The Impact of Covid-19 Pandemic on the Selling of LPG and Mineral Water at Grocery Store "X"

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Abstract: Covid-19 pandemic has brought a big impact on every aspect live, especially in the economic sector. Many business owners complain that their business worsen during the pandemic. This research intends to discover the impact of Covid-19 pandemic on the selling of two main commodities, LPG (liquid petroleum gas) and mineral water. The data for this research were the sales data of LPG and Mineral Water for 6 months, 3 months before the Covid and 3 months after the Covid. The data were taken from Grocery Store "X", a small-medium enterprise (SME) located in Bekasi, Indonesia. The data were analyzed using non-parametric method with multi-level test Wilcoxson for paired samples. Results revealed that there is no significant difference between the selling of LPG and mineral water before and after the Covid-19 pandemics. Moreover, the owner also confirmed that there are no significant changes in their business. Thus, this research implied that the pandemic did not affect all businesses the same way and business owners have to adapt to new ways of doing business to be able to survive in this era.

Keywords: Covid-19, LPG, mineral water, pandemic, selling

I. INTRODUCTION

Corona virus pandemic that has hit several countries in the world since January 2020 has destroyed the global economy, including the economy of Indonesia. Karlsson et al. [1] have studied the impact of pandemic on a country's economy, particularly the impact of Spanish Flu in 1917 towards the Swedish economy. They found that the plague-stricken area has slower economic growth and negative capital income. Meanwhile, in Turkey, Acikgos et al. [2] predict that Turkish economy will have short term bad impact like other countries due to the pandemic.

The economic crisis that is occurring now can be compared to the similar crisis that happened during the monetary crisis in 1988 and 2008. At those times, global monetary crisis has crippled the economy of many countries. However, Indonesian economy has survived from the worst because of the emergence of many small and medium enterprises (SME) all around Indonesia that were able to turn the national economic wheel.

Unfortunately, nowadays, with the Covid-19 pandemic, SME sector can no longer support the economic and monetary crisis caused by the pandemics [3]. Many businesses should be closed or sustained during the pandemic. In the meantime, the Government of Indonesia is doing everything necessary to restrain the spreading of Covid-19 all around Indonesia so that it does not cause the destruction of Indonesian economy. Moreover, the government also tried its best to avoid the enactment of Lockdown policy. A lockdown will incur a lot of money, for example for giving the financial aid for impacted people and for long-time care of the patients [4].

Instead of lockdown, the government ratified the social distancing policy. In Indonesia, it is called PSBB (Pembatasan Social BerskalaBesar) or Big Scale Social Distancing. Basically, in social distancing, the society is requested to avoid gathering in big crowds. In particular, there are four rules of PSBB that should be heeded by the society [5]. First, the public and private transportation are limited to carry 50 % of the capacity. Second, socio-cultural activities should not be held. In effect, there should be no activities that invite a lot of people such as wedding celebration and religious services. Third, there should not be a gathering of more than five persons. Thus, offices and schools should also be closed. Finally, the business sectors that can be opened during the PSBB are those related to health sector, food and beverage production, energy sector and communication sector. The other sectors should be sustained or closed at all.

In response to these rules, students are studying from home, employees are working from home, religious believers are worshipping at home, and people are doing their shopping activities from home [6]. People who usually go to the store or supermarket for shopping how have to use telephone or internet for shopping. In other words, the pandemic has changed the consumer behavior from offline to online shopping [7] As a result, business owners are forced to change their marketing system, from direct into online marketing system. This is because the change in business behavior is influenced by the customer behavior.

However, there are some daily needs that are usually ordered or bought online (at least by phone call). Consumers usually order LPG tanks and gallons of mineral water by phone to the stores and the stores will deliver them directly to the consumers' houses. In Indonesia, LPG is sold in 12-kg tank or 3-kg tank, while mineral water is sold in a 19-litre gallon. Thus, it is more feasible that the consumers make online order and the stores make the delivery of the goods.

The delivery of goods wassmooth and without obstacle before Covid-19 struck the area. Hence, since the PSBB was being enacted, the transportation was limited and people movements were also constrained. As a result, the delivery of goods from the stores was also delayed and consumers made a lot of complaints to the stores. This happened to a grocery store "X", an SME that sells LPG and mineral water, which is located in Ruko de Residence, Perumahan Harapan Indah, Setia Asih, Bekasi. This store was founded in June 2015, specializing in the selling of mineral water and LPG tanks. Nowadays, the store has 40 retailers in Harapan Indah housing complex, with six employees and one store supervisor.

The owner of store "X" claimed that their gas and water business has changed due to the impact of the Covid-19 pandemic and the implementation of PSBB by the government. Therefore, to prove this claim, the writers will carry out a quantitative research on the selling data of the grocery store "X" before and after the pandemic breakout. There are two research questions that will be answered in this research.

1. How is the selling of mineral water and gas change in grocery store "X" before and after the pandemic?
2. How will the store adapt its business in the future?

The writers expect that the results of this paper will give more knowledge about the business situation (particularly gas and mineral water business) in Indonesia, especially regarding the SMEs (small and medium enterprises) which play a significant role in sustaining the economy of Indonesia.

II.   METHOD

The data for this research were the selling reports of grocery store "X". The data consist of sales reports of gas and mineral water for 12 weeks before and 12 weeks after Covid-19 breakout. Thus, the data were taken from November 2019 to April 2020. Besides the sales reports, the writers also interviewed the owner of the store through video call, phone call and whatssapp. The interview questions included daily sales, distribution of goods and customers' complaints. Secondary data in the form of literary review were taken from websites, online news, national and international journal articles.

The sales data were analyzed quantitatively by performing data normality test, marked test, and Wilcoxon test for paired samples [8]. The results of statistical data were then compared to the results of interview with the store owner.

III.   RESULTSAND DISCUSSION

From the store owner, the writers obtained the selling data of gas and mineral water from November 2019 until April 2020, which are distributed equally for 12 weeks each.

Table 1. Sales Income before and after Covid-19

Period	Pre-Covid Sales Income	Post-Covid Sales Income	Percentage of change
Week 1	33.444.600	32.162.600	-3.83%
Week 2	31.551.600	40.244.500	27.55%
Week 3	41.174.300	32.297.700	-21.56%
Week 4	35.941.200	31.022.000	-13.69%
Week 5	31.815.800	35.152.300	10.49%
Week 6	33.937.500	33.284.000	-1.93%
Week 7	35.451.300	33.639.600	-5.11%
Week 8	49.939.300	35.404.900	-29.10%

Week 9	22.991.800	32.654.600	-42.03%
Week 10	34.792.500	34.217.500	-1.65%
Week 11	31.145.500	34.864.700	-11.94%
Week 12	49.021.000	43.677.700	-10.90%

From the above table, it is found that the average sales before Covid-19 is IDR 35,933,867; while after Covid-19 was announced in February 2020, the average sales is IDR 34,885,175. There is a decrease of IDR 1,048,692.

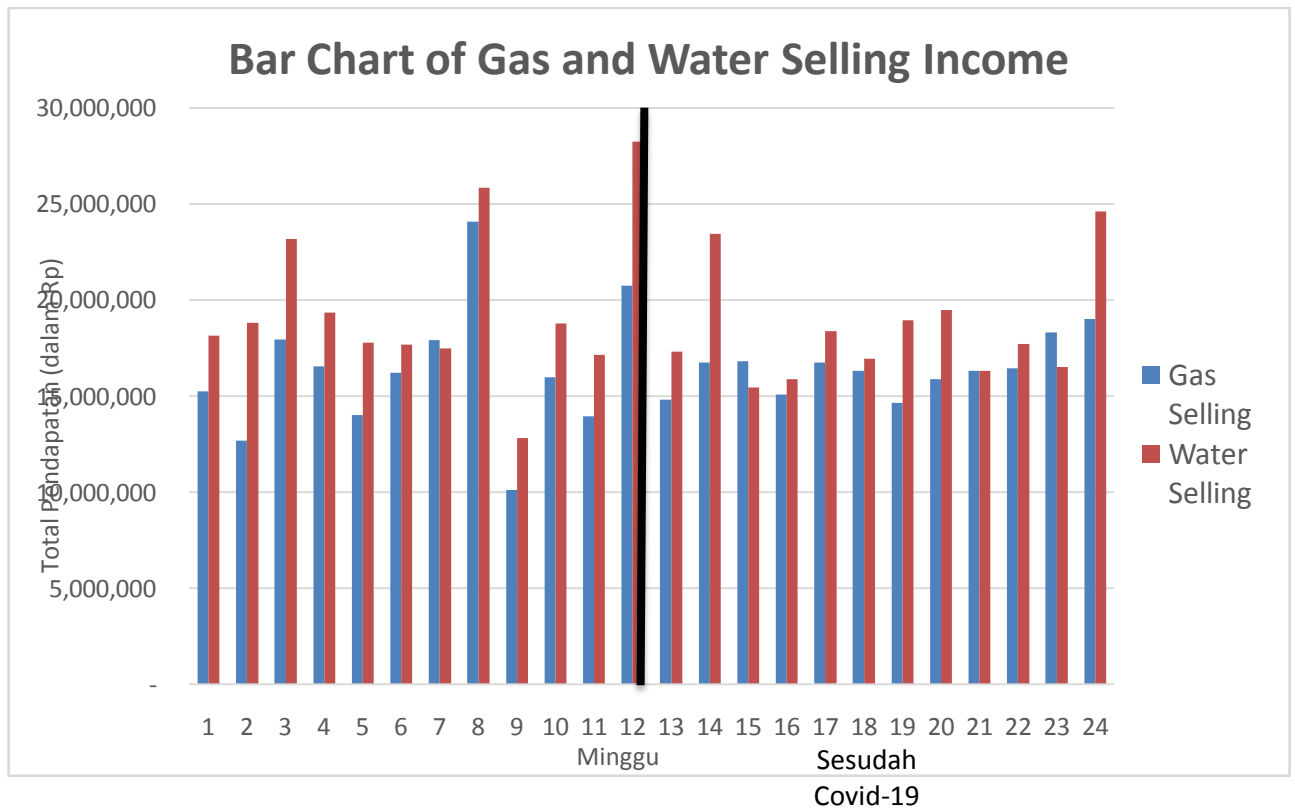Meanwhile the sales income per week can be seen in the following chart.

Fig. 1. Bar Chart of Gas and Water Selling Income

From the bar chart above, we can see that the income for the selling of mineral water for the third, eighth, and twelfth exceeded IDR 20.000.000 (twenty millions rupiah) before Covid-19, while the income after Covid-19 exceeded IDR 20.000.000 occurred on the fourteenth and the twenty-fourth week. Meanwhile for the LPG tank, the selling income that exceeded IDR 20.000.000 occurred on the eighth and twelfth before the Covid-19. However, after the Covid-19, there are no incomes that surpassed IDR 20.000.000.

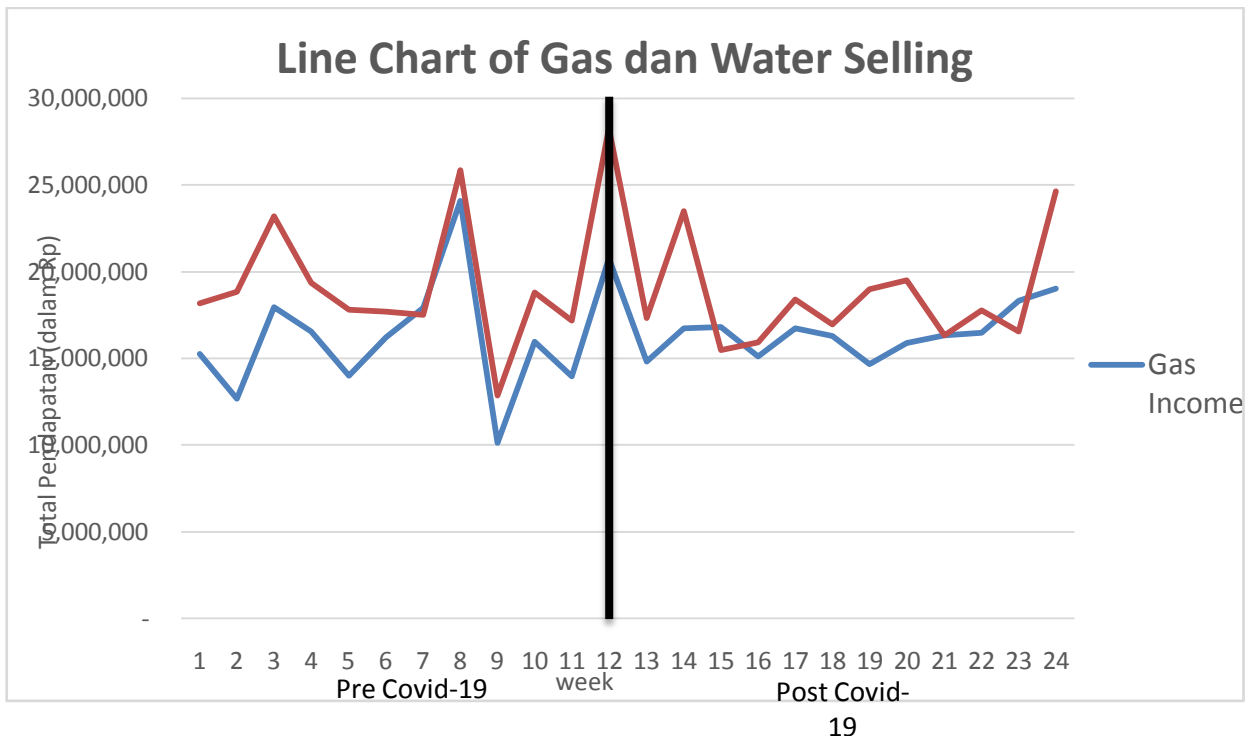The comparison of the two products can be seen in the following chart.

Fig. 2. Line Chart of Gas and Water Selling

In general, we can see that the income for the selling of mineral water before the Covid-19 is above the income for the selling of LPG. However, after Covid-19, on the fifth week and the twenty-first week, the selling of LPG surpassed that of the mineral water.

Table 2. The average income per quarter

	Month	Week	LPG	Average Income		Water	Average Income	
PRE- COVID-19	NOV	Week 1	15.263.500	15.623.500	16.304.142	18.181.100	19.894.425	19.626.392
		Week 2	12.689.000			18.822.600		
		Week 3	17.967.000			23.207.300		
		Week 4	16.574.500			19.366.700		
	DEC	Week 5	14.028.500	18.073.375		17.787.300	19.712.600	
		Week 6	16.241.000			17.696.500		
		Week 7	17.936.000			17.515.300		

		Week						
		Week 8	24.088.000			25.851.300		
	JAN	Week 9	10.143.700	15.215.550		12.848.100	19.272.150	
		Week10	15.985.000			18.807.500		
		Week11	13.965.500			17.180.000		
		Week12	20.768.000			28.253.000		
POST- COVID-19	FEB	Week13	14.841.500	15.883.375		17.321.100	18.048.325	
		Week 14	16.762.000			23.482.500		
		Week15	16.820.000			15.477.700		
		Week16	15.110.000			15.912.000		
	MARCH	Week17	16.757.000	15.909.000	16.445.333	18.395.300	18.461.200	18.439.842
		Week18	16.322.500			16.961.500		
		Week19	14.663.000			18.976.600		
		Week 20	15.893.500			19.511.400		
	APRIL	Week21	16.329.000	17.543.625		16.325.600	18.810.000	
		Week22	16.474.000			17.743.500		
		Week 23	18.323.000			16.541.700		
		Week 24	19.048.500			24.629.200		

From table 2 above, it can be seen that the average increase of LPG selling income before and after Covid-19 only reached 0.86%. On the other hand, the income of mineral water decreased by 6.05%.

There are eight weeks in which the selling incomes after Covid-19 are fewer than those before the Covid-19, i.e. for week 1, 3, 4, 6, 7, 9, 10, and 12. On the contrary, there are four weeks in which the selling income after Covid-19 exceeded those before the pandemic, i.e. on the week 2, 5, 8, and 11. Hence, even though the number of weeks in which the selling incomes before Covid-19 is higher than those after the Covid-19, yet in percentage the different level is bigger on the weeks after the Covid-19.

To see whether the selling data of grocery store "X" is normally distributed or not, we performed a data normality testing using Kolmogorov-Smirnov Test and Shapiro-Wilk Test. In normality testing, the residual should have a significant level of above or equal to 5 % [9].

Table 3. Test of Normality

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for SebelumCovid19	.250	12	.037	.896	12	.141
Standardized Residual for SesudahCovid19	.276	12	.012	.820	12	.016

a. Lilliefors Significance Correction

The results of tests of normality with a significant level of 5% showed that the data were not normally distributed. Because of that, the data were further analyzed using non-parametric paired samples test, as suggested by Junaidi [10]. The first test to be performed is Wilcoxon Sign Ranks Test. This test gave the following results:

Table 4. Wilcoxon Sign Ranks Test

Ranks

		N	Mean Rank	Sum of Ranks
Sesudah Covid-19 - Sebelum Covid-19	Negative Ranks	8[a]	5.88	47.00
	Positive Ranks	4[b]	7.75	31.00
	Ties	0[c]		
	Total	12		

a. Sesudah Covid-19 < Sebelum Covid-19

b. Sesudah Covid-19 > Sebelum Covid-19

c. Sesudah Covid-19 = Sebelum Covid-19

Based on Wilcoxon Signed Ranks test, it was found out that there is no significant different between the selling incomes before and after Covid-19 outbreak at the grocery store "X". This is because the Sig. value > 0.005.

To get a more convincing result, we performed another non parametric test, i.e. Sign Test. The Sign Test is based on the sign of a difference between twi related observations. We usually designate a plus sign for a positive difference and a minus sign for a negative difference [11]

Table 5. Sign Test Results

Frequencies

		N
Sesudah Covid-19 - Sebelum Covid-19	Negative Differences[a]	8
	Positive Differences[b]	4
	Ties[c]	0
	Total	12

a. Sesudah Covid-19 < Sebelum Covid-19

b. Sesudah Covid-19 > Sebelum Covid-19

c. Sesudah Covid-19 = Sebelum Covid-19

Test Statistics[a]

	Sesudah Covid-19 - Sebelum Covid-19
Exact Sig. (2-tailed)	.388[b]

a. Sign Test

b. Binomial distribution used.

The results of Sign Test did not differ with the results of Wilcoxon Sign Ranks Tests, because the significant level is above 5 %. Thus the results confirm that there is no significant difference in the selling of water and gas at the grocery store "X" before and after the Covid-19 pandemic.

To verify the results of the statistical calculation above, the writers conducted the interview with the store owner through whatsapp call. The owner admitted that not all demands from their retailer agents can be fulfilled because of the shortage of workers. In the meantime, they only have 6 honorary workers and two three-wheeled motor cycles. These workers have to deliver 200 gallons of water and 40 LPG tanks to their retailer agents. The owner did not want to admit new workers during the pandemic in fear of the possibility that the new workers would contract the corona virus. Moreover, honorary workers cannot be terminated even though the selling income of the store is decreasing. Besides, the owner did not trust the workers to do the billing of the product selling to their customers.

Because of the lack of workers, the store owner did not want to fulfill the demands of the retailer agents whom she did not know or who had just became her new customers. She did this to guarantee the availability of supplies for her ongoing customers. In addition, because of the implementation of PSBB, the order time to the producer became longer than usual. When the pandemic is over, the owner will try to increase the number of workers to expand her business.

IV. CONCLUSION

This research reveals that there is no significant different between the selling income of mineral water and gas before and after Covid-19 outbreak. Thus it is implied that Covid-19 no significant impact on the business of water and gas. The previous research [7] that Covid-19 has changed consumer behavior from offline to online, yet, the business of gas and water has been done through online means. The mode of business has already been implemented before the Covid-19 strike. Hence, it does not give any significant impact. However, the fact that people stay home longer than usual should logically increase their consumption of water and gas since they have to cook and eat at home. Yet, even though there is an increase of demands for gas and water, the store owner cannot fulfill the demands due to certain reasons such as shortage of workers or refusal of new customers.

We want to conclude that the development of business during the Covid-19 pandemic will depend on the business sectors, mode of business and also the business owners themselves. These three factors will determine whether a business will thrive or deteriorate.

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