



An economic analysis of watermelon marketing

Olubunmi L. Balogun, Olatomide S. Akinboro, Oladele T. Akinwole & Emeka E. Osuji

To cite this article: Olubunmi L. Balogun, Olatomide S. Akinboro, Oladele T. Akinwole & Emeka E. Osuji (2018): An economic analysis of watermelon marketing, International Journal of Vegetable Science

To link to this article: <https://doi.org/10.1080/19315260.2018.1519625>



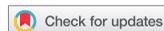
Published online: 10 Sep 2018.



Submit your article to this journal [↗](#)



View Crossmark data [↗](#)



An economic analysis of watermelon marketing

Olubunmi L. Balogun, Olatomide S. Akinboro, Oladele T. Akinwole,
and Emeka E. Osuji

School of Science & Technology, Department of Agriculture & Industrial Technology, Babcock University, Ilishan-Remo, Ogun State, Nigeria

ABSTRACT

Watermelon [*Citrullus lanatus* (Thunb.)] marketing efficient distribution is needed to maximize economic returns to marketers and consumers. An economic analysis of watermelon marketing was done in Lagos state, Nigeria, between January and February 2018. Data were collected using a questionnaire employed to collect information from 56 marketers in the study area. Half of the marketers used urban markets as points of sale and watermelon were supplied weekly. Watermelon marketing was profitable. The major constraint encountered by marketers was their inability to access credit. Regardless of level of education sufficient market information enhanced economic returns of watermelon marketers.

KEYWORDS

Citrullus lanatus; marketing efficiency; market information; profit

World watermelon [*Citrullus lanatus* (Thunb.)] production is increasing because of higher demand (Popescu, 2012). Kotler and Keller (2012) defined marketing as an “organizational function and a set of processes for creating, communicating and delivering value to the customers and for managing customer relationships so as to benefit the organization and the stakeholders.” It involves all activities concerned with persuasion and sale of goods and services. Marketing includes packaging, storage, transportation, pricing, financing, risk bearing, and product design. The success of the enterprise will depend on the ability of management to provide satisfaction in the target market at a profit. Watermelon reaches consumers through the marketing system. Marketing has economic value because it provides form, time, and place utility to products and services (Asogwa and Okwoche, 2012). Increased activity of watermelon marketers may be improved through provision of more and better produce at low prices. This will enable marketers to generate more income (Ukwuaba, 2017). If good practices of marketing and channel of the commodity are not properly followed, benefits of good production ends in the hands of middlemen instead of producers (Nagargoje, 2017).

Marketing of crops in Nigeria is challenged by inefficiency and ineffectiveness due to inadequate market infrastructure, transportation, and the pricing system (Adakaren et al., 2012; Onyemauwa, 2010). As much as 30% loss occurs during transportation from point of production to point of consumption (Adugna, 2009). Ubani et al. (2010) reported that prices of watermelon more than double during the off-season and marketers hardly benefit from these price increases because of the marketing system where collectors (middlemen) sell to retailers. Marketers of vegetables experience some economic loss as result of perishability of products along the food chain due to poor storage and transportation to markets (Okonkwo et al., 2009). This occurs when there is an increased supply of products sold at low prices in local and urban markets and tends to affect produce prices, marketer income, and profit.

Watermelon marketing is profitable in Nigeria, but there is a need to understand how the product can be efficiently distributed to maximize economic returns to farmers and marketers (Kassali et al., 2015). This study was undertaken to describe an economic analysis of watermelon marketing.

Materials and methods

The study was conducted in Lagos state, Nigeria between January and February 2018. The majority of inhabitants are civil servants and a few farmers and traders. Primary data were collected using a structured questionnaire administered to watermelon marketers in major markets (Agege, Oshodi and Mile 12). Information collected included socio-economic characteristics of marketers (wholesaler or retailer), watermelon marketing channels, costs and returns to watermelon marketing, and constraints to watermelon marketing. The study used a two-stage sampling technique. The Agege, Oshodi, and Mile 12 markets were purposely selected because of the large number of watermelon marketers. In the second stage, watermelon marketers were randomly selected using probability proportionate to size of marketers in each market. A total of 56 marketers who completely provided all information in the questionnaire were used for analysis. Data were analyzed using parametric statistics, cost and return, profitability ratios (market margin, operating ratio, gross ratio and rate of capital and a regression model). Gross margin analysis is a method of calculating profitability of small-scale enterprises (Olukosi et al., 2007). The operating ratio is directly related to farm variable input usage. The lower the operating ratio, the higher the profitability of the farm business. Rate of capital invested was calculated as market margin divided by total variable cost.

Results and discussion

Socio-economic characteristic of watermelon marketers varied (Table 1). Nearly all watermelon marketers were young indicating they were within an

Table 1. Socio-economic characteristic of the watermelon marketers.

Age	Frequency	Percent
20–30	10	17.9
31–40	17	30.4
41–50	23	41.1
51–60	4	7.1
>60	2	3.6
Total	56	100.0
Mean = 40.6, SD = 9.1		
Min = 17.0, Max = 70.0		
<i>Sex</i>		
Male	48	85.7
Female	8	14.3
Total	56	100.0
<i>Marital status</i>		
Married	32	57.1
Single	24	42.9
Total	56	100.0
<i>Household size</i>		
1–4	25	44.6
5–8	28	50.0
>8	3	5.4
Total	56	100.0
Mean = 4.6, SD = 2.6		
Min = 1, max = 9		
<i>Educational level</i>		
No formal	14	25.0
Primary	21	25.5
Secondary	17	30.4
Tertiary (diplomas, university degree)	4	7.1
Total		100.0
<i>Association membership</i>		
Yes	16	28.6
No	40	71.4
Total	56	100.0

economically active age. Marketing bulky products like watermelon requires the marketer to be fit and have some level of aggressiveness to be successful. The majority of marketers were males. The reasons might be that watermelon marketing requires physical strength that female marketers may not possess. Most marketers were married with moderate family size, with young adults, among the household who could supply labor. The majority of marketers were educated beyond primary school indicating a reasonable degree of literacy. Education could translate to higher business acumen in terms of level of profit and may have positive implications on the ability to adopt innovation, new technology and technical skills that may improve profit. More than half of watermelon marketers were not members of an association. This could adversely affect marketing performance.

Urban market marketing channels were mostly used by watermelon marketers (Table 2). Half of the marketers performed marketing activities in urban markets; the remaining came from either farm gate or local markets.

Table 2. Marketing channels available to watermelon marketers.

Channel	Frequency	Percent	Mean	SE	T-statistic
Farm gate	13	23.2	0.0893***	0.0384	2.32
Local market	15	26.8	0.5357***	0.0672	7.96
Urban market	28	50.0	0.8393***	0.0495	16.94
Total	56	100.0			

***Significant at 1%.

Respondent distribution by frequency of obtaining watermelon varied (Table 3). More than half of marketers received watermelon on a weekly basis based on season and demand. The implication is that there is high demand for watermelon. The majority of marketers were motivated to market watermelon as a means of livelihood while others were inspired by profitability, ways of diversifying income sources and meeting people's food needs (Table 4). Given the economic gains and a means to meet livelihood, people were motivated to market watermelon.

Cost of watermelon constituted almost half of marketing expenditure; transport cost, handling cost, government daily market fees, and storage cost accounted for the remaining total marketing expenses (Table 5). Watermelon marketing is profitable with a gross marketing margin of N101281.3; N is Naira, Nigerian currency, 1 N = 0.0050USD. The return on 1 N invested was 1.48 N while profitability ratios (gross and operating ratios) were <1 indicating profitability of watermelon marketing. The result differs from Onyemauwa (2010) in that the marketing system in the Niger Delta Area in Nigeria was generally not efficient.

Constraints of watermelon marketing varied (Table 6). The major constraint of watermelon marketing was credit accessibility affected almost 90% of the marketers. Other constraints affected the marketers marginally. The result disagrees with Nagargoje (2017) who reported low price offered by market intermediaries as a major constraint encountered by watermelon marketers.

Table 3. Respondent distribution by frequency of obtaining watermelons.

Source	Frequency	Percent	Mean	SE	T-statistic
Biweekly	24	42.9	0.4289***	0.0667	6.42
Weekly	32	57.1	0.5714***	0.0667	8.56
Total	56	100.0			

***Significant at 1%

Table 4. Respondent motives for marketing watermelon.

Reasons for marketing	Frequency	Percent	Mean	SE	T-statistic
Income diversification	3	5.4	0.0536*	0.0303	1.76
It is profitable	15	26.7	0.2679***	0.0597	4.49
Means of livelihood	38	67.9	0.6786***	0.0629	10.78
Total	56	100.0			

*, *** significant at 10 or 1%, respectively.

Table 5. Cost and returns for an average watermelon marketer per month in the study area.

Variable input	Total cost (Naira ^a)	Average cost (Naira)	Percent
<i>Fixed cost (FC)</i>			
Cost of stall/shed	1,693,439.0	30,239.9	100
Total Fixed Cost (TFC)	1,693,439.0	30,239.9	
<i>Variable cost</i>			
Cost of watermelon	1,854,490.0	33,115.9	48.9
Handling cost	832,445.0	14,865.1	22.0
Market fee	267,140.0	4770.4	7.1
Storage cost	288,776.0	5156.7	7.6
Transport cost	544,260.0	9718.9	14.4
<i>Total variable cost</i>	<i>3,242,851.0</i>	<i>67,627.0</i>	
<i>Total cost (TC)</i>	<i>5,480,550.0</i>		
<i>Total revenue (TR)</i>			
Sales	1,115,2300	199,148.2	
Marketing margin (TR-TC)	5,671,750.0	101,281.3	
<i>Profitability ratios</i>			
Operating ratio ^b	0.34		
Gross ratio ^c	0.49		
Rate of capital invested ^d	1.49		

^aNaira (N) is Nigerian currency, 1N = US\$0.0050.

^bOperating Ratio = Total Operating cost/Net income.

^cGross Ratio = Total Expenses/Net Income.

^dRate of capital invested = Gross margin/Total variable cost.

Table 6. Constraints of watermelon marketing.

Constraint	Frequency (N = 56)	Percent
Access to information	4	7.14
Theft	7	12.50
Over supply	9	16.07
Manpower	17	30.35
Storage	20	35.71
Spoilage	20	35.71
Transport	23	58.12
Credit access	50	89.28

^aValues do not add up to 100% because of multiple responses.

Marketers will not have enough funds to finance supply of watermelon in commodity markets. More than half of sellers had problems with transportation bringing produce to the point of sale resulting in loss. The bulky nature of watermelon made theft a lesser concern. About one-third of sellers had problems with storage facilities and their produce were always exposed to direct sunlight and high temperature that may accelerate physiological damage and decreased shelf-life. Years spent in school by watermelon marketers decreased net marketing margin (Table 7) which could be attributed to little or no special skills is required in marketing of watermelon and as one becomes more educated, marketing of the product becomes less attractive. This result disagrees with Nwankwo (1999) that the level of educational

Table 7. Determinants of net marketing margin of watermelon marketers.

Variable	Coefficient	SE	T-statistic
Sex	0.0623165	0.2793333	0.22
Year spent in school	-0.0318559***	0.0110206	-2.89
Household size	0.0470569	0.0370989	1.27
Access to marketing information	0.0319542***	0.0102746	3.11
Experience in marketing	-0.0126762	0.0236017	-0.58
Constant	5.781211	0.5639611	10.25
$F(5, 50) = 2.59$			
Prob > $F = 0.0366$			
R-squared = 0.2060			
Adj R-squared = 0.1266			

***Significant at 1%.

attainment increases one's business alertness and ability to seize business initiatives and advantages.

Watermelon marketers with sufficient market information made good marketing decisions that enhanced economic returns. The result disagrees with Adakaren (2014) that agricultural marketing information required for making sound decision by producers, consumers, marketers, and other market participants in Nigeria is scarce. Knowledge of market demand-supply, and prices of products in different markets, could lead to improved profit.

References

- Adakaren, B. 2014. Raphia palm wine marketing in south Nigeria. Nsukka, Nigeria, Department of Agricultural Economics, University of Nigeria, PhD Dissertation.
- Adakaren, B., J. Ahmadu, and S. Chidebelu. 2012. Marketing margin and spatial pricing efficiency of palm oil in Edo state, Nigeria: implication for food security, environmental concerns and agricultural productivity. Addressing the Challenges of Food Security, Anambra State University, Igbariam Campus, Uli, Nigeria, 6-9 May 2012.
- Adugna, G.T. 2009. Analysis of fruit and vegetable market chains in Alamata, Southern Zone of Tigray: the case of onion, tomato and papaya. Haramaya, Ethiopia, Department of Agricultural Economics; School of Graduate Studies, Haramaya University, MS Thesis
- Asogwa, B.C., and V. Okwoche. 2012. Marketing of agricultural produce among rural farm households in Nigeria: the case of sorghum marketing in Benue State, Nigeria. *Int. J. Business Soc. Sci.* 3(13):269-277.
- Kassali, R., F.J. Aremu, and B.A. Shittu. 2015. An economic analysis of watermelon marketing in Oyo State. *Nigeria Production Agric. Technol. J.* 11(2):43-52.
- Kotler, P., and K.L. Keller. 2012. *Marketing management, global edition.* 14th ed. London: Pearson Education Limited.
- Nargargoje, S.C. 2017. Economics of production and marketing of watermelon (*Citrullus lanatus*) in Palghar District. India, Department of Agricultural Economics, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Agricultural University Dapoli, Dist. Ratnagiri (Maharashtra), MS Thesis.

- Nwankwo, H.M. 1999. Impact of community banks in financing agricultural production in Abia State: a case study of Umuariaga Community Bank Ikwuano LGA Abia State, Nigeria. A PGD research report of College of Agriculture, Abia state University, Uturu, Nigeria.
- Okonkwo, E.U., O.N. Ubani, S.I. Nwaubani, O.G. Otitodun, and P.K. Omoju. 2009. The potentials in the indigenous technology for the production of mature unripe pawpaw (*Carica papaya* L.) fruit slices in Nigeria. *J. Res. Agric.* 6(4):31–34.
- Olukosi, J.O., S.U. Isitor, and O.O. Moses. 2007. Introduction to agricultural marketing prices: principle and application. Living Books Series, GU Publication, Abuja FCT, Nigeria.
- Onyemauwa, C.S. 2010. Marketing margin and efficiency of watermelon marketing in Niger Delta Area of Nigeria. *Agricultura Tropical Et Subtropica* 43(3):196–201.
- Popescu, A. 2012. Research on Romania's watermelon and melon market management. *Econ. Eng. Agric. Rural Dev.* 12(4):45–54.
- Ubani, O.N., E.U. Okonkwo, and A. Ade. 2010. Shelf-life of four tomato varieties at ambient conditions. Nigerian Stored Products Research: In-house review meeting, Nigerian Stored Products Research Headquarters, Ilorin, Nigeria, 22-24 Jun 2010.
- Ukwuaba, I.C. 2017. Performance of watermelon marketing in Enugu State, Nigeria. Nsukka, Nigeria, Department of Agricultural Economics, University of Nigeria. MS Thesis.