



Price perception on weights and measures at the local markets of Ghana

Adwoa Oforiwa Antwi^{*,1}, Kenichi Matsui¹

Faculty of Environmental Sciences, Graduate School of Life and Environmental Sciences, University of Tsukuba, Japan

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Abstract

In local markets in Ghana, merchants typically place vegetables and crops in pales, cans or plastic containers of varying sizes even though the central government has introduced standard weights and measures for more efficient market transactions. The introduction of these standardized weights and measures appears to be a prerequisite for nearly all aspects of economic growth. This paper used a questionnaire survey to understand how marketers perceive and interpret weights and measures in selling or buying three main vegetables (tomato, pepper, and eggplant) and rice in Berekum municipality, Ghana. Using a random selection of 30 marketers and 30 farmers, the research examined the types of weights and measures used in the market to understand how marketers perceived weights and measures in price setting. In addition, various policies governing these local measures were examined to better understand their perceptions and interpretations. The results indicated that despite long experience in marketing and the use of ad hoc weights and measures, 55 percent of respondents did not adhere to standards or policies in setting prices. About 44 percent of retailing was done using the popular traditional weights called "olonka" and 69 percent of wholesale was done using baskets. About 60 percent of respondents perceived weights and measures as a reliable tool for trade, setting prices, and maximizing profit. The use of containers or varying sizes and shapes imposed market inefficiencies and pricing challenges on the local market. This paper concludes with recommendations on how responsible market agencies can craft standard weights and measures by taking into consideration the existing customary practices.

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Introduction

In Ghana, local markets are important in sustaining the livelihoods of marketers, farmers, and consumers as about 69 percent of food products are sold and bought locally (Lyon, 2003). At these markets, agricultural commodities are sold by using varying customary weights and measures.

In selling vegetables, for example, marketers use pales, margarine tins, and plastic containers with different weights and sizes. In June 2013, the Ghanaian government introduced a national standard on weighing scales in an attempt to ensure uniformity in local market trading, to eliminate disputes over price-related ambiguities, and to facilitate international trade with West African neighbors. As the use of weighing scales and measures is already established in these neighboring countries, the adoption of the same weighing scales was considered necessary to make the local Ghanaian markets internationally accessible. However, as of 2017, this new policy has not been successfully adopted in Ghana's local markets. This paper

* Corresponding author.

E-mail addresses: adwoaforiwaa86@yahoo.com (A.O. Antwi), Kenichim@envr.tsukuba.ac.jp (K. Matsui).

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¹ Co-first authors.

attempts to understand why local marketers have not adopted the national standard of weights and measures. In doing so, it focuses on the question of how local marketers perceive and interpret weights and measures in selling three main vegetables (tomato, pepper, and eggplant) and rice in Berekum municipality, Ghana. A random selection of 30 marketers and 30 farmers selling these agricultural products in the Berekum weekly market was used to first identify the types of weights and measures used. Relevant policy documents governing these local measures were then examined to better understand the respondents' perceptions and interpretations. There is growing interests of weights and measures in connection with profit margins and food security in Africa although only a few studies have been published to date. This paper aims to fill this gap.

Literature Review

Several studies on traditional markets in Ghana have noted a lack of standardization and transparency (Boselie, Henson, & Weatherspoon, 2003; Neven & Reardon, 2004; Ortiz, Campbell, & Hyman, 2010; Weatherspoon & Reardon, 2003). Tollens (2000) argued that in Ghana prices are influenced by the interplay of bargaining power and trust relationships between marketers and farmer at wholesale. The production cost and socio-economic factors do not appear to play important roles. Kortege and Okonkwo (1993) argued that the marketer's ad hoc valuation of this "fair" return has resulted partly in price fluctuations.

From 1900 through the 1970s, Ghanaian traders' associations, which were established by the colonial authority, attempted to use the standardized system in determining prices (Lyon, 2003). These associations limited the power of traditional chiefs over market affairs (Clark, 1994) and gradually became an integral part of the Ghanaian and West African food systems (Ortiz et al., 2010). The colonial system also attempted to minimize the transaction costs of individuals while maintaining some room for price negotiations. It made information available on reputations, market prices, and supplies of products (Lyon, 2003; Ortiz et al., 2010). The markets were headed by market queens or *ohemaa*, who influenced decision-making on prices and other transactions at the local market.

After independence, the government of Ghana attempted to discontinue this system because these associations allegedly had engaged in price fixing/manipulation and hoarding goods, causing price hikes (Lyon, 2003; Ortiz et al., 2010). In the 1980s, the involvement of traders' associations in marketing was under the scrutiny of the structural adjustment program, resulting in the reduction of the associations (Lyon, 2003). The introduction of standardized weights and measures in 2003 was a part of the government's effort to curtail colonial market practices (Yiridoe, 2005).

Method

Background: Study Area

Berekum municipality is in the northwestern part of the Brong Ahafo region of Ghana. The municipality has a total

land area of 863.3 km² and shares boundaries with Tain district, Jaman South district, Dormaa East district and Sunyani West district (Berekum Municipal Assembly Annual Report [BMA], 2013). Berekum has a population of 129,628, and about two-thirds (67.3%) of the population is economically active. More than half of the work force is involved in agriculture, especially crop farming. About 83.5 percent of them are literate. The proportion of literate females (52.2%) is slightly higher than that of males (47.8%) (Ghana Statistical Service [GSS], 2012).

The municipality operates a periodic market where all wholesalers, retailers, producers, and other actors both from within and outside the municipality meet to transact various food-crop-related businesses. Berekum municipality is close to the Cote D'Ivoire and promotes economic and commercial activities with Cote D'Ivoire markets every Thursday.

Data Collection and Analysis

The field survey was carried out at Berekum's Thursday market for two weeks in December 2016. We selected those marketers and farmers who were selling three types of vegetables (pepper, tomato, and eggplant) and rice. In addition, we conducted qualitative interviews with 60 respondents (30 marketers and 30 farmers). Female dominance is the norm at this market and many other local markets, and it reflects the general expectation of Ghanaian society that women should play main roles at local markets.

Based on Lyon (2003), our questionnaire had three components. The first part of the questionnaire attempted to identify the social characteristics of the farmers and marketers, including their education, age, gender, work experience, their role at the market, and work organization. Secondly, we tried to identify if marketers and farmers at both wholesale and retail market spaces within the Berekum market have a specific group of customers they sell to. Thirdly, to have the respondents to describe their answers and experiences in their own words, we designed two open-ended questions. To help respondents to better understand the questions asked, all questions were translated into the local language, Twi.

For the survey, marketers and farmers were randomly selected during market hours. A field officer, who speaks Twi as his mother tongue and a native of Berekum, was contracted to collect information. Through him, we consulted market leaders and obtained their permission to conduct this survey. Before data collection, Adwoa Oforiwa Antwi made preliminary observations of market transactions between marketers and consumers in Berekum. The responses we obtained were coded using simple numbers and analyzed on Excel sheets. In the survey, photographs of traditional weights and measures at the market were also taken.

Results and Discussion

Marketers and farmers are important actors in agricultural marketing in Berekum municipality. Their activities form an important part of the local economy in this area.

Similar to other Ghanaian local markets, most of these marketers and farmers are women, and they formed 77 percent of the respondents in our survey.

Table 1 shows the social background of the respondents. All the respondents were within working age, between 20 and 41 years old. All marketers who responded to our survey had received some formal education. Among the farmers, 80 percent had received formal education. The majority of the respondents had had a formal education (90%). This result positively corresponded with the 2010 government report on the housing and population census (GSS, 2012).

The results also showed that most of the respondents, especially marketers, were well versed in the customary practices of the local market. About 87 percent of marketers had more than 6 years of experience as marketers. Among them, about 47 percent had more than 10 years of experience. Among farmers who sold their products at the Berekum market, 60 percent had more than 6 years of experience, of which 20 percent had more than 10 years of experience. This indicated that marketers tended to stay in the job longer than farmers, suggesting the existence of a well-established marketers' organization. Farmers who had experience at the market for 5 years or less made up 40 percent of all the farmers who responded to this survey, suggesting there is some room for new farmers to come to the market to sell their products.

Table 1 shows some clearly defined roles of farmers and marketers at this local market, somewhat based on the tradition that took shape under the colonial regime. About 90 percent of the farmers were engaged in wholesale activities alone. Only about 10 percent of the farmers directly

sold their products to customers. Among the marketers, 83 percent were retailers and 17 percent worked as both retailers and wholesalers. Those marketers who played a dual role were the so-called market queens or *ohemaa* whose position was based on marketer voting according to their social influence. These leaders have the power to influence market associations (for example, yam sellers' association, tomatoes sellers' association) in determining what crops marketers can sell at their local markets. These associations have established good relationships with producers; hence they have access to a large quantity of products to be sold at the markets. This result proves that the colonial market practice is not yet obsolete, despite Lyon's argument (2003) that the influence of *ohemaa* on marketers' associations collapsed in local markets in Ghana sometime between 1970 and 1990. We argue that the resistance to adopting the new government standard of weights and measures was partly derived from this remaining adherence to traditional colonial practices.

Traditional Weights and Measures Used by Marketers in the Local Markets

The questionnaire survey then tried to identify the extent to which marketers and farmers used traditional weights at the Berekum market. Table 2 shows that traditional weights were used most in selling peppers and eggplants. These two products are available all year round at the Berekum market, although prices fluctuate seasonally.

Among traditional measures, 44 percent of trade was done using the popular traditional weights called *olonkas*

Table 1
Social background of marketers and farmers at Berekum

Characteristic	Marketers	Farmers	Total
Age (years)			
>20	0	0	0
21–30	9 (30%)	4 (13%)	13 (21.7%)
31–40	10 (33%)	14 (47%)	24 (40.0%)
>41	11 (37%)	12 (40%)	23 (38.3%)
Gender			
Female	30 (100%)	16 (53%)	46 (76.7%)
Male	0	14 (47%)	14 (23.3%)
Formal education			
Primary	10 (33%)	6 (20%)	16 (26.7%)
Junior high	11 (37%)	9 (30%)	20 (33.3%)
Senior high	6 (20%)	9 (30%)	15 (25%)
Tertiary	3 (10%)	0	3 (0.5%)
None		6 (20%)	6 (10%)
Experience (years)			
>1	0	3 (10%)	3 (0.5%)
1–5	4 (13%)	9 (30%)	13 (21.7%)
6–10	12 (40%)	12 (40%)	24 (40%)
<10	14 (47%)	6 (20%)	20 (33.3%)
Retailers	25 (83%)	4 (10%)	29 (48.3%)
Wholesalers	0	27 (90%)	27 (45%)
Both wholesalers and retailers	5 (17%)	0	5 (8.8%)
Other markets they trade	100% work at the same local market	0	0
Organization/FBO			
Member	15 (50%)	6 (20%)	21 (35%)
Non-member	15 (50%)	24 (80%)	39 (65%)
Policies governing weight and measures	No policies	—	

Table 2
Types of traditional weights and measures used at Berekum

	Plastic container		Olonka/can/tin		Basket		Black bucket		Total
	Large	Small	Large	Small	Large	Small	Large	Small	
Tomato	0	4	7	7	4	4	7	4	37
Garden-egg	5	5	8	9	4	4	7	5	47
Pepper	7	7	9	10	5	3	2	4	47
Rice	0	0	7	6	0	0	0	0	13
Total	12	16	31	32	13	11	16	13	144
%	8%	11%	22%	22%	9%	8%	11%	9%	

that are based on empty margarine and tomato paste tins. They are usually used by marketers to represent one kilogram; however, *olonkas* vary in size. They are also used to sell cereals and vegetables. A small *olonka* was most popular for selling rice, but prices differed by seller.

At the wholesale market, black buckets were common, constituting 20 percent of all containers used at this market. Consumers bought these vegetables in bulk, especially when in season to preserve them for a longer period (June–July). Baskets had the least usage (17%) since they were mostly used in the wholesale area by farmers. The use of these containers with varying sizes and shapes for bulk sales posed pricing challenges and market inefficiencies.

Traditional Weights and Measures Used by Farmers

The questionnaire asked the farmers, who were mostly wholesalers, to indicate the types of traditional weights and measures they used at the market. Table 3 shows that farmers used traditional weights and measures mostly in selling peppers. Farmers in this municipality tended to focus on pepper production.

Among the traditional weights and measures used, 69 percent of trade was done with baskets because farmers tended to sell wholesale; therefore, they needed large containers to measure their products. In addition, they would travel some distance before reaching the local market, and baskets are customarily used to store and carry farm products. About 8 percent of trade was done using *olonkas* indicating that they are used mostly for retail activities. Among farmers, both small and large black buckets were the least popular (5.8%), quite contrary to the marketers' case.

At this market, weights and measures gave no indication of product quality. Sometimes buyers found vegetables in smaller sizes arranged at the bottom and bigger ones at the top.

Farmers and Marketers Perception About Pricing

The questionnaire asked respondents about their perception of using traditional weights and measures. Table 4 shows that about 72 percent of the respondents always used the traditional weights and measures for trading.

Among the marketers in particular, more than half (53.3%) perceived these traditional weights as quick and easy for measuring and transacting business. About 20 percent of the marketers also saw these traditional weights and measures as a tool for calculating and maximizing their profits, while 13 percent perceived them as a reliable tool for business transactions.

Similarly, more than half (53.3%) of the farmers perceived these weights and measures as tools for easy pricing, measuring, and retailing their products, while 3.3 percent perceived them as tools for maximizing profits. Although these traditional weights and measures do not correspond with national or international standards, most respondents did emphasize the importance of having weights and measures in some form to obtain information about the value of products to negotiate in transactions.

The reason behind not using traditional weights and measures at local markets was that customary pricing practices placed heavier emphasis on price negotiations at the market. This tendency has led to mistrust between buyers and sellers. As Table 4 shows, about 43 percent of farmers did not use traditional weights and measures because they would lead to price inefficiency and consumer lack of confidence that the prices accurately reflected a product's quality or quantity.

Our respondents were asked about how they set prices and if they had any standard weights and measures to adhere to in doing so. Table 5 shows that about 55 percent of the respondents said that they did not adhere to any standards. This finding somewhat corresponds with the past studies that contended pricing practices were largely

Table 3
Farmers' use of traditional weights and measures

	Plastic container		Olonka/can/tin		Basket		Black bucket		Total
	Large	Small	Large	Small	Large	Small	Large	Small	
Tomato	2	2	0	2	10	9	1	2	28
Garden-egg	1	1			10	9	2	2	25
Pepper	6	5	1	8	23	23	0	0	66
Rice	0	0	1	1	0	0	0	0	2
Total	9	8	2	11	43	41	3	4	121
%	7.4	6.6	1.7	9.1	35.5	33.9	2.5	3.3	

Table 4
Respondents' perceptions of pricing using weights and measures

Marketers' affirmative perception	Frequency	%	Farmers' affirmative perception	Frequency	%
- Reliable to use.	4	13.3%	- They make selling and business easy.	16	53.3%
- Make selling and business easier.			- They make pricing easy.		
- Simple and fast.	16	53.3%	- They help me retail some of my products.		
- Help set price.			- My customers prefer.		
- Help differentiate quality.			- They help sell in large quantities.		
- Maximize profit.			- They maximize profit.	1	3.3%
- Help calculate profit before sales.	6	20%			
Marketers' negative perception	Frequency	%	Farmers' negative perception	Frequency	%
- Price is not constant.	1	3.3%	- No idea of weight & measures.	8	26.6%
			- Not always dependable.		
			- Price is not constant.		
- Consumers do not ask for it.	3	10%	- Most buyers are not interested.	5	16.6%

Table 5
Local factors for pricing

Research question	Marketers	Farmers (%)	Total %
Adhere to local standard?			
Yes	10 (33%)	17 (57%)	45%
No	20 (67%)	13 (43%)	55%
Marketers influence pricing?			
Yes	20 (67%)	30 (100%)	83.3%
No	10 (33%)	0	16.7%
Market leaders influence pricing?			
Yes	18 (60%)	—	60%
No	12 (40%)	—	40%
Interested in selling products to supermarkets?			
Yes	28 (93%)	28 (93%)	93.3%
No	2 (7%)	2 (7%)	6.7%

based on the demand and patronage of buyers and consumers as well as the seasonal availability of products (Lyon, 2003; Ortiz et al., 2010; Yiridoe, 2005).

However, our results in Table 5 demonstrate some distinction between the past studies and our research. We argue that the main reason the past studies reported the absence of standards in local markets in Ghana was because they mainly looked at retail transactions. In wholesale transactions, less ad hoc negotiation-based transactions occur. For example, 57 percent of farmers, who were mostly wholesalers, said that they adhered to local standards, whereas only 33 percent of marketers said so. The high percentage of adherence from farmers indicates the need for standards in pricing practices for wholesale transactions. This shows that two major different customary practices have affected pricing at the Berekum market.

The questionnaire then asked the respondents if market queens have any influence on prices at the local market. About 60 percent of marketers affirmatively responded. Farmers who were not normally influenced by market queens and looked at the retail activities as outsiders considered that marketers influenced pricing whereas about 33 percent of the marketers did not agree with this contention. The latter point somewhat corresponds with the fact that 40 percent of the marketers did not follow the prices set by the market queens indicating that about 30–40 percent of marketers set prices by themselves and competed with other sellers.

Finally, the questionnaire asked the respondents if they were interested in selling products to supermarkets or other countries. About 93 percent of them, both marketers and farmers, responded positively. This indicated that both farmers and marketers were at least willing to adopt either national or international weight and measure standards in pricing.

Conclusion

The main reason why Ghana's local markets have not adopted the national policy on standardizing weights and measures is not so much because local farmers and marketers are indifferent to the new policy. On the contrary, our research showed that both the marketers and farmers were strongly interested in reaching out to the wider market and adopting standard weights and measures. At the retail market, market queens continue to exert influence on pricing, contrary to the past studies on Ghana's local market practices. Both marketers and farmers seem to have customary standards to follow. We also found that the market queens' influence mostly contributed to the ad hoc use of various containers, making it easier for some marketers to manipulate product sales. In the wholesale market, the market queens did not seem to have any power.

For most marketers and farmers, standardized weights and measures in the local market could ensure easy trade transactions as well promoting transparency, reliability, maximized profits, and quality distinction. They did emphasize the importance of having weights and measures standardized in some form to obtain information on the value of products for negotiating transactions. Another side of using weights and measures at local markets is that a lack of standards has encouraged price negotiations that are based on trust or mistrust among buyers and sellers.

Overall, the above findings indicate that weights and measures are significantly related to the price decisions of both farmers and marketers. Contrary to the current ad hoc pricing, which makes it harder for farmers and marketers to come to an agreed value, standard weights and measurement have the potential to better protect the benefits of both marketers and farmers. Farmers could identify more clearly the basis of price setting by marketers so that

transactions become transparent and more trusted. Eventually, by providing pricing security to rural farmers, they will become motivated to increase production that in turn would improve the country's food security issues.

Conflict of Interest

The authors declare there is no conflict of interest.

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