CAMEROON: AN ANALYSIS OF THE DETERMINANTS OF THE TECHNICAL EFFICIENCY OF FORESTRY COMMUNES

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Abstract: *The purpose of this paper is to empirically examine the determinants of the technical efficiency of decentralised forestry taxation in Cameroonian communes. The Data Envelopment Analysis (DEA) approach was used to measure the technical efficiency of communes and the Tobit model was used to analyse the main determinants. The data used came from the Ministry of Finance and the Ministry of Forests and Fauna and concerned nine communes over the period 2000-2015. The results show that the technical efficiency scores of the communes are on average equal to 0.946 with a minimum of 0.889 and a maximum of 1. These results show that the communes in our sample are not globally efficient in the management of forest royalties. Concerning the determinants of the efficiency of communes, we note that the possession of a communal development plan, the possession of an official organisation chart, the existence of a communal committee and the rate of electrification have a positive effect, while the number of meetings of the communal council, the rate of representation of women in the communal council and social representation have a negative effect on the efficiency of communes.*

Keywords: *Forestry fee, technical efficiency, commune, Cameroon*

I. Introduction

Since the entry into force of the 1994 law on the decentralisation of forestry taxation in Cameroon, there has been much criticism of the management of annual forestry royalties (AFR) by local actors and municipal magistrates. Indeed, in agreement with international institutions, notably the IMF, the World Bank, etc., Cameroon has undertaken to reorient its forestry policy through fiscal decentralisation. However, more than two decades ago, studies carried out in the field show some positive findings, but do not allow one to conclude that the living conditions of local populations have improved (Bédard, 2015).

Studies on forest decentralisation in Cameroon, often approached qualitatively and adopting a constructivist approach, have shown the weak impact of decentralised forest taxation on the lives of the forest-dwelling communities for which the RFA was introduced (Milol et Pierre, 2000; Kouna, 2001). The aim here is to address the same issue but to highlight measurable and quantifiable facts in order to analyse the determinants of the effectiveness of communal forest management in Cameroon. Indeed, prior to forest decentralisation in Cameroon, two management mechanisms had shown their limitations, with researchers finding that the state and the market had failed to ensure effective management of forest resources in Cameroon (Nanfack 2020; Bedard, 2015). However, decentralised forestry provision should take into account the quality of governance, which is becoming a key issue for sustainable economic development (Robert, 2020). The key issue to be examined in this article is the efficiency that decentralised provision should bring about since its implementation. Indeed, the economic dimension of decentralisation is significant and potentially beneficial for communities that can actually hope to generate income and take charge of their development and break the link of dependence on the state (Larson and Ribot, 2002).

The analysis of the supply side of decentralised forest taxation is a particularity because the Cameroonian state expects local and regional socio-economic growth and development through this RFA transfer mechanism (Bigombé, 2003). The overall observation is that Cameroon's average annual growth rate

was 4.2% from 2001 to 2007 according to the INS, but the social impact is unsatisfactory. The proportion of the population living below the national poverty line has remained almost stable, rising from 40.2% to 39.9%. However, it increased in rural areas from 52.1% to 55%. Inequalities measured by the Gini index will remain at around 40% (NguetseTegoum, 2020), and several studies point to the low efficiency and equity of public spending. According to the World Bank report (2006), there is a bias in public spending in favour of urban centres and certain regions. With regard to the transfer of resources, the Decentralised Territorial Communities (DTCs) that are home to the poorest receive fairly low allocations compared to those that already have an acceptable level of development.

The exploitation of Cameroon's forests provides a livelihood for many thousands of people in rural areas, and contributes to the supply of various resources to the cities. They also contribute to the national economy. A recent assessment concludes that they contributed consistently to Cameroon's Gross Domestic Product (GDP) at a rate of 2.7% of overall value added between 2008 and 2010. A thematic analysis puts this contribution at 4% of non-oil GDP (Eba'aAtyi et *al.*, 2013). In addition, in the forest regions of Cameroon, decentralised forest taxation is currently the best known but unfortunately the most controversial form of forest revenue (Eba'aAtyi, et *al.*, 2013). Is it favourable because of the way it is shared? Or because of its management? Of all these questions, the facts show that during the years 2000 to 2018 the State granted a sum of two hundred and twenty-seven billion eight hundred and eight million two hundred and four thousand seven hundred and eighty-two (227,808,284,782) FCFA to Cameroonian communes and populations (MINFOF, 2019) distributed according to the provisions of Article 243 of the General Tax Code governing the annual forestry royalty.

Despite this transfer, the communes bordering the forests and the rural populations still live in misery and poverty. According to Cameroonian household surveys (ECAM IV), the trend in rural areas is upwards, with the incidence of poverty rising from 52.1% in 2001 to 55% in 2007 and 56.8% in 2014. In fact, the rural poor have moved further away from the poverty line. Disparities have widened. According to Cameroon's National Development Strategy Paper (NDS 20-30), the poverty rate has decreased significantly in urban areas, from 12.2% in 2007 to 8.9% in 2014. However, this rate is worsening in rural areas, with an increase from 55.7% in 2007 to 56.8% in 2014. In this dynamic, the phenomenon of poverty tends to become residual in urban areas, and characteristic of rural areas. In fact, nine out of ten (10) poor people live in rural areas. Furthermore, inequalities have increased (from 39% in 2007 to 44% in 2014, i.e. 5 points more in the last seven years), widening the gap between rich and poor, even though the retrocession of the forestry advance has been effective since 2000. In view of this situation, there is a need for an analysis of its technical effectiveness.

II. Literature review

Our study states that forest decentralisation represents an essential means to achieve the new economic development model based on efficient communal management and local and regional synergies. The expected effects of decentralised governance and the reduction of inequalities through redistributive policies are enormous from the literature. By bringing policy-makers closer to citizens (principle of proximity), decentralisation aims to improve decision-makers' knowledge of people's needs and preferences (Hayek, 1939). And one of the externalities of geographical proximity, particularly that which manifests itself between actors carrying out similar or neighbouring economic activities, is the conduct of collective action (Schmitz, 1995). The responsibility and efficiency of local governments (Seabright, 1996) and, at the same time, the inter-jurisdictional competition that decentralisation induces (competition principle), should improve the adequacy of the supply of public goods and services to the preferences of the inhabitants (Tiebout, 1956; Oates, 1972) and stimulate the search for efficiency by local governments (Salmon: 1987; Besley and Coat, 2003).

Indeed, as in other countries with similar resources, decentralised forest management appears to be a means of local livelihood, where people have access to forest products, tax revenues, or commercial opportunities from forestry. This is also the case with decentralisation in the forest sector in Uganda, Tanzania and Senegal where incomes can be improved and local people can benefit (J. Ribot, 2003; Oyono, 2004; Brockington, 2007). This is achieved by bringing the policy-making process closer to the citizen, whose involvement creates positive externalities.

In the Cameroonian context, the act by which the central government has formally ceded powers to local institutions and actors and to lower levels of the political, administrative and territorial hierarchy is generally referred to as decentralisation (Crook and Manor 1998; Agrawal and Ribot, 1999). It follows Musgrave's (1959) taxonomy of state functions. From this point of view, forestry taxation contributes to the construction of local democracy in revenue management in order to increase the participation of populations in decision-making on forest management (Bigombé, 1998), with a view to the representative effectiveness of populations in forest management based on the principle of proximity. Decentralisation can thus facilitate development only if the rules governing local institutions are effective.

Indeed, decentralised administrations are generally closer to the people at the grassroots than the central government and should have better information on the preferences of local populations than the central

government (Hayek, 1939). Decentralisation can reduce the problem of information asymmetry but also the issue of choice or preference due to geographical proximity. However (Jutting et *al.*,2005) generally argue that genuine devolution of power paves the way for the establishment of democratic institutions in which the poor can actively participate, make decisions, and defend their interests. This will lead local authorities to take good governance practices as a key to better management of public affairs.

However, competition between local governments or municipalities can also lead to efficiency if there is a managerial mechanism to counteract corrupt practices and lack of transparency (Breton: 1996). Fiscal decentralisation is a way to promote markets more effectively (Mckinnon, 1997;Hooghe and Marks, 2003) and also to increase participation, transparency and accountability in policy making (Putnam: 1993; Ebel and Yilmaz: 2002). Due to the increased proximity between the governors and the governed, fiscal decentralisation allows for networking between individuals and institutions which contributes to reducing transaction costs.

Forest decentralisation policy in particular, which requires the transfer of power from the state to local political institutions in order to increase democracy, popular participation (Meinzen-Dick and Knox, 1999; J. C. Ribot, Agrawal, and Larson, 2006) and representation of marginalised groups such as women. In such a context, marginalised groups are expected to have greater influence on local policies and especially on forest resource management, due to the open and participatory nature of decision making that works towards equity (Ostrom, 1990; Larson and Ribot, 2004).

This good management will inevitably make the allocation of resources more efficient and quality local public services can then be offered to the population to improve their social welfare in a context of democracy and genuine participation by local citizens. This 'trilogy of the three Ps' - preference, participation, proximity (Hayek: 1948) - can increase the accountability of local governments (Seabright: 1996). In the context of forest management, TDCs and regions are assumed to have more information, at lower cost, about their community members and are more likely to recognize the degree of poverty in order to find solutions to reduce this gap. However, this assumption assumes a real functioning local democracy where the level of political education of actors is acceptable and the political awareness of citizens is real, which may be unrealistic in the poorest countries (Bardhan and Mookherjee, 2006).

Furthermore, the results of Ostrom's work (2010) remain a framework for further research. It is now recognized that when the right conditions are in place, joint management can enable equitable, efficient and sustainable management of a natural resource system for the benefit of communities (J. Ribot, 2002; Ostrom, 2010; Cerruti et *al.*, 2010). But also, the use of elements that promote improved forest governance guarantees a reduction in forest degradation (FapaNanfack, 2020; Baida, 2018; Karsenty, 2017; Milol, 2007). Other authors point out the lack of transparency in the retrocession processes with regard to the redistribution and management mechanisms of this royalty (Oyono, 2007; AntanYamo, 2015). This disorientation makes it more difficult to achieve the objective of the RFA on the lives of local communities living in the forest communities for which it was set up (Milol and Pierre, 2000; Kouna, 2001; Cerruti et *al.*, 2010). While decentralisation holds out hope on the theoretical level (Hayek: 1948; Tiebout, 1956; Oates, 1972; Seabright, 1996). It is therefore important to understand what is going wrong, particularly in the case of decentralised forestry taxation. Hence our interest in analyzing the determinants of decentralised forest taxation in Cameroon.

III. Data and Methodology of the Study

3.1 Description of the data

Our approach is quantitative and for this reason, the data used in our empirical study are secondary data collected from organisations such as the Ministry of Forests and Fauna (MINFOF), the Ministry of Finance (MINFI), the Technical Centre for Communal Forests (CTFC), the Forestry Revenue Securement Programme (PSRF), and the National Statistics Institute (INS). These are mainly forestry royalties paid to communes (RDFC). In the Cameroonian context, this sum is set at 40% of the total forestry revenue (RDFT). Similarly, local populations receive an RDFP set at 10% of the RDFT. In addition, we also take into account the per capita forest income (PCF) [1]to examine the determinants of well-being (access to electricity, education, health and water). The choice of these components of well-being is justified on the one hand by the availability of data at the communal level, and on the other hand by the fact that they have received favourable attention in the empirical literature on well-being, particularly in developing countries (Faguet, 2001). Our database is constructed by us and analysed by software (Excel, Stata). The data collected on our individuals range from 2000 to 2015. We have selected 09 forest communities that regularly receive the RFA. These are: Gari-Gombo, Lomié, Mindourou, Moloundou, Yokadouma (East region), Messondo and Yoko (Centre region), Eyumodjock (South West region), and Djoum (South region). The individuals are spread over 4 regions of Cameroon. This

[1] The revenue per forest dweller (RFL) is equal to the ratio of the annual amount collected and returned to the population to the number of inhabitants.

explains the highly representative nature of our sample and especially the fact that these communes are all members of the Association of Forest Communes of Cameroon (AFCAM).

3.2 Methodology of the study

In order to measure the efficiency of the management of forest royalties in the communes and to analyse these determinants, we have opted for a two-stage methodological approach. In the first step, the Data Envelopment Analysis (DEA) method is used to measure the technical efficiency of communes. The second step uses the Tobit model to analyse the determinants of the technical efficiency of the communes.

3.2.1. Presentation of the Data Envelopment Analysis model

The measurement of the efficiency of the communes will be done in the case of this study using the DEA method, which integrates two inputs, namely the forestry royalty (RFA) and the population of the commune, and three outputs, namely the number of classrooms, the number of water points and the number of health centres built.

The efficiency of decision-making units in the DEA model of technical efficiency. TE measures the performance of a DMU in relation to other DMUs in the sample. It is expressed as the ratio of the sum of the weights of the outputs to the sum of the weights of the inputs i.e. :

$$TE_j = \frac{u_1 y_{1j} + u_2 y_{2j} + \ldots + u_n y_{nj}}{u_1 x_{1j} + u_2 x_{2j} + \ldots + u_m x_{mj}} = \frac{\sum_{r=1}^{n} u_r y_{rj}}{\sum_{s=1}^{m} v_s x_{sj}} \quad (1)$$

Where '*x*' and '*y*' express inputs and outputs, '*v*' and '*u*' their respective weights, '*s*' the number of inputs, '*r*' the number of outputs and *'j'* the j^{nth}unit of decision making. Charnes, Cooper, et Rhodes (1978b) are those who have proposed a measure of efficiency, through the DEA method, based on the ratio of a single output to its input equivalent. Consider a firm *i*at a period *t*, which must maximise a ratio S-vector of outputs, over M-vector inputs (X_i) under the constraint that this ratio of similar firms would be less than or equal to unity:

Maximise ($(Q^T Y_{it} / R^T X_{it})$, (2)

$$\text{S/C} \quad Q^T Y_{it} / R^T X_{it} \leq 1$$

$$q_s,\ r_m > 0.$$

Where the weight vector $Q = \{q_1, \ldots, q_s\}$ and is $R = \{r_1, \ldots, r_M\}$ $|Max\ (19)|$. The solution of this relation could be a non-linear, non-convex, non-Archimedean fractional programming problem according to Charnes and Cooper (1985). These problems are as follows:

Maximise (3)

$$(Q^T Y_{it} / R^T X_{it}),$$
$$\text{S/C} \quad Q^T Y_{it} / R^T X_{it} \leq 1$$
$$-(Q^T Y_{it})^{-1} R^T \leq -\varepsilon l^T,$$
$$(-R^T X_{it})^{-1} Q^T \leq -\varepsilon l^T.$$
$$X_{it},\ Y_{it} > 0,$$

Ɛ, here represents an infinitesimal non-Archimedean. After the transformation of the fractional programming, the DEA linear programming problem is thus as follows:

Minimise (4)

$$(\Lambda - \varepsilon l^T s^+ - \varepsilon l^T s^-)$$
$$\text{S/C} \quad Y\lambda - s^+ = Y_{it},$$
$$\Lambda X_{it} - X\lambda - s^- - 0,$$
$$\lambda,\ s^+,\ s^- \geq 0,$$
$$Y_{it} > 0,\ X_{it} > 0,\ \forall_{i,t}$$
$$\lambda l^T = 1.$$

The essential problem in equation (4) is to minimise the intensity (Λ) of inputs under the constraint that the vectors of outputs Y_{it} are wrapped up from above and inputs X_{it} are wrapped down. To this end, Charnes and Cooper (1985) in their Non-Archimedean theorem, explain that a firm has technical efficiency if and only if the

minimization of the values of function (4), satisfies the following condition: $\Lambda^* = 1,\ s^{*+} = 0$, and $s^{*-} = 0$. The optimal (minimized) solution corresponding to equation (2,1) is (Λ^*, λ^*, s^{*+}, s^{*-}). The inefficiency of the firms is thus projected onto the efficiency frontier following a transformation such as :

$$X_{it} \longrightarrow X'_{it} = \Lambda^* X_{it} - s^{*-} \text{ and } Y_{it} \longrightarrow Y'_{it} = Y_{it} + s^*$$

3.4 Presentation of the Tobit model

The Tobit model proposed by Tobin (1958) is used when there is a certain number of observations for which the value taken by the endogenous variable is non-zero and within a precise interval. This model is appropriate because it makes it possible to take into account the truncated character (between 0 and 1) of the dependent variable, which is the efficiency score of the municipalities (Albouchi, Bachta, et Jacquet, 2005). The dependent variable will be censored by keeping the zero figures in the sample. The censored Tobit model used to explain inefficiency is specified as follows.

If Y represents the efficiency level of any company Y_i the model can be written as follows:

$$\begin{cases} Y_i = \beta X_i + v_i \\ with \begin{cases} Y_i = Y_i^* if\ 0 \le Y_i^* \le 1 \\ elseif Y_i = 0 \end{cases} \end{cases} \quad (5)$$

In this relationship, Y_i^* is assumed to depend on a number of explanatory variables grouped in the vector X_i The effects of these variables are grouped in the vector β. Y_i is the combination of the value predicted by the deterministic component of the model βX_i and a residual whose value varies randomly for each firm. However, it is assumed that the variable Y_i^*However, it is assumed that the variable is not directly observable, but rather that the variable Y_i continuous and zero bound. Assuming that the errors are normally distributed, the estimation of the above model will involve maximising the log likelihood function as follows:

$$LogL = \sum_{i=1}^{n} Log\left[1 - \emptyset X_i {}^{\beta}/_{\delta}\right] + \sum_{i=1}^{n} Log\left(\frac{1}{\sqrt{2\pi\delta}}\right) - \frac{\sum_{i=1}^{n}(Y_i X_i \beta)^2}{2\delta^2} \quad (6)$$

Where n is the number of observations, and δ is the standard deviation. The application of this model requires an appropriate choice of the explanatory variables used for the analysis of the determinants of the performance of communes.

The following variables are distinguished in the table below:

Table 1: Summary of the measurement of the study variables

Variables	Labels	Measures
Inputs		
Forestry fee	FRG	Amount of the fee granted to the commune in CFA francs
Population	POP	Population of the municipality Proxy of the workforce (number of persons)
Outputs		
Classroom	Room	Number of classrooms built in the municipality
Water points	Water	Number of water points built in the commune
Health centre	health	Number of health centres built in the commune
Dependent variable		
Technical Efficiency	AND	Efficiency score between 0 and 1.
Independent variables of interest		
Municipal Development Plan	Pcd	Dummy which takes 1 if the commune has a PCD and 0 otherwise
Official organisation chart adopted	Organi	Dummy which takes 1 if the municipality has an official organisation chart and 0 otherwise
Ratio of the number of municipal council meetings held between 2000 and 2015	Meeting	Ratio between the number of meetings held and the number of meetings expected (in percentage)
Ratio of women per council	Woman	Ratio between the number of women in the communal council and the total number of councillors (in percentage)
Existence of a communal committee	Cc	Dummy which takes 1 if the commune has a communal committee and 0 otherwise
Sociological representation	Repsocio	Representation of all sociological strata (in percent)
Electrification rate	Elect	Electrification achievement ratio (percentage)
Qualification of the mayor	Qual	Qualification of the mayor

Number of mandates	Nbre_mand	Number of terms served by the current mayor
Forest area	Superf	Forest area in hectares

Source: Author

IV. Results

4.1. Descriptive statistics of the study variables

Table 2 below presents the descriptive statistics of the main variables of the study. The number of classrooms built shows that the communes have built an average of 179 classrooms, with a minimum of 89 classrooms and a maximum of 340 classrooms. As regards the number of water points, we have an average of 24 water points with a minimum of 7 and a maximum of 77. Regarding the number of health centres, the results show that we have an average of 9 health centres, with a standard deviation of 4.25, a maximum of 15 health centres and a minimum of 3 health centres. With regard to inputs, the results show that Forestry Royalties have an average of 1008957×10^{3}FCFA with a minimum of $126950.8\times10^{3}$and a maximum of 2738842×10^{3}. As for the population, we have an average of 28982 individuals with a minimum of 13428 and a maximum of 60008.

Table 2: Descriptive statistics

Variables	Average	Standard deviation	Min	Max
Outputs				
Room	*179.1111*	*79.19824*	*89*	*340*
Water	*24.88889*	*22.27355*	*7*	*77*
Health	*8.888889*	*4.255715*	*3*	*15*
Inputs				
FRG	*1008957*	*923455.5*	*126950.8*	*2738842*
POP	*28982.33*	*15165.87*	*13428*	*60008*
Dependent variable				
AND	*0.946*	*0.036*	*0.889*	*1*
Independent variable				
Meeting	*55.556*	*27.323*	*25*	*100*
Women	*16.556*	*5.457*	*8*	*28*
Repsocio	*55.222*	*26.513*	*16*	*100*
Elect	*3.111*	*2.421*	*1*	*8*
Pcd	*0.508*	*0.501*	*0*	*1*
Organi	*0.799*	*0.401*	*0*	*1*
Cc	*0.613*	*0.488*	*0*	*1*

Source: Author

The analysis of the technical efficiency of communes by region shows that on average, communes have a score of 0.946 which shows that they are globally inefficient. **Table 3** shows that communes in the South-West region of our sample are the most efficient, followed by communes in the South region (0.949), the Centre region (0.9425) and communes in the East region (0.9364). This efficiency of the communes in the South-West region can be explained by the fact that they have applied the laws on sociological representation but also respect for local democracy. Analysis of this situation, which is marked by the inefficiency of the other communes, highlights the fact that the mayors have made a choice that removes the prescription of the law, taking communal decisions to create development committees parallel to those provided for by the texts in force. This situation effectively corroborates the illustration of institutional engineering mentioned by Oyono and Efoua (2006), in their work on what they call 'organisational inflation' and the 'formation of a forestry elite' in Cameroon. It is also an illustration of the absence of a mechanism for monitoring reform on the ground, where practices contradict the law (Bigombe 2003; Oyono 2004; Oyono, 2007; Antang 2015).

Table 3: Analysis of the effectiveness of municipalities by region

Regions	Average technical efficiency
East	0.9364
South	0.949
Centre	0.9425
South East	1
Total	**0.946**

Source: Author

4.2. Analysis of the determinants of the technical efficiency of communes

Table 4 below presents the results of the analysis of the determinants of the technical efficiency of communes. The results show that the model is globally significant as the Chi2 test is significant at the 1% level. The analysis of the coefficients of the explanatory variables shows that all the variables have a significant influence on the technical efficiency of the communes.

The analysis of the variable possession of a communal development plan (*CDP)* shows that, compared to communes that do not have a CDP, the fact of having a CDP significantly increases the efficiency of the commune by 0.341%, all other things being equal. With regard to the variable of having an official organisation chart (*organi*), the results show that compared to municipalities without an official organisation chart, having a plan increases the technical efficiency of the municipalities by 0.257%, all other things being equal. For the variable existence of a communal committee (*cc)*, the results show that compared to communes where communal committees do not exist, having a communal committee significantly increases the technical efficiency of communes by 0.387%, all other things being equal. The electrification rate variable *(elect)* has a positive and significant influence on technical efficiency. Thus, an increase of 1% in the electrification rate and, all other things being equal, an increase of 0.035% in the technical efficiency of communes.

Secondly, we note that other variables have a negative influence (meeting, women and repsocio). Indeed, as regards the ratio of the number of meetings of the communal council held, we note that an increase of one unit in the ratio reduces the technical efficiency of the communes by -0.006%. With regard to the ratio of women's representation in municipal councils, we note that an increase of one unit in the ratio leads, all other things being equal, to a reduction in the technical efficiency of communes of -0.020%. With regard to sociological representativeness, we note that an increase of one unit in the sociological representativeness ratio leads, all other things being equal, to a decrease in technical efficiency of -0.035%.

Table 4: Tobit model regression results

TE	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
pcd	0.341	0.053	6.45	0.023	0.113	0.568	**
organi	0.257	0.035	7.41	0.018	0.108	0.406	**
meeting	-0.006	0.001	-5.83	0.028	-0.011	-0.002	**
women	-0.020	0.002	-8.26	0.014	-0.030	-0.010	**
cc	0.387	0.056	6.91	0.020	0.146	0.629	**
repsocio	-0.005	0.001	-5.28	0.034	-0.010	-0.001	**
elect	0.035	0.006	5.43	0.032	0.007	0.063	**
Constant	1.228	0.051	23.90	0.002	1.007	1.449	***
Mean dependent var	0.946	SD dependent var		0.036			
Pseudo r-squared	-1.181	Number of obs		9.000			
Chi-square	41.640	Prob > chi2		0.000			
Akaike crit. (AIC)	-58.884	Bayesian crit. (BIC)		-57.109			

Source :Auteur Note : *** *p<0.01*, ** *p<0.05*, * *p<0.1*

V. Conclusion

This article has allowed us to analyse empirically the efficiency of the management of forestry charges by municipalities. To do so, we used the available secondary data. The study was based on a two-tiered methodology. Firstly, we used the analytical framework proposed by Farell (1957), which proposes to conduct a DEA boundary estimation to analyse the technical efficiency of production units. Secondly, we used a Tobit model approach to analyse the determinants of the technical efficiency of the communes. The results of this study show that the efficient communes are those with efficiency scores of 1, while the other communes in our sample are inefficient. The results of the regression of the tobit model show that the possession of a communal development plan and an organigram, the existence of a communal committee and the electrification rate have a significant influence while the ratio of the number of meetings, the number of women and the sociological representativeness have a significant but negative influence on the efficiency of the management of forest royalties, hence our recommendation for a more inclusive management of the RFA for more efficiency.

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