# MODIFIED MARKETING EFFICIENCY CRITERIA FOR CONSIDERATION IN CROPPING STRUCTURE PLANNING: A CASE OF NEWLY RECLAIMED LAND FARMERS IN EGYPT

*Amin I. Abdou*
*National Research Centre, Egypt.*
*Email: aminabdou23@yahoo.com*

## Abstract

*Suggested modifications on marketing efficiency criteria, inducing commodities' prices, extend use to comparison between diversified commodities sustaining choice among different production patterns. They are also used, along with production-marketing joint activities' benefit-cost ratio estimates, to assess the feasibility of undertaking certain marketing procedures by the producers themselves. Applications on a sample of farmers in newly reclaimed land area in Egypt proved feasibility only in few cases where producers were able to transport their produce of fruits to central markets. Farmers' bargaining power should be stronger if to be able to confront exploitation of the oligopolist middlemen, and hence become encouraged to expand production of major vegetables and fruits.*

*Keywords: marketing efficiency, cropping, planning*

## Introduction

Marketing conditions constantly stand as major determinants of any change in production patterns for any production activity, farming included. Many technically successful projects have failed and ceased continuity due to market problems which were not given sufficient attention within pre-feasibility studies. Possibilities of efficient marketing should be considered whenever choosing among alternative cropping structures, as well as among alternative marketing channels. Moreover, the monopolistic actions of whole sellers in certain markets exert a lot of stress upon small farmers depriving them of well deserved net returns, as sharing no more than 35-45% of the final consumer's price, hardly justified by the actual marketing costs. Accordingly, such exploitation may be confronted by farmers involved in marketing activities within their capabilities enabling to sell at higher price levels. The success of such actions depends on choice of marketing activities efficiently undertaken by the farmers themselves, ending with a situation better than when confined to mere production.

Accordingly, this study tends to suggest criteria for marketing efficiency enabling assessment of the feasibility of practicing certain post-harvest activities for sake of higher returns, as well as revealing cases of oligopoly of which marketing efficiency of middlemen is higher than that of marketer-producers but hardly explained by marketing costs differentiation.

## Methodology

The paper suggests specific mathematical forms of financial analysis criteria applicable for marketing feasibility and for joint production and post-harvest activities. The suggested forms are tested on samples of middlemen and farmers of newly reclaimed area of West-Nubaria in North Egypt. The farmers' sample is heterogeneous , as composed of small traditional farmers, young recent graduates, and semi-large investors. To test the statistical significance for differences between efficiency estimates by different criteria the normal standard value "z" was applied as following: $z = (Xa - Xb) / \sqrt{X^*(1-X^*)(1/Na + 1/Nb)}$

where: Xa = marketing efficiency ratio estimate for commodity(or marketing channel) "a".
Xb = marketing efficiency estimate for commodity (or marketing channel) "b".
X* = the geometric mean of Xa, Xb. Na , Nb =sample sizes for "a" and "b", respectively.

**Results**

***Traditional Marketing Efficiency Criteria***

The most popularly used marketing efficiency estimators are represented by equations (1),(2).

$$\text{Marketing Efficiency} = 100 - \left(\frac{\text{Mar.c.}}{\text{Pro.c.}} \times 100\right) \qquad (1)$$

$$\text{Marketing Efficiency} = 100 - \left(\frac{\text{Mar.c.}}{\text{Mar.c.} + \text{Pro.c.}} \times 100\right) \qquad (2)$$

Where: Mar.c. = marketing costs Pro.c. = production costs

Such equations are proper for comparison among alternative marketing channels for a specific commodity eventually sold to consumers at the same price level. However, inclusion of certain marketing operations would end with quality variations reflecting on the price level, as well as the marketing costs. Hence, prices should be accounted for such as to test the feasibility of conducting such marketing operations. Analogous conclusions extend to commodity variation.

***Marketing Efficiency Estimates For A Heterogeneous Commodity***

If certain marketing operations are applied in order to advantage higher prices, such as grading, packing, processing, transport and/or storage, the gain in revenue should be compared to the additional marketing costs. Hence, marketing efficiency depends on marketing margins representing the difference between marketers purchasing and selling prices compared to the actual marketing costs. As such, marketing efficiency may be estimated as in equation (3).

$$\text{Marketing Efficiency} = 100 - \left(\frac{\text{Mar.c.}}{\text{Mar.m.}} \times 100\right) \qquad (3)$$

Where: Mar.m. = marketing margins.

As long as perfect competition prevails (monopoly nonexistent), eq. (3) estimates the financial marketing feasibility of executing any additional marketing service(s), and any positively signed estimate would justify application of such service(s).

***Marketing Efficiency Estimates For Variant Commodities***

Whenever comparing between different commodities the difference in production costs should be considered as they are expected to reflect upon retail prices. Accordingly, equation (4) would be appropriate for marketing efficiency estimation in this case.

$$\text{Marketing Efficiency} = 100 - \left(\frac{\text{Mar.c.} \times 100}{\sqrt{\text{Pro.c.} \times \text{Mar.m.}}}\right) \qquad (4)$$

Logically, and for sake of comparison among variant estimators, the square root of the product of production costs and marketing margins represents the ratio's denominator. Compared to similar estimates for conventional products decision can be made with respect to introduction of new products taking into consideration forecasted marketing potentials of the new products. This is also provided that perfect competition prevails.

***Joint Production/Marketing Efficiency Estimation***

Small producers in developing countries are usually exploited by middlemen who pay low prices and gain an unjustified great share of the retail price. Accordingly, some farmers may try to undertake themselves specific marketing operations such as to receive potentially higher prices for their products. Such action is to some extent practiced within the Egyptian agricultural sector, especially in newly reclaimed lands. As such, a joint production/marketing efficiency criterion may be adopted to test the feasibility of executing one or more of post-production operations by producers. The Benefit-cost ratio for the joint activity is represented by equation (5)

$$\text{Joint } B / C = TR / ( Pr.\ c. + Mar.\ c.) \quad (5)$$

Where: Joint B/C = the benefit-cost ratio for the joint production and marketing operation. TR = Total revenue, i.e. total value of sales Pr. c. = production costs Mar. c. = costs of executing the marketing operation(s)

This can be compared with the traditional benefit- cost ratio represented by equation (6)

$$B / C = TR / Pr.\ c. \quad (6)$$

***Applications***

Table (1) presents a comparison between estimates of alternative marketing efficiency criteria for some major vegetable and fruits products of producers in newly reclaimed land , West-Nubaria Region, Egypt.

According to traditional estimators, as shown in table (1), high efficiency occurs for all chosen crops with a slightly lower level for citrus. Likewise, analogous results occur when adopting the modified criteria for middlemen practices, negligibly different from the traditional criteria estimates. On the other hand, a dramatically different situation occurred for farmers' marketing efficiency, with a single exception for the case of grapes. The worst situation occurred for citrus where a drastic loss resulted when production was accompanied by conduction of several marketing operations. Such finding may be due to farmers' disability to reach final consumers or more important the exporters who deal with a great bulk of the produce and offer much higher prices for the thoroughly graded product.

It is worth mentioning that testing the statistical difference between the different criteria estimates, using "z" standard value, indicated significant differences between traditional and modified estimators for farmers only, beside a single case of citrus for middlemen marketing practices.

**Table 1: Marketing efficiency estimates by both traditional and modified criteria for both middlemen (Mid.) and farmers (Far.) of West- Nubaria reclaimed land in Egypt, for some major vegetables and fruits**

| Crop | Traditional | | Modified | | | |
|---|---|---|---|---|---|---|
| | Eq. (1) | Eq. (2) | Eq. (3) Mid. | Far. | Eq. (4) Mid. | Far. |
| **Potatoes** | **87.6** | **89.0** | **90.5** | **8.6** | **89.1** | **- 6.0** |
| **Tomatoes** | **88.3** | **89.6** | **88.3** | **33.2** | **88.3** | **72.0** |
| **Citrus** | **71.9** | **78.1** | **68.7** | **- 55.0** | **70.3** | **34.0** |
| **Grapes** | **93.8** | **94.1** | **93.8** | **46.0** | **93.8** | **82.0** |

Source: Analysis Of Data Collected For: Shafik, F.A. "An Economic Marketing Study of Some Major Crops In Newly Reclaimed Land" Ph.D. Thesis, Faculty of Agriculture at Moshtohor, Zagazig University, Egypt,1998.

.

As for investigating the feasibility of joint production-marketing activities, table (2) presents the benefit-cost ratios of production and production-marketing activities for a sample of farmers in West-Nubaria and for the chosen crops.

As Shown in table (2), it is economically rational for farmers of the newly reclaimed land, under the ongoing conditions of oligopolistic marketing, to confine their economic activities to production. However, it may be fruitful for farmers to undertake specific marketing operations for the fruit crops, especially transport to central markets. That was confirmed by testing the significance difference between the estimated cost ratios, using again value

"z", where statistical significance was confirmed particularly for the case of citrus . Such results coincide with earlier results of marketing efficiency estimates presented in table (1).

**Table 2: Benefit-cost ratios for production and production-marketing activities of selected vegetables and fruits for farmers of West-Nubaria**

| Crop | production | Production, picking, grading and packing | Production, picking, grading , packing and transport |
|---|---|---|---|
| Potatoes | 2.0 | 2.0 | 1.4 |
| Tomatoes | 1.5 | 1.6 | 1.3 |
| Citrus | 1.2 | 1.4 | 1.7 |
| Grapes | 1.6 | 1.7 | 1.7 |

*Source: Ibid*

**Discussion and Conclusions**

Results show that the modified criteria for marketing efficiency for middlemen have rendered estimates slightly different from those given by traditional criteria. However, the modified criteria are widely applicable whenever comparison is required among different products, or even different quality levels of a specific product due to different marketing handling. On the other hand, a different situation emerges in the case of marketing operations being partly or entirely undertaken by the producers themselves. The revealed drastically lower marketing efficiency of producers, i.e. farmers of newly reclaimed land, is not entirely due to higher marketing costs, but more influential is the oligopolistic marketing condition forcing producers to accept prices less than one-half retail prices no matter how simple the marketing procedures are. Due to limited resources, urgent need of cash and poor market experience, farmers generally have low bargaining skills, especially confronting exporters. As such, losses occurred whenever marketing procedures were entirely executed by farmers, as revealed in case of potatoes and severely for citrus, both being exportable crops. Nevertheless, as an exceptional case, considering marketing operations which were managed and properly conducted by relatively big and capable producers ,especially grading and transport to principal central markets, those producers advantaged relatively high prices mounting up to 184% of average retail prices for certain fruits, and hence were able to secure higher benefit-cost ratios for joint production-marketing activities. However, as mentioned above, the oligopoly condition dominant in markets of most crops discourage most marketing activities undertaken by farmers themselves despite their remarkable profitability realized when executed by middlemen.

Conclusively, the selected vegetable crops are economically better within the cropping patterns of newly reclaimed land farmers, of which small farmers constitute the majority, whether considering marketing potentials or not. Moreover, farmers are in great need of more collective power to confront the market oligopolists and experience better access to retail markets. Otherwise their scattered efforts would remain in vain.

## Summary

The study suggested certain modifications on the commonly used marketing efficiency criteria such as to extend their use to different commodities or even variant grades or quality levels of a particular commodity. Modifications are based on inclusion of the commodities' prices, comparing added value due to marketing application by the cost of such application. Although applying these modified criteria to marketing of specific principal vegetable and fruit products of newly reclaimed land certain region in Egypt showed no remarkable changes in efficiency estimates than rendered by traditional criteria for middlemen specialized in marketing, the case was different for farmers who followed their production activity with certain marketing procedures. Although farmers were able in few cases to sell their produce at the main central markets at nearly 1.8 times the average farm-gate price after conduction specific marketing operations, they should generally confine their activities to production to avoid unnecessary losses. The situation may change if farmers were able to upgrade their bargaining power such as to confront exploitation of the middlemen who share alone more than half the final consumer's payments, which may be much higher than fairly earned through the relatively simple marketing procedures they perform.

## References

Abdou, A.I. (1995). " Marketing Problems For Youth Graduate In West-Nubaria Region". Final Report .ASRT/Agricultural Economics & Community Development Branch. Cairo,1995.

Abdou, A.I. , N.El-Shiekh, H.A El-Sawalhi & F.A. Shafik. (1998). "Marketing efficiency of agricultural producers in the newly reclaimed lands" .Egy.J Agr. Econ .8: (2).569:576

Abdou, A.I. (2004). "Marketing efficiency criteria modifications under imperfect competition and commodities variability" Egy.J.Agr.Econ.18 : (4) . 1155-1160.

Abou-Ali, M.S. "In Analytical Statistics". Dar El-Gameaat El-Masria, Alexandria,1967.

Aita, M.S. &Abd-El-Al, E.A. .(1991). An economic study of marketing efficiency influential factorsfor some vegetables in Egypt" Egy.J.Agr.Econ 1: (2) September,1991.

Shafik,F.A. (1998)."An Economic Marketing Study of Some Major Crops In Newly Reclaimed Land" Ph.D. Thesis, Faculty of Agriculture at Moshtohor, Zagazig University, Egypt,1998.

Monga,G.S. (1975)." Mathematics and Stratistics for Economists". 3rd. ed., Vikas Publishing House, Delhi, 1975.

UN/FAO. "World Trade Year Book" . FAO, Rome, 1998.

Whitelaw,R.R.P. (1969). "Marketing & Economics :An Introduction To The Use of Economic Indicators". Prgman Press, New York, 1969.