



DETERMINANTS OF SPECULATIVE DEMAND OF WHEAT AND ITS IMPACT ON CONSUMER WELFARE LOSS

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HIGHLIGHTS

- There is a positive relationship between speculation and family size as well as between speculation and actual quantity demanded.
- The low-income consumers do speculation about the prices of the wheat from September to March and cause prices to increase about 8.92% more than the normal prices which cost them to lose consumer welfare.
- If consumers avoid speculation, they can buy wheat at 8.92% by paying a lesser price and can enjoy more consumer welfare.
- An increase in speculative demand increases prices more than a normal increase.
- The addition of some portion of price increment merely is due to consumer's psychological phenomenon of speculation.

ABSTRACT

A much-neglected concept of price speculation from the side of consumers plays an important role in the determination of prices and quantity traded in the market. Almost all the consumers speculate about future prices of commodities and at the first stage, whenever prices increase, most of the consumers believe and speculate that the prices will increase more in the future. The current study underhand is conducted to find the factors of speculative demand for wheat and its relationship with consumer's welfare. The need for this study was to find the factors of speculative demand and its and its relationship with the welfare loss. For this purpose data were collected from one hundred wheat consumers who buy wheat monthly from rural and urban areas of District Mandi Baha ud Din, Pakistan at random by direct interviewing to analyze which factors compel them not to buy wheat at annual bases and how it is related to their income, family size, and monthly income. Results show a negative relationship between the speculative demand for wheat and income. There is also a positive relationship between speculation and family as well as between speculation and actual quantity demanded. The lower-income consumers do speculation about the prices of the wheat from September to March and cause prices to increase about 8.92% more than the normal prices which cost them to lose consumer welfare and surplus. It is concluded that if consumers avoid speculation, they can buy wheat at 8.92% lesser price and can enjoy more consumer welfare and surplus. An increase in speculative demand increases prices more than a normal increase. The addition of some portion of price increment merely is due to consumer's psychological phenomenon of speculation.

Keywords: Speculative demand; determinants; wheat, price speculation; consumer welfare loss.

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Introduction

Traditionally the law of demand says that other things remaining constant if price increases quantity demanded decreases and when price decreases quantity demanded increases. But it does not explain the broader picture of the real world and it has been made too simple by assuming some unrealistic state of

affairs in the pressure cooker kind of environment where the psychological side of consumers has been ignored. It does not help the consumers in the real-world whose psychological behaviors often let the producers exploit them. One of the best proxies of the psychology of consumer is their speculations about

the prices of commodities which are a summation of all the psychological aspects of consumers because they are made after looking into the budget, income, needs, quantity of consumption, alternatives and keeping the best interest of the family in mind. It can be termed as rational behavior of consumers but often this rational behavior is irrational in real-world and it paves way to exploitation of consumers and its root cause is no consideration of psychological aspect of consumers in the too much simple Law of Demand as it does not guide the consumers what will happen in real-world when along with prices their psyche plays an important role in determination of prices. An economist may be interested to know the dependence of prices on the psychological behavior of consumers. Many factors affect the prices such as spot price, income, prices of related goods, etc. but there is an ignored determinant of demand and price which is expectations of consumers which can also be termed as price speculation.

Under our discussion Price speculation will be defined as the expected price which consumers are expecting in the near future in the short run. We are considering only consumer's expectation not the investors' expectations. In other words, consumers' psychological behavior about future price is regarded as price speculation. When price increases there can be negative expectations about the future price that is consumers expect further increase in prices as well as a positive expectation that is consumers expect a decrease in prices in the future. But we believe that with an increase in prices at the first stage always consumers expect a further increase in prices in the future. A much-neglected concept of Price speculation from the side of consumers plays an important role in the determination of prices and quantity traded in the market. Almost all the consumers speculate about future prices of commodities and at first stage, whenever prices increase, most of the consumers believe and speculate that the prices will increase more in future, so they increase their demand and it results in increase in prices more than normal increase, that is some portion of price increment is merely due to consumer's psychological phenomenon of speculation. This leads to a reduction in consumer welfare and exploitation. Whereas it benefits producers in the form of increased revenues, market power, producer's surplus, and welfare. It is some sort of windfall gain for producers and loss for consumers. If consumers avoid this speculation they can gain more welfare and consumer surplus. The law of demand has many simplified assumptions and it does not include the psychological aspect of the consumer. Many times consumers are misled and their rational behavior costs them higher prices. The need for this study was to find the psychological impact of the wheat consumer on their welfare loss and to find

which kind of consumers do speculation and which does not?

Starc (2014) found that a low price elasticity and consumer's brand preferences incentivize firms to engage in substantial marketing of their products and price above cost and consumer's welfare loss. Knittel and Pindyck (2016) found that prices of crude oil in the USA increased from \$40 per barrel to \$145 in 2008, by late 2008 it fell to \$30 before increasing to \$110 in 2011, because of price speculation by the investors. Some others also investigated the causes of oil price changes and the role of price speculation. Fattouh et al. (2013) concluded that the existing evidence is not supportive of an important role of financial speculation in driving the spot price of oil after 2003. Kilian and Murphy (2014) found a connection between speculation and inventory found no Evidence that speculation increased prices. Hamilton (2009a, b) examined the causes of oil price changes and concluded that speculation might have played some limited role in the price increase from 2007–2008. Smith (2009) concluded that there was no evidence of speculation increased prices between 2004 and 2008, noted that inventories were drawn down. Alquist and Gervais (2013) used the Granger causality test and found financial speculation had little or no impact on prices. Azzam, & Rettab (2012) concluded that rising prices of food imports have decreased the welfare of quantile of low-income consumers 3.5 times more than quantile of upper-income consumers. According to Chen et al. (2017) herd behavior is more pronounced under rising market conditions. The results show that investors show different levels of rational expectations, particularly herding strongly exists in irrational expectations.

Methodology

For this purpose data were collected from one hundred wheat consumers who buy wheat monthly from rural and urban areas of district Mandi Baha ud Din, Pakistan by direct interviews to analyze which factors compel them not to buy wheat annually and how it is related to their income, family size, and monthly income. Drake (1993) uses a simple model where he only includes disposable income, mortgage interest rate and the number of houses that started construction to set up a model to forecast UK house prices in the early 1990s. Equation 1 shows my version of Drake's (1993) forecasting model as given below:

$$Q_{dsw} = a(Y) + b(N) + c(Q_{dw}) + u \quad (1)$$

Where Q_{dsw} is a dependent variable, extra quantity demanded of wheat because of price speculation. Y is family income first independent variable, N is family size second independent variable, and Q_{dw} is Quantity demanded of wheat without price

speculation which consumers need per month used as the third independent variable. It should be noted that through direct interviews consumers were asked how much they buy extra when they speculate about the price to be increased in different months.

Results and Discussion

During the year 2017-18 statistics show that prices of wheat start increasing from September to March as shown in the figure 1. There are many

reasons for this price increase but according to the current study underhand, there is a prominent reason for price speculation from consumer's speculations for future increase in prices.

This speculation becomes a reason because of which consumers increase their demand which at the end becomes an additional force to increase prices more than that of the normal increase and consumers bear welfare loss covertly.

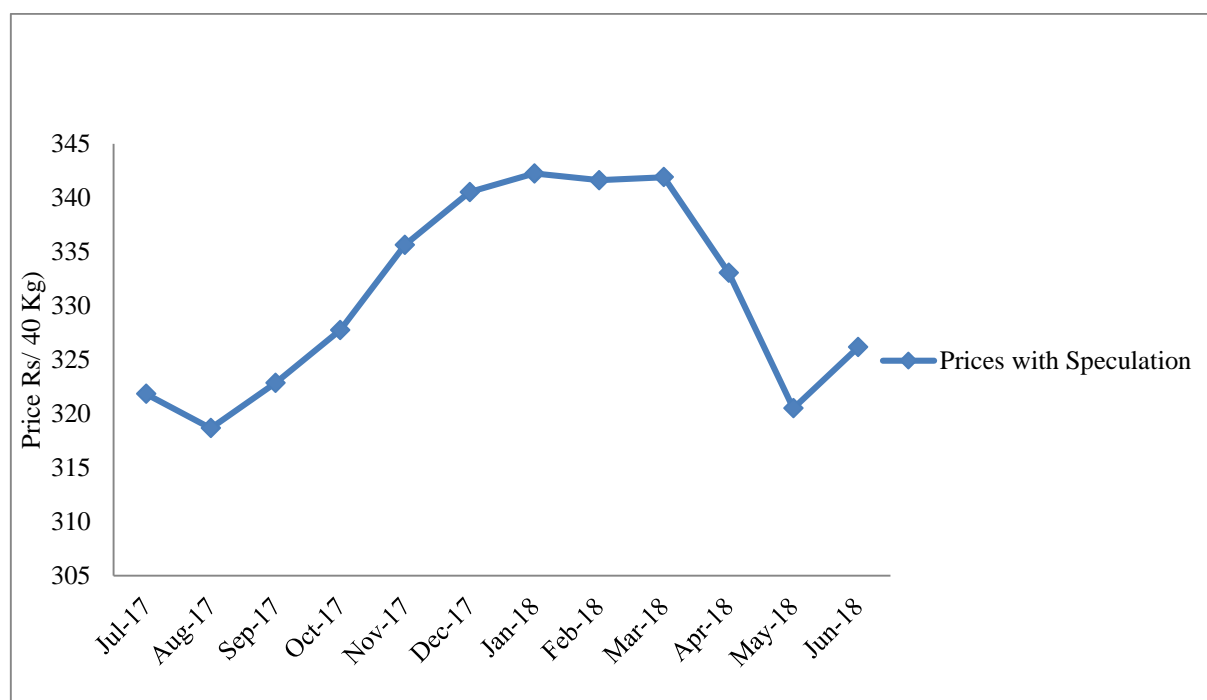


Figure 1: Trend of Wheat Prices with Speculation in 2017-18

Source: Pakistan Bureau of Statistics

During our research, we found a strange fact by interviewing directly the consumers of wheat that they never have “Positive Speculation” about wheat prices during the whole season, which is consumers never speculate that prices will decrease in the future. They always do “Negative Speculation” that prices will increase in the future or there is “No Speculation” from April to July. So when prices decrease in these months we can't say that this decrease involves

“Positive Speculation” (i.e. speculation that prices will decrease in future). The main reason for this is the price support policy by the Government of Pakistan. From April to July, prices are showing a decreasing trend in the diagram. It is not because there is positive speculation that prices will fall, rather it is due to an increase in the supply of wheat because it is cultivating period of wheat and this is the period of “No Speculation” neither positive nor negative.

Table 1: Factors Affecting the Speculation of Wheat Consumers

Variable	Coefficient	Standard Error	T-Stat	At 95% CI	At 95% CI
C	15.27706	0.99	15.37880	13.30	17.25
X1	-0.000712	0.0000684	-10.41792	-0.000848	-0.000577
X2	0.362714	0.082106	4.417659	0.199714	0.525714
X3	0.010526	0.006515	1.615613	-0.0024	0.023
	R-Squared	0.58	Adjusted R-Sq	0.576949	

Y (Dependent) = Speculative Demand of Wheat, X1=Income, X2= Family Size, X3=Monthly Quantity Demanded of Wheat

The results in table 1 show that there is a negative relationship between the speculative demand for wheat and income. With the increase in income speculative demand decreases and with a decrease in income, it increases. This indicates that lower-income consumers behave more rationally than higher-income consumers to get maximum utility from their spending and buy some extra quantity of wheat to avoid the impact of increased prices, but due to income restraint they can't buy as much to store for the rest whole season. There is a positive relationship between speculation and family as well as between speculation and actual quantity demanded (needed per month for consumption).

It is very important to know who speculates and whose speculation effects prices to increase more than a normal increase. Many wheat consumers buy wheat once for all and store for whole years but not all consumers. The consumers which store wheat for the whole year are farmers themselves which are about 64% of the total population (GoP, 2018), and those who have just enough resources and storage places to buy the wheat for a whole year. These consumers are not affected by the price increase during the whole season and succeeded to avoid welfare loss. They pay the normal price which is set by the government at the

time of production. They do not take part in any price speculation of the wheat.

The consumers who do not buy wheat at once to store for the whole year are of three categories. The consumers in the first category do not have money to buy wheat, mainly from urban areas and a few from rural areas. The consumers in the second category have enough resources to buy wheat but do not have a place for storage, mainly from urban areas who have small houses and middle-income groups. The consumers in the third category have resources and storage place but do not buy because of their psychological behavior, mainly those who have a high income. Consumers who belong to the third category do not bother about higher prices and price remains neglected by them. They buy as much they need every month hence they do not take part in speculation. However, consumers who belong to the first and second category cannot buy wheat at once to store for the whole year, are very price sensitive and speculative. They always have an eye on prices and previous price trends and always indulge in "Negative Price Speculation" that is they speculate that prices will increase in future during the months from September to April and try to buy some extra quantity every month to avoid the effect of the price increase and behave more rationally. But this rational behavior costs more increase in prices than the normal.

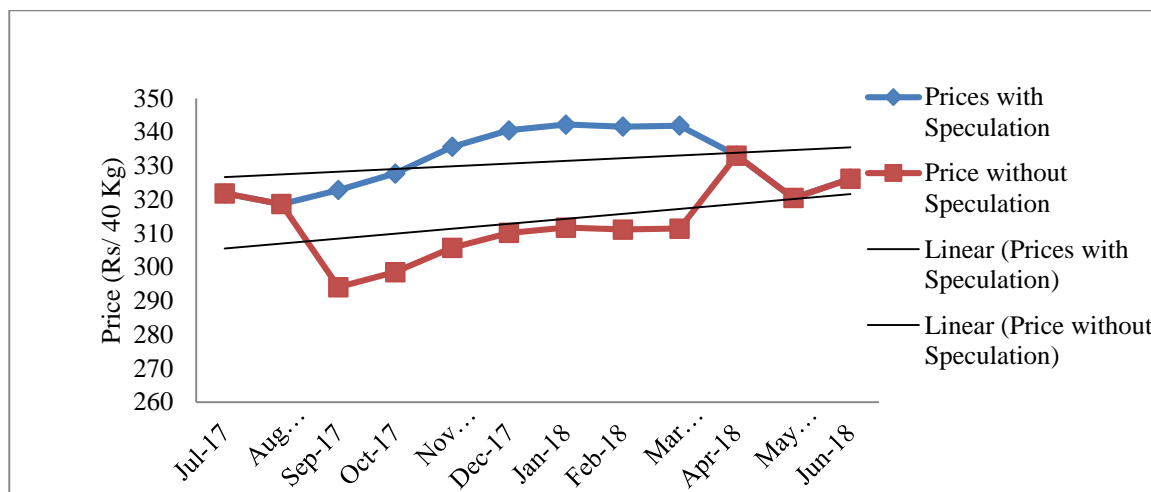


Figure 2: Impact of Price Speculation on Prices and Consumer Welfare

Source: Author's calculations

Graphical representation of data as shown in figure 2, which we directly collected from the wheat consumers reveals that the extra quantity demanded of wheat is 8.92% of the quantity which consumers need for consumption during one month and this remains more and less the same in every month. In other words, due to speculation, demand increases by 8.92% more than the normal. Assuming that there is price

elasticity equal to one then 8.92% of the prices are merely due to price speculation from September to March as shown in the diagram. As stated earlier that there is "No Speculation" during April to August as shown in diagram so in these months both lines (blue line indicates prices with speculation and the red line indicates prices without speculation) coincide but from September to March due to speculation price

increases more than the normal as shown by blue line. If this speculation is withdrawn then the prices will become normal as indicated by the red line. So the area between these two lines (also indicated by the trend lines) shows the total area of welfare loss which consumers bear merely due to their rational behavior or attempt to avoid effects of price increase by buying and demanding some extra units of wheat because each of them speculates that it will reduce welfare loss but eventually all of them bear welfare and consumer's surplus loss.

Conclusion

There is a negative relationship between the speculative demand for wheat and income. With an increase in income speculative demand decreases and with a decrease in income, it increases. This indicates that lower-income consumers behave more rationally than higher-income consumers to get maximum utility from their spending and buy some extra quantity of wheat to avoid the impact of increased prices, but due to income restraint they can't buy as much to store for the rest whole season. There is a positive relationship between speculation and family as well as between speculation and actual quantity demanded (needed per month for consumption). An increase in speculative demand increases prices more than a normal increase. The addition of some portion of price increment merely is due to consumer's psychological phenomenon of speculation. It is concluded that due to speculation consumers bear welfare loss, each of

Similarly, this gap also shows the extra producers (which are not farmers anymore because farmers sell their production instantly after harvesting, rather they are owners of storages and Arhteas i.e. Middle Men) surplus which they enjoy just because of psychological behavior of consumers of speculation. Due to speculation demand increase at the same current price, it gives more power to producers to increase the prices hence consumers are exploited by producers because of their own "Rational, Psychological Behavior of Speculation".

them thinks that by buying some extra quantity they can neutralize effects of a price increase and can avoid welfare loss but eventually this collective behavior costs them 8.92% of the extra increase in prices and welfare loss. Hence it is recommended for the consumers not to be speculative and extra rational by buying an extra quantity of wheat. They can get lower prices by doing so up to 9%. For the government it is recommended that every year millions of wheat consumers are exploited by the middlemen and owners of storehouses, it should note this practice. The government should make arrangements to buy all the wheat from the farmers and store it properly and should provide in the domestic market at the same price which is given to farmers at the time of harvesting, throughout the year so that the role of middlemen and flour mills owner can be eliminated.

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