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Income from the sale of livestock at the N'Gonga market (Niger) during the transhumance period

Ibrahim DJIBO[1*], M. Bahari AMADOU ABDOULAYE[2], Kailou FOGA[3], Siaka DIARRA[4]

[1](Faculty of Agronomy, Abdou Moumouni University of Niamey-Niger. BP: 10960.)

[2](Department of Animal Productions, National Institute of Agronomic Research of Niger. BP: 429.)

[3](Direction Régionale de l'Elevage de Dosso-Niger. BP: 12091)

[4](Rural Polytechnic Institute of Training and Applied Research of Katibougou-Mali. BP: 06)

*Corresponding author: Ibrahim DJIBO, email: maiga2222@yahoo.com

ABSTRACT

This study was conducted in the cattle market of the rural commune of N'Gonga. It aims to determine the income generated by transhumance on the socio-economic activities of the population. A survey was carried out among the various actors. The results of the survey showed that the highest average age was recorded among the collectors (49.1±54.5 years) compared to a minimum average of 32.4±4.4 years for the conveyors. The highest average household size is found among transhumant herders (8.1±4.6 persons) compared to a minimum average of 5.4±3.8 persons among butchers. The composition by category of the transhumant herd shows a dominance of adult females (40.17 ± 23.7 heads in cattle; 28.9± 24.5 heads in sheep; 19.6±16.8 heads in goats). The commission of intermediaries through the sale of transhumant animals amounts to 2,500 FCFA for large ruminants and 500 FCFA for small ruminants. The average profit margin of butchers is 19,269±1,777.7 FCFA/day of market animation. The fees earned by the conveyors on foot are as follows 1000-3500 FCFA/cattle; 1500-3000 FCFA/camel against 500-2000 FCFA for small ruminants.

Key words: Socio-Economy- Pastoral- Market- Livestock

1. INTRODUCTION

In Niger, livestock production is an important part of the national economy as it has a large livestock population estimated at 48,460,804 heads (19 million LU), all species combined, representing an added value of CFAF 3,911.1 billion (MAG/EL, 2018). It is a considerable source of income for the population and plays an important role in socio-cultural life. The contribution of livestock production in Niger is 11% of gross domestic product (GDP), 24% of agricultural GDP, 21% of export earnings and 62% of export earnings from agricultural products (Rhissa, 2010).

At the national level, pastoralism contributes to 84% of the country's agricultural GDP (IIED, 2010) and 76% of the national livestock population is owned by pastoralists (IIED, 2010). The pastoral livestock system is characterised by nomadism and transhumance (MAG/El, 2017), the latter being practiced to cope with the food insecurity of the animals. Transhumance is considered as a seasonal and cyclical movement of herds and flocks between two poles and is predictable in its broad outlines (Boutrais, 2007).

The rural commune of N'Gonga is used as a transit zone for both the outward and return journeys of the transhumance, where the herds spend a relatively long-time taking advantage of the pastoral resources, the salt cure (in the Dallol Bosso valley) and the socio-economic transactions at the N'Gonga livestock market. However, the income generated by transhumant at the N'Gonga livestock market is not well known, even though they have large numbers of animals for sale. Hence the need to determine the income generated by transhumance for the actors present at the livestock market.

2. MATERIAL AND METHODS

2.1 Study area

The study was conducted in the rural commune of N'Gonga through the livestock market of N'Gonga. The commune was created by Law No. 2002-14 of 11 June 2002, which created the communes (Figure 1).

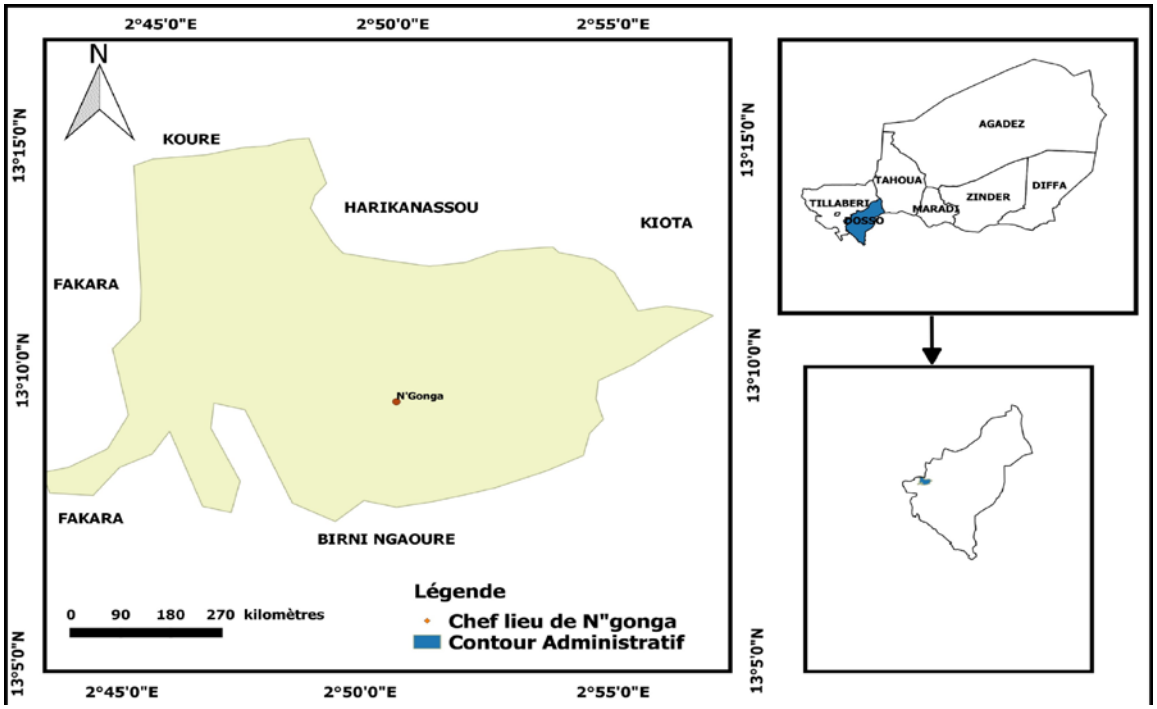

Figure 1 : geographic localization of the study area

The climate is Sahelo-Sudanese with an average rainfall of 500 mm per year. It is characterized by constant heat and inter-annual variability of rainfall, which leads to droughts and/or floods, resulting in cereal and fodder deficits in some areas. The relief is characterized by the presence of the Bosso dallol, with sandy terraces and the plateau zone (Fakara) with gravelly soils. There are also large shallows that retain water in the rainy season, forming numerous permanent pools and permanent seedbeds. Two types of vegetation can be distinguished: The tiger bush on the plateaus, dominated by Combretaceae associated with herbaceous species such as *Andropogon gayanus*, and on the dallol, agroforestry parks dominated by Faidherbia albida, Neocarya macrophylla, *Diospyros mespiliformis* and *Balanites aegyptiaca* (in the cultivated fields), *Hyphaene thebaica* (in the agroforestry parks) and *Borassus aethiopum* (in the fallows).

2.2 Data collection

Data collection was carried out using an individual questionnaire and an interview guide. The questionnaire is based on the characteristics of the actors, their occupation in relation to the N'Gonga market and the period of passage of transhumant in the locality. The administration of the questionnaire made it possible to collect data relating to the socio-professional category, the average age, the average size of the household, the length of time in the profession, the composition of the transhumant herd, the evolution of sales of transhumant animals and the income generated by these sales from the various actors. The guide looked at the passage of transhumant through the commune and the resulting income. The guide also focused on the possible management of transhumant herds by the livestock services, the itinerary followed by transhumant herders and the resource persons involved in transhumance. A pre-survey made it possible to determine the target population composed of 329 actors, distributed as follows 137 transhumant herders, 32 intermediaries, 10 collectors, 120 buyers, 10 conveyors, 13 butchers, 1 mayor, 1 collector, 1 livestock agent, 1 representative of herders' associations, 1 rouga (customary leader of transhumant herders), 1 garso (second customary leader of transhumant herders appointed by the rouga) and 1 dogari (informant of transhumant herders appointed by the rouga).

To determine the sample to be surveyed, the following procedure was used

- Survey all actors whose numbers do not exceed 35 in any one group;
- For numbers greater than 35 actors in the same group, the top third was selected by random draw.

Thus, the sample to be surveyed is as follows:

Stratified sampling

Stratum 1: This stratum is made up of actors with responsibilities: a mayor, a collector, a livestock agent, a rouga, a garso, a dogari and a representative of the livestock breeders' associations, AREN (Association for the Revitalization of Livestock in Niger). The actors in this stratum were subjected to guided interviews.

Stratum 2: this is made up of actors with limited responsibilities. For this stratum, the individual questionnaire was administered.

There are two types of sampling here:

Random sampling for numbers above 35

- Transhumant: 46

- Buyers: 40

For the numbers below 35, the entire population was surveyed.

- Intermediaries: 32

- Butchers: 13

- Collectors: 10

- Conveyors: 10

A total of 151 actors were surveyed during this study.

The survey took place during the transhumance period in May.

2.3. Data processing and analysis

Data processing was carried out using the Excel spreadsheet.

3. RESULTS

3.1. Characteristics of respondents

Table 1 shows the characteristics of the respondents. It can be seen that the highest average age was recorded among the collectors (49.1±54.5 years), compared to a minimum average of 32.4±4.4 years for the conveyors. The highest average household size is found among

transhumant herders (8.1±4.6 persons) compared to a minimum average of 5.4±3.8 persons among butchers.

Table 1 : Respondants characteristics

Socio-Professional Category	Average age (year)	Average size / household
Conveyor	32,4±4,4	6,2±3,8
Buyer	41,4±10,1	6,5±3,7
Butcher	40,1±13,4	5,4±3,8
Intermediate	39,6±9,4	5,8±2,7
Collector	49,1±5,5	6,2±2,8
Dealer	39,85±6,48	6,4±2,8
Transhumant	39,82±10,76	8,1±4,6

Table 2 shows that the highest average length of time in the profession is recorded among butchers (21.9 ± 12.2 years) compared to a minimum average (9.5 ± 3.7 years) among conveyors.

Table 2 : Duration in the exercise of the profession

Category of actors	Duration in the exercise of the profession (year)
Conveyor	9,5±3,7
Buyer	13,75±7,9
Intermediate	13,75±7
Butcher	21,9±12,2
Collector	16,6±5,4
Dealer	11,3±5,9

3.2. Composition of the transhumant herd

The transhumant herd is mainly composed of cattle, sheep, goats with a few asins, camels and horses.

- **Cattle**

Table 3 shows that the highest average per category of cattle is recorded for cows (40.17 ± 23.7 heads) against a minimum average of 2.2 ± 1.3 heads of bulls in the same herd.

Table 3 *:* Cattle herd

Category	Taurus	Bull calf	Cow	Heifer	Veal	Calving
Effectif	**2,2±1,3**	4,5±2,8	**40,17±23,7**	9,3±5,5	4,8±3,3	5,6±3,6

The breeding practiced is therefore of the breeder type, since at all levels the average for females is higher than for males, as shown in Table 3.

- Sheep

The highest average is recorded for ewes (28.9±24.5 heads) compared to a minimum average of 2.10 ±1.6 heads of rams per flock of sheep. With the exception of lambs (4.5±4.0 head), here too the averages are much higher for females (antennae: 5.2±4.7; ewe lambs: 4.4±4.1) than for males (antennae: 3.9±3.6; lambs: 4.5±4.0). In this respect too, it can be said that the breeding is of the breeder type.

- **Goats**

The same observation observed for cattle and sheep is also true for goats, as the averages for females (goat: 19.6±16.8; female kid: 4.5±4.4; female goat: 3.2±3.0) are also higher than those for males (Billy goat: 1.9±1.7; male goat: 3.1±2.9)

- **Donkeys**

The average for donkeys (0.9±0.8 head) is lower than for mare's (1±0.8 head) but for colts and mare's the average is the same, i.e. 0.4 head. This category of species is mainly used for the transport of luggage.

- **Equines**

Among equines, the average is the same for the horse and the stallion. It is in the order of 0.08±0.041 head. This means that this category of species is not only disappearing, but is also little used by transhumant.

- **Camels**

The average for camels (0.6±0.3 head) is higher than that for she-camels, which is 0.4±0.2 head.

3.3. Evolution of sales by species

Table 4 shows that high sales of cattle (98.8%) and goats (100%) are observed during the transhumance period. No sales of equine and asinine animals were recorded.

Table 4 : **sales by species**

Species	Cattle	Sheep	Goat	Camel
Presentation (head or workforce)	85	108	127	1
Sale (head)	84	106	127	1
Sale rate (%)	**98,8**	**98,1**	**100**	**100**

The number of animals entrusted and sold by intermediaries is presented in Table 5 below.

Table 5 : Number of animals entrusted and sold by intermediaries

ANIMALS ENTRUSTED TO INTERMEDIARIES		
SPECIES	Large ruminants/transhumant	Small ruminants/transhumant
EFFECTIVE	28,63±13,3	69,8±14,3
	Animals sold through intermediaries	
SPECIES	Large ruminants /transhumant	Small ruminants /transhumant
EFFECTIVE	26,9±10,42	11±4,07
INTERMEDIATE COMMISSION (FCFA)	2 500/ Large ruminants	500/ Small ruminants

3.4. The buyers

Most buyers are also resellers. This activity generates a lot of profit for them. Indeed, it is these buyers/resellers who resell to livestock exporters.

3.5. Collectors

Collectors fall into two categories, namely holders and assistants. They are paid 10% of their daily revenue and are divided according to their position of responsibility:

Collectors of the presentation tax, whose amount to be collected is 100 FCFA / large ruminant against 50 FCFA / small ruminant;

Collectors of the identification tax: 500 FCFA /large livestock against 200 FCFA for small ruminants.

3.6. Intermediaries' commission fees

Transhumant herders entrust more small ruminants (69.8 head) than large ruminants (28.63) to intermediaries (Table 5).

3.7. Butchers' income during the transhumance period

The highest profit margin is recorded on market days during transhumance: 19,269±1,777.7 compared to 9,384.6±6,337 FCFA/ordinary day.

3.8. Convoying costs

The costs of transporting animals on foot during transhumance differ according to the distance covered and the species of animal to be transported. The highest costs are recorded for large livestock (1000-3500 FCFA/cattle; 1500-3000 FCFA/camel) compared to 500-2000 FCFA for small ruminants (sheep and goats).

3.9. Status of transhumance at the N'Gonga livestock market

The commune receives large numbers of transhumant animals each year before continuing on to Mali, which is their host area. The presence of these transhumant animals is marked by large-scale presentations and sales at the N'Gonga livestock market. The periods of departure and return favor an improvement in the income of the various actors present at the livestock market.

The market taxes are the presentation tax, the identification tax for animals sold, the slaughter tax, the tax collected at the loading bay and the road station for vehicles transporting animals. The income of the various tax collectors from the collection of the above-mentioned taxes increases during the passage of transhumant because of the large flow of animals presented and sold at the livestock market.

During their passage through the commune, transhumant herders make little use of the livestock services for interventions on the herds, as most of them walk around with their syringes in their pockets doing the work themselves.

Transhumant herders leave Benin (especially herders with large ruminants) or Nigeria (especially herders with small ruminants) to come to N'Gonga (in May). After a stay of hardly more than a month, the transhumant continue on to Kouré and then Balleyara and Simiri. It is from Simiri that the transhumant herders return to Ménaka (Mali), despite the climate of insecurity prevailing in the locality.

Transhumance mobilizes certain resource persons (rouga, garso and dogari) whose duties are not paid for; they require a lot of courage, determination and above all patience. However, they benefit from fees granted by the transhumant herders according to tradition (for example, in the case of twin births, some transhumant herders grant one of the children to the rouga, garso or dogari).

4. DISCUSSION

4.1. Actors and length of time in the trade

All the actors surveyed are men. This confirms the religious and social nature of the area, which means that women are not interested in this type of activity. Among all the actors

surveyed, the average age of the collectors is high (49.1±5.5 years). Most of them are auxiliary agents from the administration, transferred to the commune of N'Gonga. Conveyors are the youngest category of actors (32.4±4 years). Transporting goods on foot is a noble and arduous profession that requires a lot of physical effort. For walking long distances in record time, age is an important factor to consider. Conveying is the main, longest and most delicate phase of driving commercial livestock. According to Boutrais (1994), in Adamaoua, sending livestock on foot to the south of Cameroon represents a whole expedition that lasts about a month. In this region, the conveyors are mainly Fulani (sons of poor or young herders). In addition to the expected earnings, young people join as couriers out of a spirit of adventure and discovery, particularly because of the attraction of the big cities. This is not the case in Senegal, where almost all ethnic groups are found (Sane, 2010).

The highest average household size (8.1±4.6 persons) is recorded among transhumant herders. This is due to polygamy, which is becoming more widespread among this category of actors. People marry several women in order to have many children who will carry out the various tasks of the family (especially herding).

The high average length of time in the trade is recorded among butchers. It is around 21.9±12.2 years, according to the results obtained during this study. Apprentice butchers (who will become butchers) in the commune of N'Gonga are relatively young. Indeed, after their adolescence, young people leave for the cities to practice the butcher's trade. As a result, they enter the trade at a very early age; hence the high average length of time in the trade. This phenomenon is identical to that observed in Dakar by Sane (2010), where young people start working in the trade as early as their teens.

4.2 Evolution of animal sales by transhumant herders

The high sales of cattle (98.8%) and goats (100%) are observed during the transhumance period because this is the time when the herder needs money the most. According to Sounkeré (2003), what makes transhumance special is the fact that it brings with it a higher number of animals than the average recorded among local herders. The various expenditure items are: family and animal food, school fees for children and medical expenses, purchases made at the time of departure from the transhumance (supplementary food: natron and salt) and tea and sugar requirements. It is in the same framework that Baroin and Boutrais (2009) have shown that livestock fulfil several social functions in the lives of pastoral Fulani. According to Laouali (2014), Gnanda et al (2016), the purchase of food is the main reason for selling.

The religious festival periods (Tabaski and Mouloud) are favourable for the sale of sheep and goats. Foga (2021) states that at the N'Gonga livestock market, the sale rates recorded are

100% and 98.9% respectively for goats and sheep during the Tabaski period. The study by Wane (2005) in Senegal shows peaks in sales during festive periods and confreres' gatherings.

4.3. Socio-economic contribution of animal sales during transhumance

Most buyers are resellers. The resale of animals is a livestock trade activity that consists of buying animals at the various collection markets and reselling them at other types of market known as assembly markets (such as N'Gonga). These markets are most often located in the sedentary zone (but are very frequented by transhumant herders) with flourishing commercial activities. At the N'Gonga livestock market, these types of buyers/retailers are the main actors in the livestock trade. The resale of livestock is an important source of cash income that contributes to raising the standard of living of rural populations (Sibiri Zoundi and Hitimana, 2008).

The collection markets are often far from the main towns and cities, and transport is very difficult. This generates substantial income for the transporters (on foot or by truck), which confirms the results of this study, which show that transporting cattle on foot generates 1000-3500 FCFA per animal and 1500-3000 FCFA per camel, compared to 500-2000 FCFA for small ruminants.

At the N'Gonga livestock market, the intermediaries' commission fees are around 2,500 FCFA for large ruminants of transhumant animals. And 500 FCFA for small ruminants belonging to transhumant. The results of this study differ from those of Amadou (2011) for small ruminants, which state that in the Balleyara livestock market (Niger), intermediaries earn a commission of 2,500 FCFA for large ruminants and 250 FCFA for small ruminants. According to Diallo (1986) in the livestock market of Fatoma (Mali), middlemen receive a commission of nearly 5% on the sale price of each animal.

Collectors are paid 10% of their daily takings. These results are in line with those of Amadou (2011), who states that collectors in the livestock markets of Balleyara, Guidan Roumdji and Say are paid 10% of their daily takings.

Butchery is a very promising activity that brings in a lot of money for those who practice it. The results of this study (9,384.6± 6,337 FCFA/day and 19,269 ± 1,777.7 FCFA/market) are in line with that conducted by Bahari (2011) on the marketing of red meat in the urban community of Niamey in Niger, where the wholesale butcher makes a profit of 30,919 FCFA. According to Bahari (2011), the retail butcher selling grilled meat obtains 70,700 FCFA against 21,393 FCFA for the retail butcher selling raw meat.

5. CONCLUSION

The results of this study show that transhumant livestock farming generates significant income from the sale of animals. The study made it possible to determine the income generated by transhumance at the time of the herders' passage through the area. This was made possible because of the large flow of presentations and sales of animals recorded at the livestock market during the transhumance period. Through the same study, it was also possible to identify the actors involved in the N'Gonga livestock market.

6. CONFLICTS OF INTEREST

The authors of this manuscript declare that there are no conflicts of interest between them.

7. DECLARATION OF AUTHORS' CONTRIBUTIONS

In the present study, Mr Ibrahim DJIBO ensured the elaboration of the research protocol, the collection and processing of data and the drafting of the manuscript with the collaboration of Mr Bahari AMADOU ABDOULAYE and Mr Kailou FOGA. Mr. Siaka DIARRA contributed to the proofreading of the different versions to improve the scientific quality of the manuscript.

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