

Are Margins Excessive in Retail and Wholesale Sugar Markets in Bangladesh?

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Abstract: *There are claims that business people make excessive profits at the retail and wholesale markets of essential supply chains. Believing in such claims the commerce ministry has directed that wholesale traders can make 1 percent profit after meeting their transportation and other costs. Expenses of retailers are higher as they sell products to the consumers directly. So, they are allowed to make profit up to 10 percent. But the analysis of margin shows no strong evidence in support of such claims. Any kind of syndication or cooperative behavior at retail and wholesale layers is found nonexistent in case of Bangladesh sugar industry. The price variability is often driven by speculation of supply shortage and changes in world market prices. No significant difference in profit margins is also detected between Ramadan and non-Ramadan periods.*

1. Introduction

The government agencies in Bangladesh have undertaken different regulatory actions to curb “extraordinary” profits by retailers and wholesalers of essentials such as edible oil, sugar and so on. One of the policies was to regulate gross margins charged by them. As per the commerce ministry’s directive “Wholesale traders can make 1 percent profit after meeting their transportation and other costs. Expenses of retailers are higher as they sell products to the consumers directly. So, they are allowed to make profit up to 10 percent.” (The New Nation, June 20, 2014). As per the directive, the importers can make 1 per cent profit on

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the wholesale prices after meeting their import costs. Among other policies, forcing retailers and wholesalers to post their price lists everyday is notable. The ministry has asked shop owners to display price lists of commodities and provide supply receipts to customers during purchase of essentials. Display of price lists is often enforced strongly during Ramadan to check price hike of essentials. Recently, the government has formed a 'commodity price review and forecast cell' to keep the prices of essentials within a tolerable limit (Daily Ittefaq, Daily Sun: 26th April 2016). This cell is also authorized to oversee the local and international production of commodities in question.

The purpose of all these policies is to stabilize the prices of essentials to ease middle class lives in Bangladesh. But the question is whether the undertaken policies are warranted. The noncompetitive price behavior is not expected from the retailers due to their sheer large number. There are numerous investigative studies on this issue in the other countries. Whereas, there has only been few of such systematic efforts in Bangladesh; looking into the market structure and the competition issues for a commodity whose supply is almost entirely import-determined. Recently, Helal and Taslim (2010) assessed competition in edible oil sector in Bangladesh. They have found concentration in the upper echelon of the supply chain, but no conclusive evidence in support of collusive behavior in any of the layers of the edible oil supply chain. The study did not find any wrongdoing by retailers and wholesalers as such.

The Centre for Policy Dialogue (CPD) undertook a diagnostic study to find out the causes of the recent food inflation. The CPD study attempted to trace the supply chain of different essential commodities as well as the market intermediaries who were assumed to play an important role in causing price inflation. The study asserted collusive behavior and syndication by importers even though it had no credible evidence of such behavior among the relevant firms. The conclusions were mere assertions rather than derivation from credible evidence or data. Rahman *et al* of CPD conducted another study in 2008, as a follow-up of the aforesaid diagnostic study. This study traced more recent trends in aggregate inflation levels and analyzed movements in price levels of a number of essential food items.

A large number of studies have been performed on the food grain especially on rice which is almost entirely locally produced. Several studies have been performed on the effectiveness of rice procure by the government of Bangladesh (Ali, 2010; Islam and Thomas, 1996; Ahmed and Bernard, 1989). Only a very few studies attempts to discuss the structure, conduct and performance of rice market

in Bangladesh in a limited scope (Naser and Rahman, 2002; Chowdhury, 1992). Lack of competition in the rice market is asserted in these studies. However, to the best of my knowledge, there is no systematic study relating the supply chain of a commodity beyond rice in Bangladesh.

The objective of this study is to gather evidences on the price behavior of the retailers and wholesalers operating in the sugar supply chain in Bangladesh. To assess the average margin charged by retailers especially and to conclude on the necessity of the ministry's directive in this market paradigm. In addition, it is purported to compare their price behavior during Ramadan vis-à-vis non-Ramadan.

2. Methodology and data

On an average, retailers hold sugar in their store for a week before selling them to customers. Therefore, a 7 days' lagged price of wholesale layer is used in case of calculating margins here. A proxy of margin is calculated based on retail and wholesale prices. Here the margin is defined as retail price of refined sugar (p_r) minus wholesale price of refined sugar (p_w) divided by wholesale price of refined sugar $(p_r - p_w)/p_w$. There are other components of costs needed to be accounted for to obtain net profits. Thus, the margin calculated here provides us with the approximate price-cost margins, not the actual margins. Since one of our purposes is to examine the inter-temporal dynamics of margins this definition will do. To conclude on the ministry directive we need to be a little bit cautious. The margin calculated here is the maximum margin because it excludes retailer costs involved in retailing.

This analysis uses information available from several data sets. They are - the Department of Agricultural Marketing (DAM), Ministry of Agriculture Tariff Commission of Bangladesh, Ministry of Commerce, Bangladesh Bureau of Statistics (BBS), and National Bureau of Revenue (NBR). Daily prices on sugar and other related commodities are available from DAM. However, price data is available for Dhaka City Corporation only. Price data is available from January 24, 2008 to October 4, 2012. The size of the sample is thus 1226. There is however some data gaps due to lack of price data during weekends and holidays as well as some missing data in the DAM original data set.

3. Results

It is easier to examine inter-temporal variability in prices than the variability in margins. Comparing the variability in prices and margins over Ramadan vis-à-vis

non-Ramadan is relatively difficult. Multivariate analysis to explain the factors behind variability is challenging because it requires information on many facets of the economy and on the shifting factors in sugar demand and supply. Obviously, this is not the focus of this study.

3.1 Price variability

There is a huge variation in prices of sugar at retail level as shown in Graph 1 below. There is an upward trend in prices over 2008-12, but with a huge variation in them. In a short span of few months prices shot up by more 50 percent whereas in a span of a year or so prices shot up by 70 to 80 percents. On the other hand, prices went down from peak points similarly even though in slightly smaller magnitude. The claims that once go up prices do not go down is not true for sugar. Sugar prices did not show the extreme downward rigidity as claimed by many including the media.

Persistent high prices of sugar during Ramadan were not evident either. As is obvious in Graph 1, sugar prices go up often and go down frequently even though up trend is evident over long run. The overall dynamics of the macro economy especially the consistent increases in price level and the exchange rate imply an uptrend in sugar prices over the longer horizon. This is true for all other commodities in an economy irrespective of import dependent or not.

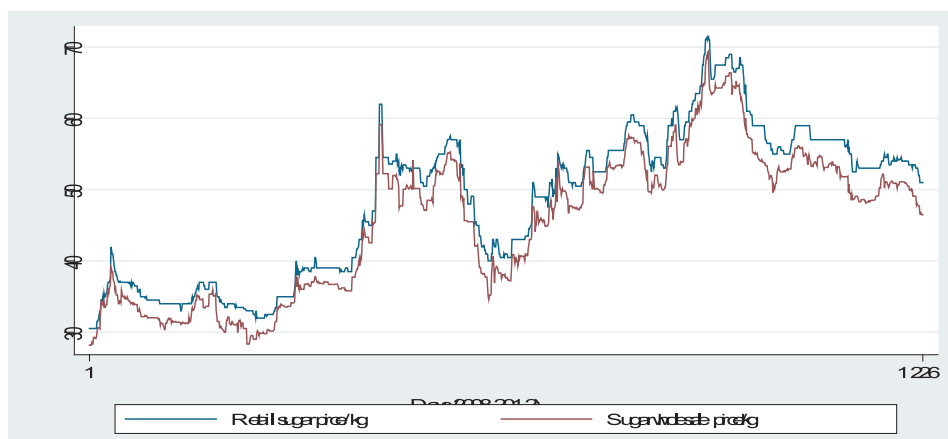
Graph 1: Movement of daily retail prices of sugar, 2008-12



Are these variations created by retailers or transmitted from wholesale level? If these variations come from wholesale prices then we need to focus on wholesale or upper layers to analyze these variations. It is obvious from the co-movement of daily retail prices and daily wholesale prices of sugar, as depicted in Graph 2, that the retail price variations have their origin in wholesale price variations. The two prices are seen to always move together and they are found co-integrated at the

1% significance level. Transmission of wholesale prices in retail level is expected in a competitive market environment. Since they are co-integrated, we need to look into the nature of transmission in detail.

Graph 2: Movement of daily Retail and Wholesale prices of sugar, 2008-12



Co-integration of retail and wholesale prices does not necessarily imply low markups charged by retailers. Rather stability of markups is the more relevant indicator of competitive behavior among retailers. It is the stability of the profit or price-cost margins that would be of greater analytical interest. A steady margin is not expected in a competitive scenario. Various demand and supply shocks affects margins in a competitive scenario. Only a non-competitive market can maintain a steady margin. The stability of margin is explored in the following section.

3.2 Margin estimation

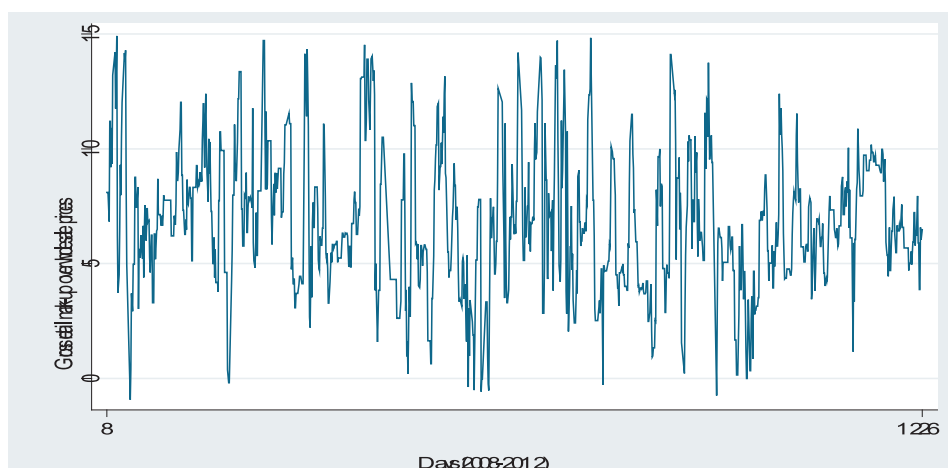
The retailers who sell sugar often sell edible oil at their stores too. Like sugar the supply of edible oil is also almost entirely import-determined. For the comparison purpose, margin is also calculated for soybean oil. The average mark-up for soybean oil received by the retailers over the wholesale prices over 2008-12 is 4.8% (Table 1). It is well below the average mark-up in sugar retailing which is 6.9%. Mixing palm oil with soybean might be the reason for this lower mark-up in case of soybean oil. Actual mark-up for soybean oil is likely to be higher than what is estimated here, once adulteration is considered. It is also well below the maximum limit of 10% margin set by the Commerce Ministry. There are only 8 instances of greater than 10% mark-up for soybean oil.

Table 1: The average (gross) mark-up over 2008-2012

	Soybean oil	Sugar
Average (gross) Markup	4.80%	6.90%
# of times exceeding 10%	8	209
Exceeding during Ramadan	0	20
Exceeding 2 weeks before Ramadan	0	8

Even though the average margin is 6.9% for sugar, the story of maximum 10% profit is binding only in case of 209 days out of total 1219 days over the years (Graph 3). It is about 17 percent cases observing more than 10% mark-up for sugar. Needless to say, it's still a large number to consider.

Graph 3: Gross mark-up of retailers over wholesale prices of sugar, 2008-12



Ramadan vs. Non-Ramadan

Is there any significant change in the margins or spreads of retail and wholesale prices during certain period (such as Ramadan) suspected as collusive? Of the 209 instances of more than 10% margin, only 20 of which were observed during any of the Ramadan, with 8 of them being within 2 weeks before Ramadan. None of the 8 instances for edible oil occurred during Ramadan (Table 1). However, the hypothesis of equal margins across Ramadan and non Ramadan periods could not be rejected even at the 5% significance level.

Obviously, fluctuating margins are more suggestive of a competitive behavior on the part of the retailers than otherwise (Graph 3). Still one can think of collusion when the retailers agree to charge a common margin over wholesale price so they

move in tandem with the $(p_r - p_w)$ within given bounds. But this is not the case here. When the plots for the denominator p_w were superimposed on the same chart, the fluctuations of margin and wholesale prices did not imply such pattern (not shown here).

3.3 Asymmetry in retail price transmission

An asymmetry in wholesale price transmission appears to exist in the retail prices of sugar. For the phase of increasing wholesale prices, the average margin was 8.1% whereas the margin was 6.3% for the phase of falling wholesale prices. For unchanged wholesale prices the margin was 6.9% (Table 2). The average margin is different for the falling and rising phase of wholesale prices. This asymmetry in price transmission has been on the media focus for the last couple of years. This is not a statistical aberration at all.

Table 2: The asymmetric response of retailers

Type	Markup
When wholesale prices increase	8.10%
When wholesale prices decrease	6.30%
When wholesale prices unchanged	6.90%
Overall	6.90%

When a retailer observes a decrease in wholesale price he sells sugar at a lower price than the previous day. If a retailer tries to charge the same price regardless, he would have to compete with the ones who will be charging a lower price on that day expecting lower retail price due to decrease in wholesale price. Thus, every retailer sells sugar at a lower price even though everyone's cost (i.e., purchase price) remains the same. As a result, their margin falls. When they observe rise in wholesale prices they increase their retail prices on the expectation that rising wholesale prices will push retail prices up soon despite their purchase price being the same. So this asymmetry in price transmission is logical and driven by profit maximizing behavior. The downward adjustment during the decreasing phase of wholesale prices is slower and smaller than the upward adjustment during the increasing phase of wholesale prices.

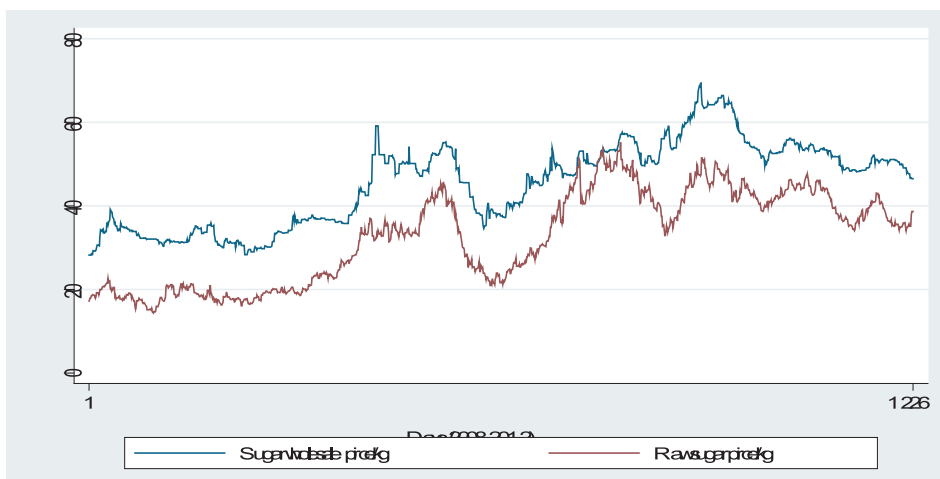
3.4. Wholesale Layer

As described in earlier sections, retail prices were found to follow wholesale prices very closely, eliminating any major wrongdoing by the retailers. We need to assess the nature and extent of transmission of refiners/importers prices to the

wholesale prices. For this purpose, we need to know the purchase prices of the wholesalers. That is, we need to know the prices charged by refiners/importers. Information on the prices charged by the refiners is not available. This missing data restricts us from analyzing the wholesale pricing behavior considerably. Even though we cannot look into the transmission of prices from refiners to wholesalers still we can look at the movement of the wholesale prices and raw sugar prices to conclude about the transmission of raw sugar prices into wholesale prices.

It is obvious from Graph 4 that the two price series (raw sugar prices and wholesale prices) are not showing a fitting close to what was observed between retail and wholesale price series. There is still co-integration between the series but not at the extent which was observed in the retail layer. Thus, we cannot conclude about the behavior of wholesalers as well as all other players operating in the upper layers of the chain. Since transmission is not smooth then we will not be able to conclude about this wholesale layer. But still, it is hard to believe any kind of noncompetitive behavior by thousands of wholesalers all over the country. In such cases, we will need to examine upper layers of the sugar supply chain for noncompetitive behavior.

Graph 4: Co-movement of daily raw and wholesale prices of sugar, 2008-12



Storage capacity at wholesale layer sometimes found to neutralize market power by the refiners, in case they might possess any. Storage by wholesalers appears to smooth transmissions of international prices into retail prices. However, when wholesalers face a down trend of prices for a prolonged period they dry up their

inventories and they do not replenish their stock until they expect to see the reverse trend. In this kind of situation, wholesalers play a tiny role with respect to retail price smoothing.

It appears from Graph 4 that there is a decrease in spreads for a few months during the 1st and 2nd quarters of year 2011. It is the transitional period from DO to SO when the raw and wholesale sugar price spreads decreased. Uncertainty relating the transition may be the reason for such decrease in the spreads.

4. Conclusions

The claims that business people make excessive profits at the retail and wholesale layers of essential supply chains are examined in the context of sugar supply chain in Bangladesh. The analysis of margin shows no strong evidence in support of such claims. Any kind of syndication or cooperative behavior at retail layer is found nonexistent in case of Bangladesh sugar industry. The price variability is often driven by speculation of supply shortage and changes in world market prices. No significant difference in profit margin is also detected between Ramadan and non-Ramadan periods.

The commerce ministry's directive that wholesale traders can make 1 percent profit after meeting their transportation and other costs could not be substantiated due to lack of appropriate data. As per the directive, expenses of retailers are higher as they sell products to the consumers directly. So, they are allowed to make profit up to 10 percent. The examination of gross margins shows less than 10 percent gross margin for most of the time over the periods consider. The average margin is different for the falling and rising phase of wholesale prices. The asymmetry in price transmission has been on the media focus for the last couple of years. This is not a statistical aberration at all. The asymmetry in price transmission is logical and driven by profit maximizing behavior. The downward adjustment during the decreasing phase of wholesale prices is slower and smaller than the upward adjustment during the increasing phase of wholesale prices. However, availability of prices charged by refiners may help us to conclude on puzzles with greater degree of precision.

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