

## Impact of Price Change on Meat Consumption, Case of Broilers at Bakwadianga Market in Mbuji-Mayi City, Drc

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### Abstract

In the production chain, price is one of the factors that influences the purchase of consumer goods. It depends on several factors including transport and sometimes the transformation and marketing processes, not to mention the share of taxes. Thus, its evolution on the market (increase or decrease) has always favoured the sales activity because consumers of the products have always been, for the majority, qualified as price-sensitive, given the importance they attach to it.

Broiler is one of the foods that enters most consumer rations; we looked at the price evolution of the sellers. A major concern has accompanied us along our study: whether Price variation can have a real impact on the consumption of meat products, the case of broiler meat in the city of Mbuji-Mayi.

To achieve this end, we used the statistical method based on the survey technique. Our samples are broiler sellers and households (consumers) in the vicinity of the target market. We offered ourselves as a framework the commune of DIBINDI which hosts one of the big markets of the city namely the Bakwadianga market.

At the end of the analysis of our results, we arrived at these figures and interesting comments: only 34.5% of the global supply of broilers comes from local breeders and the remaining 65.5% is delivery from the outside of the country, because the economy is proving to be extroverted. Among the sellers of chickens alone 13.4% of sellers are also breeders, but of the traditional speculation minus the improved one. Monthly price instability has been reported during the year: the month of January is the lowest possible price and in December the price is rising. It is therefore at this period when the mass sale is carried out because the demand reaches nearly 96% against 4% for the ordinary periods.

**Keywords:** Price Change; Meat Consumption; Broilers

### Introduction

Price is perceived as a factor that encourages consumers to buy or not to buy. It plays an important role in buying behaviour of consumers [1].

However, the global food crisis is felt in all parts of the world and by all social classes. FAO forecasts show that prices will remain high for at least more than a decade, posing a risk to the lives of one billion poor people worldwide (Marianne Santarelli 2008).

Thus, It is true that the price to consumers is one of the major determinants of consumers' "choice", it depends on the multiple elements from the production from production cycle to reach the consumer table, through the many "intermediaries" involved in transport and processing but also for marketing processes, not to mention the share of taxes (www.quality food, Be/access, 2015).

To do this, some consumers place more importance on price than others, they are said to be price sensitive. Yet several factors affect price sensitivity. In the case of two great authors and economists Nagle and Holden have identified nine factors of price sensitivities, it is: The originality of the product, the knowledge of the products of substitution, the weight of the expenditure, the weight of the price in the cost-total, cost sharing, purchase costs, purchases already amortized, perceived quality storage [1].

The choice made on this subject is motivated by an observation of certain economic facts on the Bakwadianga market such as: the price variation of meat products, the case of broilers, the atomicity of the sellers of chickens. Indeed, the literature specifies that broilers contain more proteins less fat and less cholesterol than red meat (Abomefa, 2008). Its proteins are excellent qualities and contain essential amino acids that humans need. Broiler fat is more unsaturated than the fatty acid of red meat. This chicken meat is an important source of group B vitamin and minerals (ITIVA, 1996) As a result, the issue of price variation in broiler chicken is a major concern in Africa, as elsewhere and is gaining momentum in Kasai-oriental in general and particularly in the city of Mbuji-Mayi. This situation is observed at particular times such as: the period of the festivities and the return to school or the prices are kept on the rise etc. However, the price remains one of the parameters that stimulates consumers to buy or not to buy commodities. Moreover, the price is the only component of the marketing mix that represents a sacrifice for consumers. The price then plays a very important role in the buying behaviour [1].

Given that the problem is spilling ink and saliva in the city of Mbuji-Mayi, this work offers a framework for analysing consumer behaviour in the face of changes in broiler price, in the commune of Dibindi which is home to one of the city's major market namely the Bakwadianga market.

Therefore, the key question that arises in this work is that; "Would the price change have a real impact on the consumption of meat products, the case of broiler meat in the city of Mbuji-Mayi on the Bakwadianga market in the commune of Dibindi"? Given that in a perfectly competitive market the price to consumers is resulting of market forces and therefore an exogenous factor vis-à-vis the producers, the latter is only a confrontation of the law of supply and demand. Hence, when demand increases and supply decreases, price increases and vice versa follow. Of course, this price change would have an impact on the consumption of meat products. It is the same for the transactions of broilers.

On the other hand, it can be said that the consumption of meat products, as in the case of broilers, is not a function of the variation of prices on the market. Otherwise the variation of prices to consumers within a certain range does not appreciably influence the consumption of certain meat pro.

The objective assigned to this study is to analyze the behaviour of ducts such as broilers in the city of Mbuji-Mayi at the Bakwadianga market. consumers with regard to the price variation of meat chickens on the Bakwadianga market in the commune of Dibindi.

This work uses the statistical method and is based on the survey technique. Therefore, our sampling is done randomly on two levels: On the one hand, a sample is made with broiler sellers as a primary unit and on the other hand the second sample is made with households (consumers) of market surroundings Bakwadianga as a secondary unit. This work will make use of the following techniques:

- The documentary technique: Here we use archives that reveal the historical data on the price with state services.
- The free interview technique: Here a two-level survey questionnaire is used on the one hand for broiler sellers and on the other hand for consumers. Our sampling frame is made up of all sellers on one side and the other of all consumers. But in all cases the sample consists of only 30 subjects and this to allow a good extrapolation of the results.

## Materials and Methods

### Description of the environment

#### Geographical situation

In terms of climate, the city of Mbujimayi has two seasons: the rainy season of  $\pm 9$  months and the dry season of  $\pm 3$  months. This city is located at an altitude ranging from 450 to 900m in a north-west and south-east direction. The city of Mbuji-Mayi and chief town of Kasai

Oriental Province, is located at 6° 5 'south latitude and between 23° 27' and 23° 40 'east longitude. This city covers an area stretching 15 km from West to East and 9 km from South to North.

The most prominent relief is the plateau hilly here and there by ravines created by lack of drainage channels and poor drainage of rainwater, the average altitude is 740m.

As far as hydrography is concerned, the rivers flowing in the city of Mbuji-Mayi are: the Bipemba, Muya, Mbuji-Mayi and Kanshi rivers.

The vegetation of the town of Mbuji-Mayi consists of several vegetative species among which we will mention trees, shrubs, grasses, grasses and ornamental plants. This vegetation is dominated by wooded savanna.

The soil of the town of Mbuji-Mayi consists essentially of 85% sand and 15% clay, so it is a sand-clay soil with a particularly loose structure [2].



Figure 1: Administrative Map of Mbuji-Mayi City / Source: (www.Country Tourism, Com, 2015).

### Presentation of materials

Our investigations focused on broilers, so sellers and breeders broilers use several materials in different directions: - breeding equipment: batteries, perch, drinking troughs, feeders, wood chips, braziers, nesting boxes. - sales equipment: Cage, table, trough, feeder. Plate 1 shows the image of packaged chickens.

Plates 1 show the image of imported Wilki brand packaged chickens as sold under Bakwadianga market conditions in Mbuji-Mayi City.



Plate 1: The image of packaged chickens imported from Wilki brand in the Bakwadianga market.

The presence of the researcher on the ground next to the saleswoman testifies the moment of observation of the conditions of sale and of taking data or surveys. Descent In the field, data on chicken price changes were collected twice a week at the beginning of the week (Tuesday) and the end of the week (Saturday). The days are thus divided so as to clearly define the Highlight of the variation and allow the calculation of the average weekly price variation without departing from reality on the price fluctuation of broilers in this Bakwadianga market. The boards 2A and 2B present the image of a breeder in the enclosure of his hen house in the presence of the chickens of flesh at the end of the cycle of breeding or the 35ejour.

It is predicted that at the end of the broiler rearing cycle in the conditions of the city of Mbuji-Mayi, an individual weighs more or less 2 kg, but that depends on the breeds. Generally the cobb 500 breed can go beyond 2 kg. The chicks used in livestock and industrial feeds come mainly from Zambia. But according to some sources, the slaughtered and packaged chickens that are the subject of the large-scale transactions on the Bakwadianga market in Mbujimayi City, may come from either Zambia or also South Africa. This implies that the overall local offer of meat chicken in the city of Mbuji-Mayi has so far been insufficient.

The Bakwadianga market, which is a large aggregates market, also embodies the microeconomic market for broilers. In this market the price of slaughtered (7,500 to 8500Fc for a chicken of ± 1.2 kg) differs from the price of live chickens (6500 to 7000Fc for a chicken of ± 1.4 kg). It has been found that in this market, live chickens are relatively cheaper than packaged chickens. The average exchange rate during the research period was (\$1 = 920 Fc).

**Methods**

To complete our work, we used the survey method. Our sample is drawn from a frame of all broiler sellers on the Bakwadianga market and others by consumers in Dibindi commune. The choice of the subjects that constituted our sample is random, on this our sample is said random. We worked at two levels (consumer and seller) and for each phase our sample consisted of 30 subjects to allow a good extrapolation according to the theory of the sounding technique. For the collection of field data we had to use a questionnaire that allowed us to have free interview and in isolation with each subject that was an integral part of our sample and that on the side of the sellers and consumers.

**Presentation and Interpretation of Results**

After spending a lot of time in the field collecting the data, the analyzed results (SPSS software) are as follows.

**The origin of broiler chickens**

The study is based on broilers, we sought to find out the origin of the latter which are the subject of large transactions and affectionate consumers of the city of Mbuji-Mayi. The important question is to know where the supply comes from: "Is it local or imported? ". This is to determine the reality and determine whether the meat chickens consumed in Mbuji-Mayi City are produced locally or imported. Table 1 below shows the source of the chickens consumed.

Origin	Frequency	Rate (%)	%Cumulative
farmer	6	20,7	-
Imported	19	65,5	65,5
Myself	4	13,8	-
PL		-	34 ;5
Total	29	100,0	100,0

**Table 1:** The origin of broiler chickens.  
*PL: Local production.*

With reference to the data in table 1, the cumulative column shows that local breeders only deliver 34.5% of the global supply on the local market, while the rest of the supply comes from importing 65, 5%. This proves that up to that point the breeding of broilers has not been developed in the province of Kasai Oriental, this situation explains the scarcity of meat or meat products in the province.

In addition, these data prove that the province's economy is extroverted, i.e. outward-looking, because to meet domestic demand for broilers, importation is more or less 65%. Figure 2 gives a clear indication of the provenance rate of broilers.

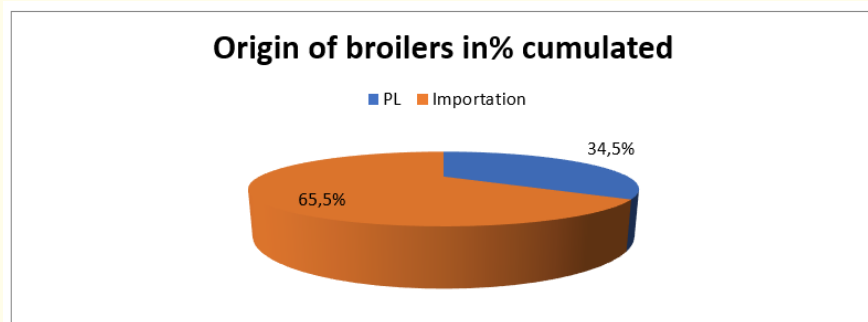


Figure 2: The Origin of broiler chickens (percentages (%) valid and cumulative).

In the light of figure 2, which presents the pie chart on the broiler source rate, it can be seen that from the subdivision of this diagram, two unequal parts result, of which the one representing local production is more small (34%). This means that for broilers traded and consumed locally, almost all of the supply is 65% from outside the country. Hence an extrovert economy for the province.

**Seller-breeder**

On this point it is question how many sellers of chickens who are at the same time the function of breeder and more particularly in the speculation of broilers. It is true that currently broiler chicken is a commodity at the center of transactions, but most vendors in some countries, especially in Africa, are not poultry specialists, most 'a commodity and not a finished product. Table 2 presents the situation of vendors who take care of poultry farming or not.

Seller type	Frequency	rate (%)	YTD (%)
Non-breeder seller	26	86,6	86,6
Seller Breeder	4	13,4	13,4
Total	30	100,0	100,0

Table 2: Position of sellers between sale and livestock.

After analyzing the data in table 2, we can see that 86.6% of sellers do not practice breeding and of the total number of respondents, only 13.4% do the practice. Traditional poultry farming. This shows the absence of large poultry farms in Kasai Oriental province.

Most of those who are interested in the marketing of chickens in general and broilers in particular to 86% are small traders who roll small herds or deal with imported packaged chickens. Figure 3 elucidates the situation between the seller-breeders and the non-breeders.

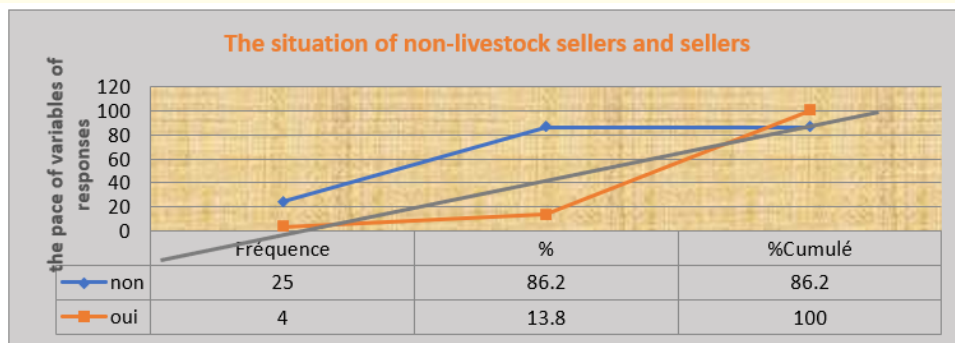


Figure 3: Classification of sellers of chickens in seller-breeders and sellers not breeders.

By observing the two curves shown in figure 3, we see that the curve of non-livestock sellers occupies a higher position relative to the bisector vis-à-vis that of seller-breeders which is practically below the bisector. The high position of the first curve simply demonstrates that the marketing of broilers is based on a truncated basis, which highlights the instability of this individual market for broilers and the latter is reflected in a large price variation to consumers.

**Monthly sales price evolution for the year 2014**

Through our surveys we also wanted to determine on the basis of the historical data of the year 2014 the pace of variation of average monthly sales price of broilers according to the market reality as categorized by weight (1.2 kg, 1.4 kg, 1.5 kg).

**The evolution of monthly sales price of chicken weighing 1.2 kg**

The monthly price trend for broilers with an average weight of 1.2 kg is shown in table 3.

Month	Price mens (Fc)	Frequency	Rate (%)	% Cumulative
1	4500	1	3,4	3,4
2	6000	3	10,3	13,8
3	6500	2	6,9	20,7
4	7000	2	6,9	27,6
5	6500	4	13,8	41,4
6	7000	6	20,7	62,1
7	75000	3	10,3	72,4
8	75000	4	13,8	86,2
9	8000	2	6,9	89,7
10	8500	1	3,4	93,1
11	9000	1	3,4	96,6
12	11500	1	3,4	100,0
Total		30	100,0	

Table 3: The monthly price of 1.2 kg chickens for 2014.

With reference to the data in table 3, it turns out that from January to December the price varies gradually and goes from simple (4500 FC) to double or more (11000 FC). This demonstrates the instability of consumer prices in the chicken market.

Starting from figure 4, we notice that the price curve of the unit weight (1.2 kg) of the broilers has three phases which spread out as follows: from January to February, then the curve approaches a slight slope of February in September and its slope becomes steep from September to December with the highest point in December. This means that the price evolves almost in three phases, the fall of price is done in January and goes up timidly in February (4300 - 6000 FC), a variation of 39, 5%, of this month until September the variation is done gradually (6000 - 8500 FC), an increase of 41.6%. From the month of September we reach a strong increase with the optimum in December (8000 - 11500FC is a variation of 43.75%.

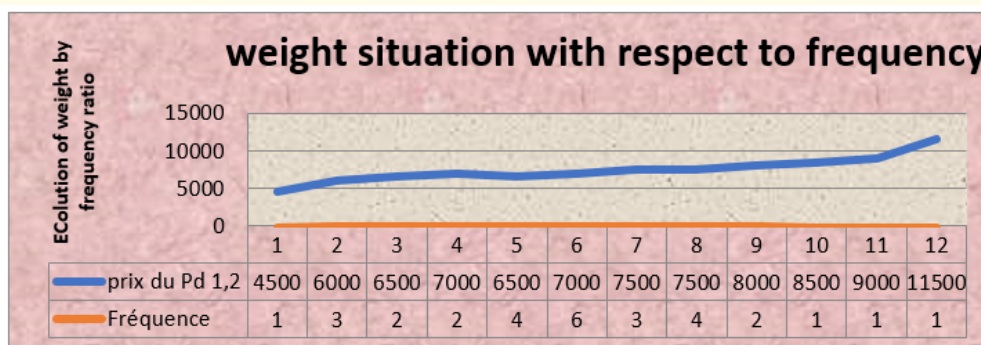


Figure 4: Consumer price evolution of chicken 1.2 kg in 2014.

Monthly sales chicken price evolution of 1.4 kg

Taking historical data on the price evolution of broiler meat weighing 1.4kg during 2014 is shown in table 4.

Month	PU (FC)	Frequency	Rate (%)	%Accumulated
1	6500	1	3,4	3,4
2	7000	1	3,4	6,9
3	7500	1	3,4	10,3
4	8000	2	6,9	17,2
5	8500	1	3,4	20,7
6	9000	1	3,4	24,1
7	10000	3	10,3	34,5
8	11000	3	10,3	44,8
9	12000	7	24,1	69,0
10	13000	2	6,9	75,9
11	13500	1	3,4	79,3
12	15000	2	6,9	86,2
Total		30	100,0	

Table 4: Monthly price of 1.4 kg chickens for 2014.

With regard to table 4, which gives the price to consumers of broilers weighing 1.4 kg on the market, we find that the monthly price varied from 6500 FC (January) to 15000 FC (December).

As in the previous case, the price of chickens weighing 1.4kg is unstable during the year. Figure 5 shows the curve that shows the pace of the monthly price change for chickens weighing 1.4 kg in 2014.

For figure 5, the curve evolves in three phases: the first goes from January to June where the price varies from 6500 to 9000 FC, a positive rate of change of 38.46% and the second phase, from June to October or the range of variation is from 9000 to 13000 FC, a variation rate of 44.44%. Finally, the third goes from November to December where the price slides upwards in the range of 13500 to 15000Fc, a rate of 11.11%. It is found that the consumer price rate for 1.4 kg broiler is in the range of 11.11 to 44.44%. These figures determine the degree of price instability in the consumer market for meat products such as broiler meat, which is an à 80% imported commodity.

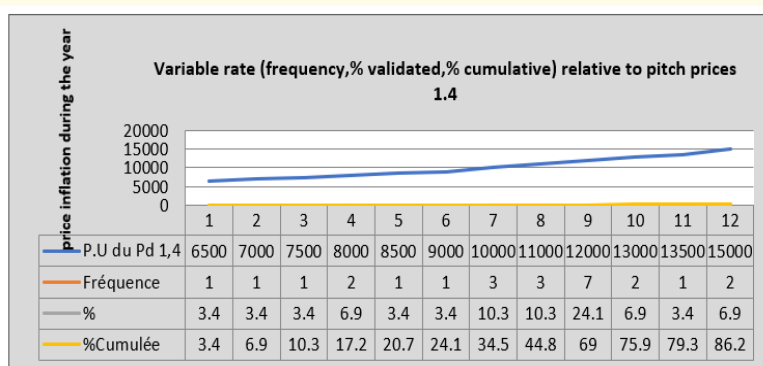


Figure 5: Evolution of chicken consumer prices 1.4 kg in 2014.

Monthly sales chicken price evolution of 1.5 kg

Data on the consumer price of broilers weighing more than or equal to 1.5 kg are given in table 5 below.

Month	P.U (FC)	Frequency	Rate (%)	%Accumulated
1	11000	1	3,4	3,4
2	12000	5	17,2	20,7
3	13000	2	6,9	27,6
4	14000	1	3,4	31,0
5	15000	3	10,3	41,4
6	16000	1	3,4	44,8
7	17000	2	6,9	51,7
8	18000	3	10,3	62,1
9	19000	3	10,3	72,4
10	19500	5	17,2	89,7
11	20000	2	6,9	96,6
12	21500	2	6,9	100,0
	Total	30	100,0	

Table 5: The monthly price of chickens of 1.5 kg for the year 2014.



With regard to the data in table 5, which show the evolution of the monthly price for chickens weighing 1.5 kg or large chicken, we find the following: the price varied from 11000 to 21500 FC during the year. The annual rate of change in consumer price for this category of chicken is 95.45%. Figure 6 shows the curve showing the pace of price change during the year.

Considering the shape of the curve shown in figure 6, we note that the latter is inclined with a slope that rises gradually from left to right, its pace follows the general shape of the curves that reflect the phenomenon the macroeconomic called "inflation". This curve highlights an inflationary trend, that is to say that monthly prices are maintained permanently and gradually upwards. The monthly rate of change in prices ranges from 2.6 to 9.09%, in monetary terms, a monthly increase in the range of \$ 0.54 to \$ 1.087.

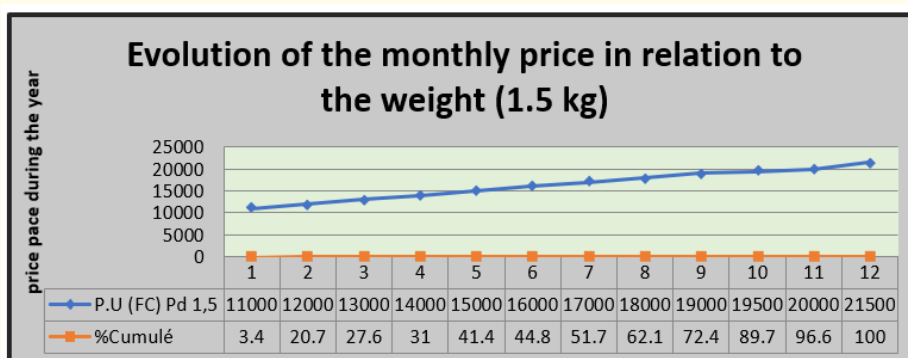


Figure 6: Monthly price movement for consumers for 1.5 kg chickens during the year 2014.

**Comparison of sales prices by category of broiler chickens (weight 1.4 and 1.5 kg)**

After observing sales prices especially for the two categories of broilers, those weighing respectively 1.4 kg and 1.5 kg which seem higher in the face of the economic situation in the city of Mbuji-Mayi, the questions to know: "Is it for the transaction of the broilers weighing 1.4 and 1.5 kg can we easily find the customer? In addition is it a truly profitable activity? ". Comparison data between categories of chickens can be found in table 6.

Profitable Weight	Frequency	Rate (%)	% Cumulative
weight 1.4	27	90	90
poids1,5	3	10	10
Total	30	100,0	100

Table 6: Comparison of two categories of chickens and establishing the level of profitability.

Analysis of the data in table 6 shows that 90% (27/30) of salespeople claim that compared to the selling price of broilers, the transaction of chickens weighing 1.4kg is profitable. But against this, only 10% (3/30) of sellers confirm that the 1.5 kg chicken transaction is profitable. In view of this reality and in view of the prevailing economic situation in the city, a relatively cheaper commodity allows a stock rotation faster and therefore can be more profitable than the one that costs more. Hence, chickens are cheaper and the flow is faster, which leads to profitability. Sellers have every interest in keeping consumer prices within the limited accessibility of consumers by taking the wind in their sails. Figure 7 shows the curves that compare the two categories of chickens (1.4 kg and 1.5 kg) with the selling price.

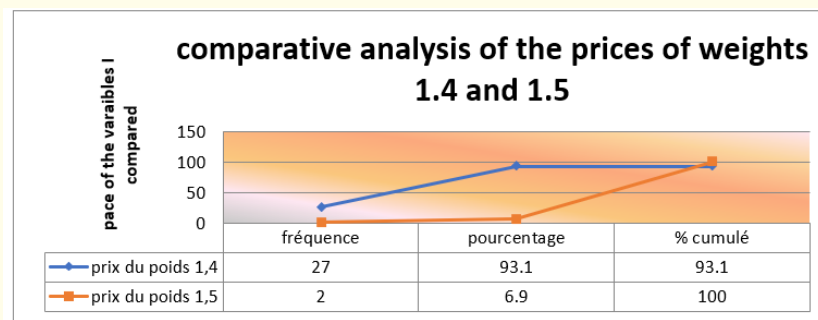


Figure 7: Comparison of price current for chickens weighing 1.4 and 1.5 kg.

The curve representing the evolution of the transactional situation of the broilers weighing 1.4 kg is above that of the chickens weighing 1.5 kg. The upper position of the chicken curve weighing 1.4 kg, proves that chickens that are relatively cheaper are more in demand than those that cost more especially in the economic environment of Mbuji-Mayi.

Hence, local breeders need to produce their chickens as much as possible minimizing their cost of production to be more competitive in the market and sellers must remain realistic while conforming to the economic environment of the trading environment.

**Favourable period to the vent**

**Sales period**

Favorable selling time	Frequency	Rate (%)	%Cumulative
Holiday season	29	96,6	96,6
Ordinary period	1	3,4	3,4

Table 7: Sales period.

Percentage of people surveyed salespeople and consumers confirmed that this the best time for our sale and the best time to consume the chicken as the event is rare.

It is also during this period that the selling price is high all the time and it falls during the normal time.

So what is the basis of the variation?

**Cause of variation**

Chicken is a poultry very consumed in the world, its demand is always high, despite this continuous demand, its price continues to vary, so this is how we wanted to know the major causes of this variation. The answer in this table 8.

Cause variation	Frequency	%	%Cummlative
Food cost	1	3,4	3,4
Seller number	15	51,7	55,2
Scarcity of broilers	13	44,8	100,0
Total	29	100,0	

Table 8: Cause variation.

So after data analysis, the results revealed that the main cause of the variation in this speculation is the number of people selling this product, which does not facilitate price control, everyone wants to sell regardless of the price, gold that the consumer prefers the cheaper one. This is proved by 51.7% of respondents followed by scarcity, we have already said, so much that demand is strong in this product, sometimes the market is left without selling and those who have a little profit to do cheap, besides that, the farmers implore the high prices of the food, then incorporate this load during the formation of the price, that also causes increases.

**Elasticity**

Despite the high price, strong demand, is that when there is price change consumers continue to buy? This is a question asked to sellers and consumers during our inquiry that they answered.

Elasticity	Frequency	Percentage (%)	% Cumulative
Always Buy	28	96,6	96,6
Sometimes	1	3,4	100,0
Total	29	100,0	

*Table 9: Elasticity.*

Then the results show that despite all this variation the consumer is still buying and the seller is still selling as indicated by this percentage which is 96.6% on the entire seller and consumer surveyed, just 3.4% of respondents are resisting.

So the chicken is inelastic to prices.

**Gain**

Having observed all this we say, but how much the seller earns after one week of sales on average.

Gain	Frequency	Valid Percent	Cumulative Percent
4000	2	6,9	6,9
4500	1	3,4	10,3
5000	5	17,2	27,6
6000	2	6,9	34,5
7000	1	3,4	37,9
8000	1	3,4	41,4
9000	1	3,4	44,8
9500	1	3,4	48,3
10000	2	6,9	55,2
20000	3	10,3	65,5
25000	1	3,4	69,0
30000	3	10,3	79,3
35000	2	6,9	86,2
38000	2	6,9	93,1
40000	2	6,9	100,0
Total	29	100,0	

*Table 10: Weekly gain.*

The gain obtained after a week varies from 4000 to 40000 FC according to the sale, then in average we found 17379.3fc as gain. That is, they have at least 2482.2 fc days per day [3-16].

### Conclusion

The objective assigned to this study was to analyze the behavior of consumers with regard to the price variation of meat chickens on the Bakwadianga market in the commune of Dibindi. Through these investigations we are also interested in the attitude of sellers of meat products, because it is market where both actors are active and without which the market is non-existent.

We can conclude by confirming that the behavior of consumers changes proportionally with the price variation on the market. We therefore recommend an intensification of the breeding of this speculation? This can be a great solution to the problem of price fluctuation depending on different time periods of the whole year.

Researchers can find new avenues by doing similar studies on other agricultural products, to see the consumers price oriented trend towards these products.

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