An Evaluation of Profit Margin of Sawyers of Wood Products in the Forestry Zone Surrounding Kumba (Cameroon)

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Authors' contributions

This work was carried out in collaboration between all authors. Authors AJJF and MLAT designed the study, wrote the protocol and managed the analyses of the study. Author GBN collected data from the field. Author JFF wrote the first draft of the manuscript. Authors AJJF and MLAT modified the first draft, performed the economic analysis and literature review. Author MP funded the field work. All authors read and approved the final manuscript.

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ABSTRACT

A total of 235 chainsaw milling (CSM) operations have been visited from 1st June to 31st July 2011 in order to interview 85 sawyers from 15 villages in the forestry zone surrounding Kumba, Cameroon. In the field, four categories of sawyers (Type I, II, III, and IV) were differentiated according to their motivations, challenges, production cost and profit. The main motivation of sawyers is financial, regardless of their categories. The CSM average production amounts to 12.78 m^3 per operation requiring 2 standing trees (approximately 6.22 m^3 per tree) every two months. In total, with expenses of 34,719 FCFA/m^3, sawyers get revenue of 40,999 FCFA/m^3 (i.e. +5,780 FCFA/m^3 as profit). However, Type II sawyers earn a much higher profit than others (+12,829

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FCFA/m^3). In general, CSM is an economically rewarding activity in that the majority of the sawyers visited earn significant profit exception made of Type III. Regretfully, forest control (licences' check-up) is a major drawback that sawyers regularly face because of the illegality of their activity. Most sawyers operate in informal way without paying taxes/licences so that the loss of earning to the State revenues is important. The government should therefore legalize this activity by reforming the licences awarded to various sawyers and guiding the implementation of a more transparent and formal taxation in this sector.

1. INTRODUCTION

Chainsaw milling (CSM) operations are an important source of assets to the various stakeholders of land resources in forest areas of tropical countries. A number of sources have emphasized the rise in domestic demand for CSM products in Cameroon over the past two decades [1-3]. Despite the potential to contribute to the economic welfare of the State, business entities and local people involved, CSM remains an informal activity in Cameroon.

The Cameroonian forest sector is one of the main sources of revenues from exports and represents 6% of the Gross Domestic Product (GDP) [4]. In 2005, this sector alone generated nearly 40 milliards FCFA and employed 163,000 people in 2006, among which 13,000 were in the industrial sector [5]. In the South-West region of Cameroon, the Meme division and the zone surrounding Kumba in particular is an excellent forest locality endowed with a large regional sawmill among a growing population. About 60% of the wood products found in the capital city of the South-West region (Buea) originates from Kumba [6]. Many spot markets of wood exist in Kumba whereby high demands for wood products from the neighbouring Nigeria are addressed. In addition to the spot markets, wood is also sold at felling sites and in the wood workshops operated in Kumba. BUCREP [7] mentioned a population increase of 176,218 inhabitants over the previous decade in the South-West region and a density of 54.5 inhabitants, which portends more improvements in expected demand.

Chain-sawn timber business is a forest activity endowed with a high revenue potential in Cameroon. A local demand traditionally exists for the construction timber for houses and pieces of furniture. For instance, in 2008-2009, annual production of informal CSM was estimated at nearly 715,000 m^3 [1]. Langbour et al. [3] mentioned a cash flow worth 6 billion annually for the "northern trail" supply chain. Additionally, CSM is mostly practiced in the East, South, Littoral and South-West regions of Cameroon, which are still covered with forests. The presence of the forest and lingering urban expansion boost the marketing potential for chainsawn timber [3,8-10].

However, CSM is still to be fully integrated in the formal forest resource statistics [1]. Detailed studies on the organization of the chainsaw milling sector will be critical in Cameroon for the sake of generating more accurate data. Without a good understanding of the earnings from CSM, it is difficult to fully grasp how much stumpage and taxes should be paid. The impression that CSM is highly profitable could be misleading, in the absence of insufficient and relevant empirical evidence [11]. Hence, the aim of this study is to improve governance in the sector of chainsaw milling through the characterization of the main actors and assessment of the resulting profit margin of sawyers.

2. MATERIALS AND METHODS

2.1 Field Survey and Data Collection

2.1.1 Study area and sample size

This study took place during the period from 1st June to 31st July 2011 in the forestry zone surrounding Kumba, the chief/county-town of the Meme Division, located in the South-West region of Cameroon. This area was chosen because it is one of the country's zone with the most intense chainsaw activity which employs today approximately 3,500 people who are engaged more or less regularly with 200 wood processing companies nearby Kumba [12].

In total, 15 villages were selected for this study on the basis of their vicinity to Kumba, the large number of sawyers operating in the zone and the readiness of vendors trading wood products from this locality to take part in the study.

Administratively, the surveyed villages belong to any of the sub-divisions/councils of Mbonge, Konye and Kumba. A total of 235 chainsaw milling (CSM) operations have been visited in order to interview 85 sawyers from the 15 selected villages. The number of sawyers interviewed and visited sawing operations at each village are summarized in Table 1.

2.1.2 Groups of actors selected for the study

Apart from the sawyers, we were also interested during the survey to discuss with a number of actors who intervene upstream to the traditional sawing channel namely at the production, exploitation and transportation levels. These key actors include precisely the village chiefs, farmers, carriers, loaders, transporters and administrative authorities.

V*illage chiefs* are the authorities in charge of the forest management in their locality. They are the sole persons who grant verbal authorisation to strangers to perform whatever activities in the forests of the village. *Farmers* are the other actors involved in that they may own in their plots or family forests trees of value to the local market. *Carriers* are the people transporting the sawn products from the felling site to a point next to the forest road. *Loaders* are responsible for arranging the sawn products into the lorry and subsequent downloading at the market. *Transporters* drive the loaded truck on the road to the market where the products will be sold. *Administrative authorities* are the civil servants from the Ministry of Forests, the local council's agents as well as the law enforcement officers encountered at the "check points". We interviewed 23 State officials in Mbonge, 24 in Konye and 10 in Kumba (see Table 1).

2.1.3 Collected data from questionnaire and secondary sources

The questionnaire addressed to the administrative authorities aimed at characterizing the progress of informal chainsaw milling in Kumba and consisted of the: history of informal CSM, sawyers' most harvested species, actors involved and their technical means, councils' benefits in the practice of the activity, neighbouring villages in which informal chainsaw milling is more prominent, challenges faced, envisaged solutions, and perceptions with regard to the future of the informal CSM sector.

The questionnaire addressed to informal sawyers focused on knowing the date of engagement in the activity and their major motivations, the use of the revenues from the activity, their ownership status on the chainsaw with eventually the date and purchase price, the challenges met and the envisaged solutions. In addition, each sawyer was asked to state the costs and benefits from the last three chainsaw milling operations undertaken. The resulting operations enabled characterization of the different types of sawyers depending upon the financing of the operations from the felling site to the roadside log landing or to the market.

Table 1. List of selected villages, number of state officials, sawyers interviewed and visited sawing operations during the survey

Council	State officials interviewed	Villages selected	Sawyers interviewed	Number of visited sawing operations
Mbonge	23	Big Bekondo	6	23
		Mofako-butu	5	15
		Massaka	2	2
		Tree conars	4	5
		Mbalangi	22	67
		Ediki	4	6
Konye	24	Baduma- balong	6	17
		Ikiliwindi	6	15
		Konye	19	55
		Issam-Bakussi	2	6
		Kokaka	1	3
		Dikume Bafaw	3	6
		Krume Bafaw	2	6
		Wome	3	9
Kumba	10	Kumba	0	0
TOTAL	57	15	85	235

The questionnaire addressed to the various groups was pretested to ensure its reliability and validity before relevant modifications were done. It was supplemented to secondary data obtained from the libraries of local universities (Universities of Dschang and Buea, Cameroon), of international forestry organizations (e.g. CIFOR, ICRAF/WAC) and other existing sources (e.g. Internet).

2.2 Data Analysis

The data collected were codified and entered in computer with the help of EXCEL software which was used to compute the various mathematical formulas necessary for data analysis.

2.2.1 Profit and gross margin

To achieve the study objective, the profitability of sawyers was evaluated by computing their profit (π) and gross margin (GM). From the economics' literature [13], the profit (π) is equal to total revenue (TR) *minus* total costs (TC) expressed as:

$$\pi = TR - TC \tag{1}$$

The total costs are computed by summing up the total variable costs (TVC) and fixed costs (TFC). The variable costs (TVC) are those that depend on the sawyers' level of activities. They increase or decrease depending upon the quantity of wood sawn. The fixed costs (TFC) are costs that do not change no matter the quantity of wood to process. By integrating the TVC and TFC into TC function, the profit function of equation (1) is further expressed as:

$$\pi = TR - TVC - TFC \tag{2}$$

The sawyer's gross margin (GM) is the contribution of sawing activity towards fixed costs and profit after the variable costs have been paid. It is derived by subtracting the variable costs (TVC) from the total revenue (TR) as mathematically expressed by equation (3):

$$GM = TR - TVC \tag{3}$$

2.2.2 Total revenue, variable and fixed costs

The total revenue (TR) for each sawyer in turn is equal to the: the volume (V) of wood harvested multiplied by the market price (P) of the sawn piece depending upon the timber tree species and the corresponding category of sawyer. It is mathematically expressed as:

$$TR = V * P \tag{4}$$

In equation (4), the volume of wood harvested per m^3 of stems subsequently was firstly estimated. Considering each type of timber sawn (Annex 1), the volume per stem was calculated by multiplying the number of pieces of same type (e.g. board, lath) by the volume of a piece and then adding the volume for all the types involved. Annex 2 shows the market price of sawn products by types of sawyers and by tree species.

In this study, the variable costs (TVC) from sawing activities include namely the: salaries (S), fuel & oil (FO) costs, transportation costs (T), and spare parts costs (B). Hence, the variable costs (TVC) are mathematically expressed as:

$$TVC = S + FO + T + B \tag{5}$$

Finally, the sawyer's gross margin (GM) computed by subtracting equation (5) from equation (4) is written as:

$$GM = V * P - S - FO - T - B \tag{6}$$

In this study, the fixed costs (TFC) from sawing activities include the annual depreciation of chainsaw (D) and hiring of equipments (H). Hence, by subtracting the fixed costs from the sawyer's gross margin, the sawyer's profit as earlier formulated in equation (2) is further expressed as:

$$\pi = GM - TFC = V * P - S - FO - T - B - D - H \tag{7}$$

Where: **π**: profit of sawyer; **GM**: Gross Margin of sawyer; **TVC**: Total Variable Costs; **TFC**: Total Fixed Costs; **TC**: Total Costs; **V**: volume of wood harvested; **P**: market price of timber trees' species; **S**: salaries; **FO**: fuel & oil costs; **T**: transportation costs; **B**: spare parts costs; **D**: annual depreciation of chainsaw; **H**: hiring of equipments.

2.2.3 Depreciation of chainsaw

In this study, the annual depreciation of chainsaw (D) is computed from Kay et al. [13] by using the

straight line method of depreciation expressed in the following mathematical formulation:

$$D = IP - \frac{SV}{UL} \qquad (8)$$

Where: **D**: annual depreciation of chainsaw; **IP**: Initial Purchase price or cost of chainsaw; **RV**: Salvage Value of chainsaw (i.e. value at life end); **UL**: Useful Life period of chainsaw.

3 RESULTS AND DISCUSSION

3.1 Proportions, Motivations and Problems of Sawyers Categorized by Types of Activities

In the study area, the activity of CSM depends mainly on the sawyers who purchase standing trees from farmers for further wood sawing purposes. During the operation, each sawyer usually is accompanied by an assistant who help him to undertake his various sawing tasks. The assistant is generally employed by the sawyer who fully takes care of his nutrition and remuneration.

In the framework of this study, we were able to categorize 4 types of sawyers as shown in Table 2. Type I sawyers take care of the fuel and lubricant consumption costs as well as the salary of the assistant. They leave the produced lumber on-site in the forest for the potential client. Type II sawyers bear no charge except for the salary of the assistant and are, therefore not in charge of the salary of the carriers and of the costs of fuels and lubricants. Type III sawyers often finance the processes from the felling site to the roadside. That is, they are responsible for paying the carriers, the assistant and to bear the cost of fuel and lubricants. Type IV sawyers bear all the costs including the cost of the standing trees,

salaries of the assistant and carriers, fuel and lubricant costs (see Table 2).

Sawyers vary by their origins, motivations, and the problems they face. Regarding the origin, most of them are strangers (56%) from Nigeria and other Cameroonian regions. The remainder (44%) are natives from local villages such as Mbonge, Oroko, Kom, Ekombe, Balong, and Bafaw.

Regarding the motivations of the sawyers, they are primarily financial and may vary by type within which they fall (Fig. 1). Type I and II sawyers' motivations are nearly alike and mostly financial. It is worth mentioning, however, that Type I sawyers have more capital to finance their activities. Hence, they often receive orders for products destined for exportation. Conversely, Type II sawyers have a certain level of independence. Sometimes they may work as assistants before acquiring chainsaws to venture on their own in the business. Often, Type III sawyers are motivated by other senior operators in the village, while their Type IV counterparts are interested in building their own house. Fig. 1 provides more details.

Sawyers also face different sorts of problems in the exercise of their activities. Table 3 shows the perception by different types of sawyers of the problems they face. Forest control (licences' check-up) is a major drawback that sawyers face in the exercise of their activity regardless of the type within which they fall. Forest controls (licences' check-up) happen even right at the harvesting site. Type I and II often breach client confidence and hence experience a low level of relationship with clients, at the difference of Type III and IV. Only those sawyers who transport their products to the market are confronted with the police and the gendarmes posted at check points.

Table 2. Categories of sawyers interviewed in the forestry zone surrounding Kumba

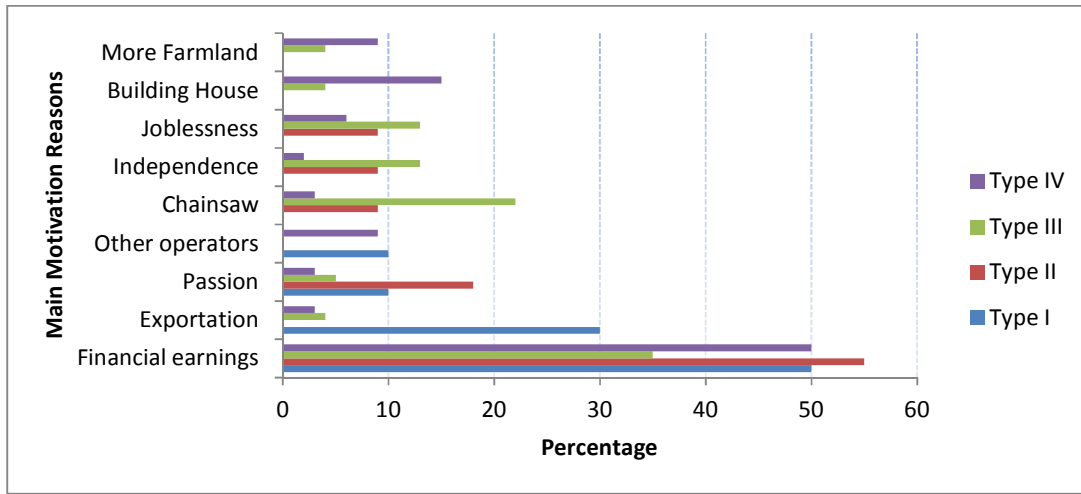| Type	Category	Number interviewed	Percent per type
I	On-site selling sawyers plus fuel and lubricants	10	13
II	On-site selling sawyers without fuel and lubricants	11	14
III	Sawyers selling on forest roads	23	29
IV	Sawyers selling to the local market	34	44
TOTAL		78	100

Fig. 1. Major motivations reasons of sawyers of different categories

Table 3. Main problems encountered by different categories of sawyers in the study area

Main problems encountered	Response rates (%)			
	Type I	Type II	Type III	Type IV
Forest controls (licences' check-up)	47	40	38	42
Conflicts (operators vs. land owners)	5	10	11	10
Expensiveness of transport	5	5	6	9
Gendarmes and police	-	-	-	7
Breach of confidence (patron, client)	21	45	6	6
Poor equipment	5	-	8	9
Accident	11	-	17	4
Scarcity of trees in the zone	-	-	6	3
Others	5	-	6	9
TOTAL	100	100	100	100

Others: Poor road conditions, expensiveness of fuel, theft, tree purchase, few clients for direct purchase, everyone else felling trees without any interests, felling of large-size diameter trees.

3.2 Estimation of Sawyers' Production and Profit Margin

3.2.1 Products and productivity of chainsaw milling

In order to better understand the production costs and gross margins of sawyers engaged in CSM, prior knowledge of the products and productivity is useful. CSM offers to the market quite a wide range of products including standard-size products and special commands, as stated by the interviewed participants. Sawyers freely make the prices of their products based upon the expenses incurred and what the client is ready to pay. Sale prices vary based upon the quality, type, origin and species of the product (Annex 2).

An analysis of the visited sawing operations during the survey period gives a more precise idea about the productivity within categories of sawyers (Table 4). In total for all sawyers' categories, on the basis of the 235 visited units, the sawing production is estimated at 3,003 m^3. Hence on average, one chainsaw operation produces 12.78 m^3 of wood products and uses approximately 2 trees (Table 4) every two months. More precisely, the sawyers altogether are able to extract 6.22 m^3 of wood products from a tree. Table 4 also shows that sawyers who transport their products until the market (Type IV) record higher production than those who sell on the felling site or by the side of the forest road: they are able to extract 7.16 m^3 of sawn wood from a tree (std. dev. of 5.45). The lowest production is from Type II and amounts to 5.22 m^3 (std. dev. 2.55). Output conversion efficiency per stem is greater than 5 m^3, which indicates a greater valuation of wood resources. This coefficient is in line with the estimates by Ondoua [14]. Our calculations also indicate that sawyers

tend to give priority to large diameter trees, which increases the productivity of the activity [15].

3.2.2 Sawyers' profit margin estimation from detailed elements of costs and revenue

This section identifies and quantifies the elements of costs and revenue arising from the various sawing operations made in the surveyed villages. Such costs and revenue tend to vary by type of sawyers (Table 5). The variable costs are computed by taking into account the following elements: the local salaries paid to the assistants and carriers, the remunerations of the public service officers, the various leases (chainsaw, transportation and miscellaneous), the costs of fuel and oil, spare parts, purchase of standing trees, nutrition and others (Table 5, Fig. 2).

The fixed costs include mainly the depreciation cost of chainsaw and leasing of other materials (Table 5). Accounting for the chainsaw's economic life of 2 years and its average

purchase price of 500,000 FCFA as suggested by Temgoua [16], the annual depreciation is estimated at 250,000 FCFA (i.e. a monthly depreciation of 20,833 FCFA) by using the straight line method of computation [13]. Considering that one chainsaw, on average, produces monthly 12.78 m^3 per operation, the depreciation will be 1,630 FCFA/m^3 (Table 5).

The production costs of Type IV sawyers who take care of the financing of operations until the local market are higher and worth 74,633 FCFA/m^3 (Table 5, Fig. 2). This is due to the fact that, additionally to the costs borne by other categories, this type of sawyers hires the trucks to transport sawn products until local rural or urban markets. Truck drivers are paid per piece of product transported: the average cost of a board is 1,000 FCFA and that of a lath is 500 FCFA. Similarly, the total revenue of Type IV sawyers is greater than that of other categories, because the price on-site is lower compared to the market price (Table 5).

Table 4. Sawing production by type of sawyers and volume per m^3 per stem for the 235 visited chainsaw operations (for a period of two months)

		Type I	Type II	Type III	Type IV	All Types (I+II+III+IV)	
						Total	Average
Production from visited chainsaw	Number of visited chainsaw operations (N)	35	31	66	103	235	//
	Total sawing production (m^3) from all visited chainsaw operations (P)	895	351	511	1,246	3,003	12.78
	Average sawing production per visited chainsaw operation (m^3/operation) A=P/N	25.57	11.32	7.75	12.10	//	//
Trees' volume used for chainsaw products	Number of sawn standing trees (T)	103	79	96	191	469	1.99
	Volume (m^3/stem) of sawn standing trees (V)	208	162	353	738	1461	6.22
	Mean volume (m^3/operation/stem) from sawn standing trees (M)=V/N	5.94 ±4.26	5.22 ±2.55	5.35 ±3.13	7.16 ±5.45	6.22	//

Notes: In this table: -The average of the last column is the total from all types divided by 235 (the total number of visited chainsaw operations).
-The mean volume is followed by the ± figure indicating the standard deviation (std. dev.) of the trees' volume

Table 5. Computed total revenue, costs, gross margin and profit per sawing operation (in FCFA/m³) for the different categories of sawyers (for a period of two months)

		Type I	Type II	Type III	Type IV	All Types (I+II+II+IV)	
						Total	Average
Total Revenue (TR)		9,392	41,619	27,328	83,658	161,997	40,499
	Local salaries	329	24,281	14,027	46,785	85,422	21,356
	Remuneration officials	886	0	574	2,516	3,976	994
Variable Costs	Leasing transport means	0	0	0	5,928	5,928	1,482
	Fuel and oil	999	0	3,981	5,279	10,259	2,565
	Spare parts	825	0	2,231	2,456	5,512	1,378
	Purchase standing trees, feeding, misclleanous	1,359	0	2,510	5,083	8,952	2,238
	Total Variable Costs (TVC)	4,398	24,281	23,323	68,047	120,049	30,012
	Leasing materials	895	2,909	3,637	4,986	12,427	3,107
Fixed Costs	Depreciation of chainsaw	1,630	1,630	1,630	1,630	6,520	1,630
	Total Fixed Costs (TFC)	2,495	4,509	5,237	6,586	18,827	4,707
Total Costs (TC)=TVC+TFC		6,893	28,790	28,560	74,633	138,876	34,719
Gross Margin (GM)=TR-TVC		+4,994	+17,338	+4,005	+15,611	+41,948	+10,487
Profit (π)=GM-TFC		+2,499	+12,829	-1,232	+9,025	+23,121	+5,780
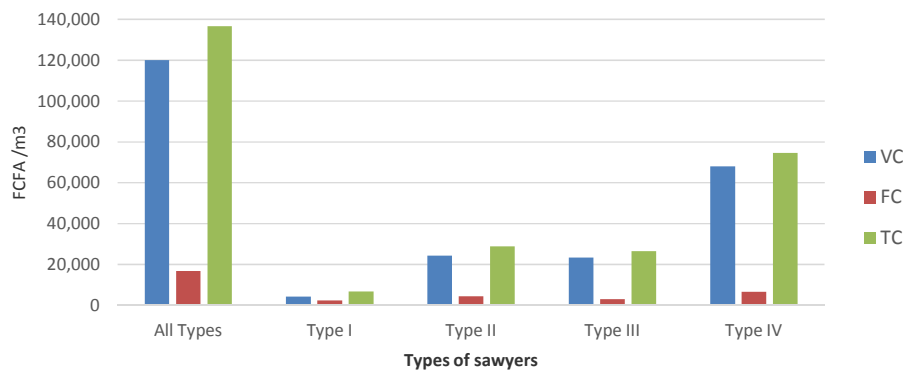
Fig. 2. Costs supported by different categories of sawyers: variables costs (VC), fixed costs (FC) and total costs (TC) (for a period of two months)

The total cost of CSM from the site to a point beside the forest road (Type III) is nearly 28,560 FCFA (Table 5, Fig. 2). This figure is not too far from the 20,000 FCFA found by Plouvier et al. [17] and from the 19,800 FCFA found by Djiongo [15] for the East region of Cameroon. More than half of the exploitation costs correspond to the salary paid to the carriers, sawyer and his assistant. The profit and gross margin earned by sawyers vary across the different categories (Fig. 3).

As indicated in Table 5, sawyers who sell products on forest land without having to charge fuel costs and lubricants (Type II) have a much higher profit than other sawyers (+12,829 FCFA/m³). They are followed by the Type IV sawyers who are able to sell to the market (+9,025 FCFA /m³). This output level is far from

the reach of the Type III sawyers who are basically road-side sellers with a negative profit (-1,232 FCFA/m³). For this latter category of sawyers, CSM is a relatively risky activity whose profitability depends on the final sale price and the distance from felling site to the road-side log yard, which increases wage paid to the carriers. In general, CSM is an economically rewarding activity in that the majority of the sawyers visited have a significant profit exception made of type III. CSM generates an average profit of +5,780 FCFA/m³ (Table 5). This estimate is in line with the benefit margins of +5,400 and +15,400 FCFA/m³ for the East region (Cameroon) as computed by Djiongo [15].

Besides profiting different categories of sawyers, CSM generates income to inhabitants of the studied villages (which are farmers in majority)
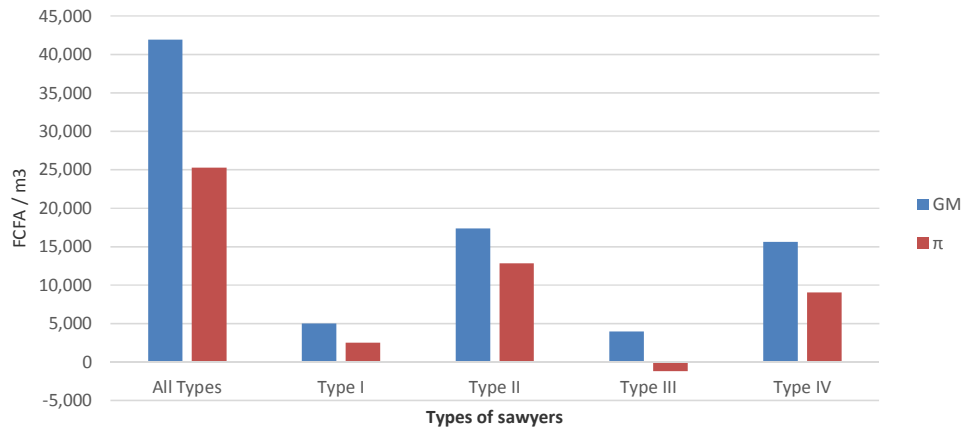
Fig. 3. Gross Margin (GM) and profit (π) earned by different categories of sawyers (for a period of two months)

and significantly contributes to their purchasing power. Income earned depends upon average production which amounts to 12.78 m^3 of wood products extracted from 2 standing trees i.e. approximately 6.22 m^3 per tree (Table 4). Considering the current market price of 10,000 FCFA per tree, the trade channel would generate an average amount of 10,000/6.22=1,608 FCFA/m^3 to any farmer of this area. Given the sawing total production estimated at 3,003 m^3 during the two months of survey period, about 1,608*3,003=4,828,824 FCFA is earned every two months (approximately 2,414,412 FCFA per month) by farmers owning trees in this zone.

4. CONCLUSION AND RECOMMENDA-TIONS

From the 235 visited chainsaw operations in 15 villages surrounding Kumba (Cameroon), this study differentiates four categories of sawyers (Type I, II, III, and IV) according to their motivations, challenges, production cost and profit. The field survey reveals that, one chainsaw operation produces on average 12.78 m^3 of wood products extracted from 2 standing trees (approximately 6.22 m^3 per tree) every two months. However, Type IV sawyers who transport their products until the market record higher production than those who sell on the felling site or by the side of the forest road: they are able to extract 7.16 m^3 of sawn wood from a tree (std. dev. of 5.45). The lowest production is from Type II sawyers and amounts to 5.22 m^3 (std. dev. 2.55). Output conversion efficiency per stem is greater than 5 m^3, which indicates a greater valuation of wood resources.

In general, chainsaw milling (CSM) is an economically rewarding activity in that the majority of the sawyers visited earn significant profit exception made of Type III. This activity generates an average profit of +5,780 FCFA/m^3 and gross margin of +10,487 FCFA/m^3 for all sawyers' categories. However, the sawyers who sell products on forest land without having to charge fuel costs and lubricants (Type II) earn a much higher profit than other categories of sawyers (+12,829 FCFA/m^3). They are followed by the Type IV sawyers who are able to sell to the market (+9,025 FCFA/m^3). This output level is far from the reach of the Type III sawyers who are basically road-side sellers with a negative profit (-1,232 FCFA/m^3). For this latter category of sawyers, CSM is a relatively risky activity whose profitability depends on the final sale price and the distance from felling site to the road-side log yard, which increases wage paid to the carriers.

Nevertheless, most actors of the CSM activity still operate in informal way without paying their taxes/licences and hence creating a significant loss of earning to the State revenues. We therefore recommend the government to legalize this activity by reforming the licences awarded to various sawyers and guiding the implementation of a more transparent and formal taxation in this sector. This would enlighten the various CSM actors and provide more insight for the government to take decisions for the better conduct of timber production and commercialization in Cameroon. Hence, new laws and regulations should be implemented in order to contribute to the sustainable

management of CSM in various forestry zones in the country.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Annex 1. Specifications and various uses of sawn products

Type of products	Dimensions (m)	Utilisations
Beam	0.1x0.3x5	Export order
	0.1x0.1x5	
Formwork board	0.03x0.3x5	Furniture roof
Board	0.04x0.4x2.2	Furniture
	0.05x0.3x5	Roof
	0.05x0.2x5	Sideboard
Frame	0.05x0.15x5	Door
	0.04x0.15x2.2	Door frame
Chevrons	0.8x0.12x5	Roof
	0.1x0.1x5	Sideboard
	0.03x0.2x5	Furniture
Lath	0.05x0.1x5	Roof
	0.05x0.12x5	
Bastings	0.03x0.15x5	Roof, Sideboard

Annex 2. Prices of sawn products by categories of sawyers (in FCFA/piece)

Species	Unit (piece)	Type I	Type II	Type III	Type IV
Iroko, Sapelli, Dabéma,	Lath/frame	700	500	700	1,700
Padouk rouge	Board/formwork/chevron	1,200	1,000	1,500	4,000
	Beam	1,500	//	//	5,000
Bubinga	Board	1,700	1,200	2,000	8,000
Bilinga	Board	1,500	700	1,200	5,000
Fraké, Ayous, Ilomba	Lath/frame	300	200	500	1,200
	Board/formwork/chevron	700	500	1,000	2,500

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