

The Demand and Price of Giffen Goods under the Pandemic

—Take China's Market as an Example

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ABSTRACT

Under the influence of the global COVID-19 pandemic, various commodity markets have undergone great changes with the global economic recession. Giffen products have gradually increased with the spread and worsening of the pandemic. This paper introduces the origin and economic implication of Giffen commodities as a foundation, analyzes the Giffen phenomenon in the era of the epidemic with some real life examples, and proposes related solutions to this anomaly, the Giffen phenomenon. It is found that the main cause of this phenomenon under the pandemic is the sharp reduction in supply under a high demand, which stems from psychological worries about future survival. As the pandemic starts to appease, the prices of Giffen goods show the trend of returning to normal, and the government should take the responsibility of regulating the extremely high price.

Keywords: *Giffen goods, Giffen phenomenon, COVID-19 pandemic, Price analysis.*

1. INTRODUCTION

In the current condition of the COVID-19 pandemic, the global economy is now in a recession, and consumer demands are decreasing because of the isolation at home and the prohibition on work; the supply also decreases as a result of the lack of labor forces and the legal requirement for shutting down. Specifically, what links the global economy downturn with Giffen goods market is consumers' emerging needs for stocking life necessities at home in case of sudden isolation or emergencies. Take China as an example, under the risk of being insolated at home for weeks, the demand for life necessities such as rice, cooking oil, and meat has risen rapidly. Consequently, the demand of life necessities in supermarkets far exceeds the supply, and the price of all necessities is still on a rise. This paper introduces the definition of Giffen goods, analyzes the changes in demand and price of Giffen goods under the pandemic, and proposes possible coping strategies for the changes in Giffen goods market. Thus providing a clearer insight and a rational explanation about the future trend in markets, as well as helping the global economy to recover from the economic downturn more efficiently.

2. GIFFEN GOODS AND GIFFEN PHENOMENON

2.1 Origin of Giffen Phenomenon

According to the law of demand, there is a negative relationship between quantity demanded (quantity that consumers are able and willing to consume at any price) and price, which means, quantity demanded will increase when the price decreases. The underlying principle of the law of demand is rational economists' choice to maximize total utility of consuming a good, which will emerge under the condition that the price of a consumption equals the marginal utility derived from it. Because of the law of diminishing marginal utility, a downward sloping demand curve is derived.

However, there came an exception in the 19th century. In 1825, a famine emerged in Ireland, and the price of potatoes increased. However, instead of decreasing, the demand for potatoes also increased. Thanks to this anomaly in the market of potatoes in Ireland, Robert Giffen observed that an increase in price of necessities will be followed by an increase in demand under certain conditions. Hence, relationship between quantity demanded and the price will turn positive under a

specific situation called “Giffen phenomenon” or “Giffen mystery”.

2.2 Meaning of Giffen Goods

According to the previous explanation of Giffen phenomenon, Giffen goods can be defined as goods that do not follow the law of demand, namely quantity demanded will increase as a result of price increase. Accordingly, Giffen phenomenon refers to the change in consumption under an economic downturn, when consumers tend to consume more medium-to-lower level of life necessities instead of luxury goods [3]. And in the market of those life necessities, the price will rise according to an increase in demand, which is also regarded as an anomaly of the law of demand.

Under the current situation of COVID-19, the global economy is now facing a downturn. Giffen goods and Giffen phenomenon now become even more common. Take China’s pork market as an example, in Changzhou, the market price of pork in January and February 2020, indicated by the city’s Consumer Price Index (CPI), rose by 5.5% and 5.4% respectively, hitting a new high in nearly 100 months since September 2011, while the demand for pork continued to rise instead of decreasing [1]. Thus, under the COVID-19 pandemic, life necessities, especially foods, fit into the category of Giffen goods well.

3. ECONOMICS IMPLICATION OF GIFFEN GOODS

When the price of a good changes, its effect among consumers can be divided into two parts: Income effect and substitution effect.

The income effect explains consumers’ relative incomes’ effect on their consumption behavior and quantity demanded. When the price of a good changes under the condition of unchanging income, consumers’ relative income compared with the price will become either higher or lower. That is to say, when the price of a good rises, consumers need to spend a higher proportion of income to purchase it, hence the relative income becomes lower. As a result, a lower income reduces consumers’ likeliness to consume more goods. When it comes to the situation of price decrease, vice versa. To sum up, income effect measures consumers’ purchasing behavior under the changing relative income, which yields a negative relationship between the price change and quantity demanded change.

Another effect behind the law of demand is the substitution effect, which measures consumers’ preference about substitutes under the price change. When the price of a good increases, consumers tend to prefer its substitutes more to gain the same amount of utility, hence quantity demanded for the good decreases,

and vice versa when the price decreases. So the substitution effect also yields a negative relationship between the price and quantity demanded.

However, it is the case under normal goods. In terms of inferior goods, the income effect yields an opposite result. When consumers’ relative income becomes lower as a result of an increase in price, they tend to consume more inferior goods, such as instant noodles. In such a situation, the income effect yields a positive relationship between quantity demanded and the price. Now due to the opposite direction of the income effect and substitution effect, which effect contributes more to the change in quantity demanded is worth considering. Under the category of inferior goods, there comes Giffen goods and non-Giffen goods. For non-Giffen goods, the substitution effect exceeds the income effect. Consumers still tend to consume less when the price increases, since they prefer to purchase relatively cheaper substitutes consequently. But for Giffen goods, the income effect exceeds the substitution effect. A lower relative income results in a higher demand for Giffen goods.

4. RESEARCH ON GIFFEN GOODS MARKET UNDER THE COVID-19 PANDEMIC

4.1 Formation of Giffen goods in real life context

According to the previous analysis, it is certain that the demand for Giffen goods’ will increase when their prices increase.

There are several situations where Giffen goods may emerge: naturally occurred Giffen goods, Giffen goods for purpose of showing off, and Giffen goods under certain economic conditions [6].

For natural Giffen goods, an increase in demand will lead to an increase in price under certain supply, whereas the demand will not be reduced as a result of a higher price [6]. In such conditions, the contradiction between demand and supply results in the sustaining high price. For example, umbrellas in rainy days or air-conditioners in summer. Under such special conditions, the demand will rise suddenly, leading to a high price according to a basic supply-and-demand model. However, due to the imperative need, the demand will not decrease, which eventually leads to the formation of Giffen goods and Giffen phenomenon.

For luxuries, Giffen phenomenon also presents [6]. People may buy luxuries at a higher price to serve their psychological purpose of showing off their wealth and richness. Hence, a higher price will even incite people to consume more.

Then it comes to a situation which fits the current pandemic most: Giffen goods under specific economic

conditions [6]. In most cases, special economic conditions refer to sudden economic downturns and recessions, especially those under sudden external changes. Take the COVID-19 pandemic as an example, the sudden unexpected change significantly impacts the whole global economy, leading to deaths and economic activity shutdowns. According to the IMF report in June 2020, the global economy would decline by 4.9% in 2020. And WTO proposed in April that the global merchandise trade in 2020 would fall by at least 13%, which could be even worse to 32% according to the current pandemic. Therefore, from the data point of view, the world has actually entered an economic recession in 2020 [7]. Under these economic conditions, panic among the general public is likely to emerge, which incurs them to purchase much more goods than normal in case of emergencies.

Such a cause of Giffen phenomenon also has its historical evidence.

In the famine of Ireland during 1845, the food production was greatly reduced, and the original market equilibrium changed to a serious supply shortage, which caused huge panic among Irish people, and their expectations for future food supply and prices have changed consequently: in the future there may be insufficient food to sustain basic living needs. In this case, people would purchase the food as soon as possible to survive in possible future adversities, not considering the increasing price [2].

COVID-19 forms a similar situation as Irish famine, since people during the Irish famine were worried about their future employment and accessibility to foods. Hence these people would demand much more products for sustaining life despite the extremely high price.

4.2 Examples of Giffen goods under the pandemic and cause analysis

According to the previous analysis about Giffen goods' formation in real life context, the third circumstance fits into the current situation of pandemic most: people's demand for certain types of goods soars significantly to search for psychological appeasing. Examples include masks, ethanol, pork, and potatoes.

The newly emerging Giffen goods mainly fit into the category of medical resources and basic foods.

Under the category of medical resources, Giffen goods include masks, medicines for curing flus, and resources for preventing virus. Take China's market as an example, the COVID-19 pandemic widely spread at the end of 2019 and beginning of 2020, leading to a significant short-term price change of relevant medical resources. At the beginning of the pandemic, when people first recognized the imperative need for wearing masks and its contribution for preventing the pandemic,

the price of medical masks encounters a rapid increase, reaching a maximum of up to 28 times higher [5]. Generally, the price of masks rises from less than 1 yuan to almost ten yuan, together with an insufficient supply for every consumer to buy enough masks. Other medical resources such as ethanol, also known as alcohol, encounters an extremely high price as well. Due on January 15, 2021, the average market price for domestic ethanol in China was 7,125 yuan/ton, which increased at a rate of 39.63% year-on-year, and 2.13% month-on-month. Also, the price of alcohol was 4.48% higher than the first trading day in 2021, finally hitting a maximum throughout the history [10].

According to the data of medical masks and alcohol, it can be concluded that relevant medical resources that used to be available to the general public before the pandemic were no longer as accessible as before. This may be a result of multi-factors.

One factor is the sharp reduce in supply during the pandemic. The quick spread of COVID-19 pandemic leads to the situation of large scale isolation and a shutdown of production. As a result, in the supply and demand market of medical resources, supply is largely reduced because of the lack of factors of production, leading to a reduction in quantity and a higher price. Also, a shutdown in transportation worsens the situation [4]. Due to the lack of labor forces in transportation industry, produced goods are unable to be distributed to other regions, hence deteriorating the circumstance of shortage. Another factor is the psychological factor among the public. Under the vast spread of the pandemic, media and news increasingly highlight the importance of medical resources especially the goods like masks and alcohol. Under such a condition, people feel panic about the coming pandemic and tend to purchase more relevant goods than they actually need to appease their worries. In this case, even if the demand is normal at the very beginning of the pandemic, the panic and worries among the public will later lead to an excessive consumption, thus making those resources inaccessible and become more valuable. To conclude, under an insufficient supply and consumers' psychological panic, the price of medical materials soars together with an increasing demand, creating the Giffen phenomenon.

Apart from medical materials for preventing the pandemic, foods that are needed for subsistence also become Giffen goods at the beginning of COVID-19. Those Giffen goods mainly include agricultural products such as potatoes, rice, and other important food sources such as meat and poultry. The data from the Food and Agriculture Organization of the United Nations shows that the average global food price index in October 2021 is 133.2, which has been rising for the third consecutive month at a rate of 31.3% year-on-year. Also, in China's market, the similar phenomenon emerges. For staple food, the average price of potatoes in the first quarter of

2020 was 3.31 yuan/kg, which is much higher than the 2.54 yuan/kg in the same period in 2019 at an increasing rate of 30%; and the price of rice increased by an average of about 0.14 yuan/kg [8]. In the market of meat, a price increase is also common. In pork market, the COVID-19 pandemic brought a rise of about 5 yuan/kg at the beginning of the pandemic in Shanghai while the price increase in Jiangsu province reached an average of 14 yuan/kg [9]. The principle beneath such a phenomenon in food market is similar: the combination of reduction in price and growing panic makes the price even higher than before, whereas the demand sustains an increase, as people strive to buy more food to survive a long period of time in isolation.

To conclude, the Giffen phenomenon becomes more ubiquitous under the COVID-19 pandemic. Apart from universal Giffen goods, the demand of which increases under the decrease in income such as fast food noodles or junk food, more daily goods increasingly fall into the range of Giffen goods, such as medical cure resources and foods for daily need. Before the pandemic, such goods comply to the law of demand well, namely an increase in price will lead to a reduction in demand. However, the pandemic yields a significant effect on changing the demand and supply. Shutdown of firms and lack of workforce make goods less accessible either at supply or during transportation; panic among consumers due to the desire to survive raises the demand sharply. As a result, the dual factors shaped the Giffen phenomenon among medical resources and foods, turning those initially normal goods to Giffen goods.

4.3 Future prediction for pandemic Giffen goods and recommendation for future strategies

It is evident that the price of goods rose sharply at the beginning of the pandemic; but according to the recent price, the Giffen phenomenon may have been eased. Take the price of potatoes, a listed example of Giffen goods in previous paragraphs, as a reference, in the first quarter of 2020, the average price of potatoes was 3.31 yuan/kg, which gradually decreased to 2.36 yuan/kg in the last quarter in the same year. A similar pattern can also be observed in other products such as masks and meat.

Hence, according to the established pattern, it can be predicted that the future prices of those Giffen goods will likely to continue to return back to normal. Based on the previously suggested causes for Giffen phenomenon, there are two possible reasons for the gradual decrease in price. From the supply side, the gradual recovery of employment throughout 2020 leads to an accordingly increase in supply in various industries. Hence, the shortage in the market is eased. Also, from the psychological aspect, the drop in price also has its stem from. As the pandemic proceeds, people generally

become accustomed to the effect of COVID-19 and have a more realistic view on their living conditions. Thus, the situation of buying in bulk for survival would no longer be as common as before. The demand cools down, and Giffen phenomenon tends to be reduced.

However, this trend is not definite. Under the current pandemic situation, recurrence is likely to happen in different areas at different times. In this case, Giffen phenomenon will also recur according to the pandemic. What affects the Giffen goods situation also includes government legislations. Take China as an example, a wide range of infected patients will again yield the result of isolation in the whole area even the entire city. As a result, citizens and people who are about to be isolated will again get into the panic of lacking sufficient food, hence inciting their bulk purchasing behavior. Take Shanghai as an example, in March 2022, the price of basic vegetables such as cabbages and potatoes again rose as much as 10 times. Because of the isolation in the entire city, Giffen phenomenon again recurred and the demand soared under extremely high prices, because people were worried about the lack of food during an unexpected long time of isolation.

Hence, to conclude, the general price will sustain to go down since the pandemic is now not a big shock in most areas. However, in some specific areas where the virus again has a wide spread, Giffen phenomenon and Giffen goods may again appear and become even more significant.

To control the overall price level and Giffen phenomenon in those areas, a few suggestions are proposed:

First, the government should open up channels to ensure convenient transportation of materials such as medical resources and basic foods. An absolute and unchanging policy of pandemic prevention should be avoided. In this case, the supply of Giffen goods will be ensured, which will, to some extent, ease the severe shortage and high prices.

Second, government authorities should fully understand the bottom line of people's livelihood. There should be further improvement in ensuring social security and people's basic survival needs. Subsidies need to be distributed rationally and timely to appease the worry and panic among the public, which can alleviate the extremely high demand in Giffen goods market.

5. CONCLUSION

Giffen goods have their economic stem from a stronger abnormal income effect than substitution, under which a positive relationship between the demand and price merges. Under the current situation of pandemic recurrence, Giffen goods will also have a fluctuation of

getting more or less as a result of both supply factors and psychological factors. Typical examples of Giffen goods during the pandemic include pandemic prevention products like masks and alcohol, as well as basic foods like meat and rice. And under the dynamic nature of political strategies and the pandemic condition, the future of Giffen goods market is still unsure, but there still exist some ways to ease this severe Giffen phenomenon. Also, since only a part of examples are mentioned in this paper, more data research can be done in future investigations to depict a wider and more comprehensive picture of China's Giffen goods market.

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