Covid19 - Consumption Nexus: A Bangladesh Scenario

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Abstract

The article explores the nature of the impact of Covid19 on house-hold consumption of Dhaka city. By doing a survey of 200 residents, and graphically analyzing the survey data, the study identifies that Covid19 caused income loss, drop in consumption, shifts of consumption preference towards healthcare and online usage, and inclination to cashless transaction and online purchase. Thus, the study suggests that Covid19 impacts on consumption ability as well as consumer preference for consumption category, mode of payment, and method of purchase.

Keywords: Covid19, Consumption, Pandemic, Economy, Income drop.

1. Introduction

Despite the latest inventions and cutting-edge modern technology, when it comes to pandemics and infectious diseases, their impact has been seen to be difficult to contain throughout history. Infectious diseases are generally referred to as diseases that are contagious, meaning they can spread from one person to the other easily. For such diseases, the risk and stakes are higher in comparison to non-infectious diseases as it can spread among people easily.

History has been marked by such diseases throughout and plenty of studies have been conducted to understand how it affects economies, mental health and beyond. When it comes to economic impact, in the 1900s, the flu was seen to cause a 6% loss in GDP and an 8% decrease in consumption (Barro et al., 2020). This loss was seen to take place globally across 42 countries. Furthermore, the Spanish flu that also took place in the 1900s, caused Sweden's GDP to drop coupled with a 5% increase in unemployment (Barro et al., 2020). For SARS, GDP declines by 3% in China and 4.75% in Hong Kong, while for MERS, GDP declines by 0.7% in South Korea (Tanaka, 2022).

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According to literature, the effects of an infectious disease on consumption can be drastic. A previous study conducted on China observed that pandemics or diseases such as MERS did have severe impact on consumption (Jung et al., 2016). Severe impact is also indicated for the Covid19-consumption nexus; however, the nature of the impact is relatively unclear (Wang et al., 2020). This study aims to bridge the gap by exploring the impact of Covid19 on household consumption.

To understand how Covid19 impacts household consumption, a survey was conducted to collect data from individuals across Dhaka city of Bangladesh. A total of 200 people were surveyed, and data related to their pre- and Covid19 consumption,employment status, income change and consumption priority was captured. Overall, the effects of Covid19 on consumption is little studied in the context of Bangladesh. Hence, this paper aims to contribute to the literature by identifying some possible nature of the impact of Covid19 on consumption.

The study observes that 25% of the total respondents report of suffering from declined income due to Covid19, while 36% of the total respondents report of suffering from consumption decline. The amount of consumption drop was commonly from Tk10,000 to Tk50,000 per month (since the survey was done online, mostly high/middle income group was reached in the survey). Besides, apart from grocery shopping and rent payment, the priority of consumption categories during Covid19 changed more towards lifesaving, health protection and online usage compared to previous priority of transport, restaurant food and clothes. In addition, more people preferred cashless transactions and online shopping compared to the pre-Covid19 period. Covid19 changed consumption ability as well as consumer preference for consumption category, mode of payment and method of purchase. The change in consumption category may not sustain in the long run (transportation and restaurant may return as priority category); however, mode of payment (cashless transaction) and method of purchase (online shopping) may partially sustain.

The remainder of the paper is organized as follows. Section 2 reviews the literature on past pandemics and identifies the literature gap. Section 3 explains the methodology of the study, followed by results and discussion in Section 4. Section 5 concludes the paper.

2. Literature Review

Since the beginning of mankind, the world has been hit by several pandemics. The first among the most significant pandemics would be the Antoine Plague (165 AD), followed by the Bubonic Plague (541-542), The

Black Death (1346-1353), Third Cholera (1852-1860), Flu (originally the Asiatic or Russian Flu, 1889-1890), Sixth Cholera (1910 – 1911), Flu (also known as Spanish flu, 1918 – 1920), SARS (2002 – 2004), Swine Flu (2009 – 2010), HIV/AIDS (2005 – 2012) and the most recent Covid19 (2019 – present). Besides pandemics, the world has also been affected by several epidemics as well. The recent ones among many would be the West African meningitis outbreak (2009 – 2010), Avian influenza epidemic (2013 – 2019) and Ebola (2018 – 2020).

Among these diseases, the flu resulted in a 6% GDP loss and 8% decrease in consumption across 42 countries between the years 1901 and 1929 (Barro et al., 2020). The Spanish Flu pandemic specifically (1918) was a devastating one, as it affected 500 million people and led to 50 to 100 million deaths. Due to the pandemic, in Sweden, the economy was severely impacted. The GDP of the country was seen decreasing by 5% along with surges in unemployment. However, a study conducted in Sweden was not able to conclude the effect of the pandemic on individual income (Karlsson et al., 2014). Similarly, SERS and MERS were seen to negatively affect many countries as well. The tourism, accommodation, food and transportation sectors were seen to greatly decline, and this led to a reduction in supplies and eventually a reduction in GDP by 3% in China, 4.5% in Hong Kong, and 0.7% in South Korea (Tanaka, 2022). Thus, literature indicates income decline during any pandemic. The current study examines the income decline at the micro level.

Besides GDP decline, disasters in general have been observed to have impacts on consumption as well (UNISDR, 2009). Looking at different diseases that have impacted countries in different ways, such as consumption, the Swine Flu can be considered. A study conducted in Malaysia shows significant changes in behavior and consumption preference as a response to this virus (Goodwin, et al., 2009). It was found that 26% of people reported using public transportation less in order to be safe, and 49% purchased or intended to purchase items essential for protection against the virus, such as face masks and food (Goodwin, et al., 2009).

Against that backdrop, the latest pandemic and its impact on the world can be expected. The Covid19 pandemic and its impact is prevalent across the Americas, South-East Asia, Europe, Eastern Mediterranean, Africa, Western Pacific and several other regions (WHO, 2020). According to WHO, as of October 2020, a total of 34,804,348 cases of the virus have been confirmed. The number of infections is known to increase every day

and vaccines for this virus have just recently become available across the first world countries (Tanne, 2020).

The virus itself has till date affected countries worldwide; it has challenged the medical systems of countries, impacted economies, financial markets and households (Stanciu, et al., 2020). The way it has impacted countries has varied from one to the other. To mitigate these impacts, countries have tried to implement several measures – ranging from raising awareness of the need for social distancing to physical lockdowns of regions. It also led to governments dispatching stimulus packages to help sustain businesses as a result.

In the case of China, three months after the pandemic started, the overall consumption was seen to decrease by 27% (Chen et al., 2020). Among this, consumption of durable goods decreased by 35% and discretionary goods by 29%. A significant change was observed in the consumption of dining and entertainment with a 64% decrease and travel related consumption, with a decrease of 59%. This shows that due to the restrictions and with people being confined to staying in their homes, dining outside had become less of a priority or necessity. The same applies to travel expenditure, as due to the situation, it was not possible to travel, especially for entertainment purposes (Chen et al., 2020).

For the UK, it has been observed that consumption was affected due to the significantly increasing difference between income and expenditure (Piyapromdee, et al., 2020). Households that had an increase in this difference were not able to meet the cost of their expenses, and as such, their consumption decreased. Interestingly, households that possess liquid assets were seen to be able to sustain on their assets in the short run. Furthermore, households with higher earnings were predictably able to manage expenses better and in comparison, households with low income found it difficult to sustain themselves during the pandemic (Piyapromdee et al., 2020).

The pattern of behavior change during Covid19 is close to the behavior change seen with Swine Flu (Laato et al., 2020). People were seen to demonstrate behavior of making unusual purchases, i.e., buying items they normally would not have bought. It was also observed that there was a connection between the tendency to make such purchases and self-isolation. A possible reason behind this behavioral pattern could be information overload (Laato et al., 2020). As people got exposed to more news on the pandemic, they would make such purchases to feel more in control, as they were in a panic-stricken mental condition. As a result, people tend to do panic buying, and once again, one of the reasons behind this happens is

that people feel like they are in control amid all the changes and chaos happening in the environment (Slovic, 1987). Thus, people's tendency to consume and preference of consumption is seen to alter (Chuang et al., 2015). This has also been observed during Covid19 as well.

A study conducted by Wang, et al. (2020) on respondents from China showed that prior to the pandemic, people would tend to stock up on food supplies that would last for 3.37 days. After the pandemic, this was seen to increase to people stocking up for 7.37 days of food supplies. This resulted in an increase in demand of food and consumption or purchases. Interestingly, people were seen to stock up on food supplies, not because they were afraid that food prices would increase, but because of the reasons mentioned earlier. This indicates that price is not a key factor for consumers during pandemic situations.

In USA, people responded to the uncertainty resulting from the Covid19 situation as well through their consumption pattern (Baker et al., 2020). As the news regarding pandemic spread and lockdown measures were put in place, people started reacting. People were observed to start stocking up on goods, and overall household expenditure was seen to increase by 50% as a result. Furthermore, spending on food items was seen to increase specifically significantly, standing at 7.5% in March 2020 in comparison to the previous year. It is also interesting to note that most of the spending took place through card transactions and not cash. This is also critical to note, post pandemic, many businesses started accepting digital payments only as a precautionary measure. In contrast, spending on entertainment, travel, outside dining etc. decreased, which is consistent with the impact seen in China as well (Baker et al., 2020).

Countries are affected by Covid19 in a diversified way. In response to the situation, the nature of consumption has varied too (Pantanoa et al., 2020). For example, people in Italy were seen to buy a lot of hand sanitizers and surgical masks, resulting in a stock out of those items. On the other hand, in UK, the same was applicable in cases of purchase of toilet tissue. Similar effect was also soon seen across other products that were non-medical. This is a clear deviation from regular purchasing behavior as during normal situations, people would not consume in this manner or volume. It has also been found that during such situations, a lot of people became less sensitive to pricing and were willing to make purchases at a 300% price increase for products. People were also willing to wait in long queues to stock up on products, whereas generally this would cause them to be dissatisfied. In addition, it has also been observed that the mode through which people procure their desired goods has changed too. For example, it has been seen

that due to restrictions in mobility, consumers prefer to make purchases for essential goods at locations closer to where they live or through phone calls or online. This shows that the entire consumption pattern and nature of people change during disasters and similar emergency situations (Pantanoa et al., 2020).

Overall, literature on the impact of Covid19 is not sufficient, and consequently not much detailed in research. However, a few things have been highlighted through various research related to past pandemics and epidemics, showing that besides a nation's GDP and other economic indices, consumption is impacted too. The same has subsequently been indicated for the Covid19 pandemic. Clearly the pandemic has led people to alter their consumption patterns in different ways across various countries. This has led to certain sectors prospering, when essential products were given priority whereas certain sectors, like tourism, retail, entertainment are seen to suffer. Literature is available on how consumption of people has changed for countries like UK, USA and China. However, little research is done on how the pandemic has made changes and caused disruption for consumers in Bangladesh.

As such, it is crucial to better understand the effects of the pandemic in Bangladesh for its future policy precaution. For this, a further dedicated study is required that focuses on empirical evidence. It would be helpful to understand the nature of consumption of the people, the mode in which they prefer to consume during a normal situation and whether the volume of consumption has altered or not during the pandemic. Consumer's preference of products during Covid19 would also help to understand which industries are able to withstand the effects of the virus and which sectors are struggling. With the help of such research, the government, policy makers and business owners would be able to better align their strategies to help sustain economic growth of the country and wellbeing of the people. Developing insights on these aspects of the effect of the pandemic have not yet been explored and there is an existing gap. As such, this paper intends to find more data and evidence in this regard to help in developing strategies and policies for the future and mitigate the shocks caused by the pandemic as much as possible.

3. Methodology

The research uses primary data that has been collected through questionnaire survey of the residents of Dhaka - the capital city of Bangladesh. A total of 200 respondents participated in the survey by

responding online through Google Forms (In-person survey was not possible due to the Pandemic).

The main geographic focus of this survey has been Dhaka city, since the city is the capital city of Bangladesh and has a population of about 2.1 crore people (World Population Review, 2021). The entire population of Bangladesh is 16.6 crore, meaning Dhaka accounts for almost 13% of the total population of the country. Hence, the impact of Covid19 in this region could be used to understand how it has affected such a large urban population.

The monthly consumption of households is captured through a series of questions. The timeline covers both pre- and the pandemic periods. Thus, the dataset offers the understanding of how Covid19 affects the consumption pattern of people living in the capital city compared to the pre-pandemic consumption pattern. It provides new information on the nature of spending of people, for example comparing their online and offline shopping pattern during the Covid19 period. Thus, data regarding people's employment changes, category of consumption, total average spending, and method of purchasing goods has been investigated.

In a research conducted on China; Chen et al. (2020) captures the impact of the Covid19 pandemic on Consumption. Daily consumption pattern dataset was taken from one of the largest bankcards of the country (China UnionPay Merchant Services Corporation). Since it has not been too long since Covid19 pandemic started, there is currently no secondary data available in the context of Bangladesh to be used for this research. Hence, primary data was collected with a prime focus on capturing data related to consumption, where average monthly consumption pre and post covid has been taken.

3.1 Data Modeling and Sampling

Due to social distancing and lockdowns, it is extremely challenging to collect field level data. As such, for the purpose of this research, the survey was circulated online using various platforms such as LinkedIn, Facebook, e-mail etc. Following the data collection, the entire dataset was organized in Spreadsheet format according to each respondent's ID. The survey included both quantitative data, such as consumption expenditure in Bangladeshi taka as well as qualitative data, such as age of respondents, occupation, change in employment status due to Covid19, change in consumption priority etc.

Below is a diagram representing the conceptual framework of this research–

Figure 1: Conceptual framework

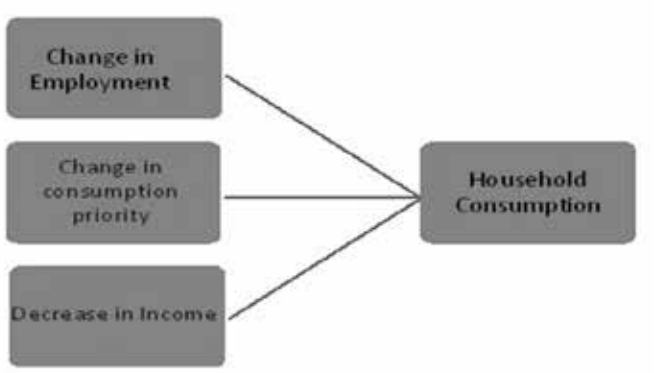


Figure 1 shows the conventional prediction that household consumption will be influenced by employment status, income status and consumption priority during a pandemic. The questionnaire has been developed based on this conventional conceptual framework.

This paper uses descriptive analysis technique to gather a deeper understanding of the nature of impacts that the pandemic Covid19 had on household consumption. Since the data was gathered using Online survey tools, the sampling falls under the convenience sampling (only people with internet access could be reached). Using descriptive tools and charts for the survey data, this paper aims to provide insights on possible variables that may affect household consumption during Covid19. Since convenience sampling was done, there is a constraint that the data does not represent the entire population. However, the research gives insights on how the consumption of randomly picked 200 people in Dhaka city has been affected due to Covid19. It sets the stage for further research on this topic and provided the foundation.

3.2 Variables and Data Organization

A detailed description of the independent variables is given below –

- Consumption difference: Respondents were asked to enter the numerical value of the average monthly consumption expenditure in BDT for both pre- and Covid19 periods. From that response, the numerical value of consumption difference was obtained for the two periods by subtracting values of consumption expenditure of Covid19 period from the consumption expenditure of pre-Covid19 period.

- Unemployment Due to Covid19: The variable captures if any individual's employment status has been affected due to the pandemic. For example, if an individual has lost their job during the pandemic, they have mentioned 'yes' to the specific question.

- Income decreases due to Covid19: This variable focuses on people whose income has not only changed but decreased during Covid19. Hence, any individual whose income has decreased has written 'Yes' to the specific question.

- Change in consumption priority: This variable captures changes in consumption pattern among individuals during pre- and Covid19 period. The survey asks individuals to list the major consumption categories with ranking separately for pre- and Covid19 period.

- Age groups: Three age groups were defined to capture the age ranges of correspondents. The age groups are 14 to 30 years old, 31 to 45 years old and 46+ years old respectively.

- Occupation groups: Three categories were used to capture the occupation of the respondents. The options given were Student, Service Holders, Business Owners and Unemployed.

Data cleaning and organization of the entire dataset was done in the MS Excel platform.

4. Results and Discussion

The purpose of the study is to explore the nature of the impact of Covid19 pandemic on household consumption. The data source for this paper is a primary data survey and the results and analysis are descriptive in nature. The datapoints are thus represented through pie charts, bar charts, graphs etc. for visualization.

4.1 Description of Respondents

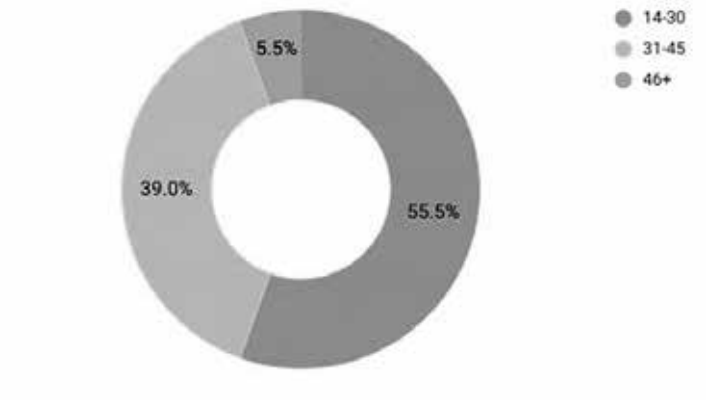
Age and occupational distribution are shown in this sub-section.

4.1.1 Age Distribution of Respondents

The pie chart below represents the age distribution of the respondents. Respondents are distributed into three age groups - 14 to 30 years, 31 to 45 years, and 46+ years old.

A majority of the respondents belong to the 14 to 30 years age group, which is 55.5% of all respondents. 39% of the respondents belong to the 31 to 45 years old age group, making it the second highest group of respondents.

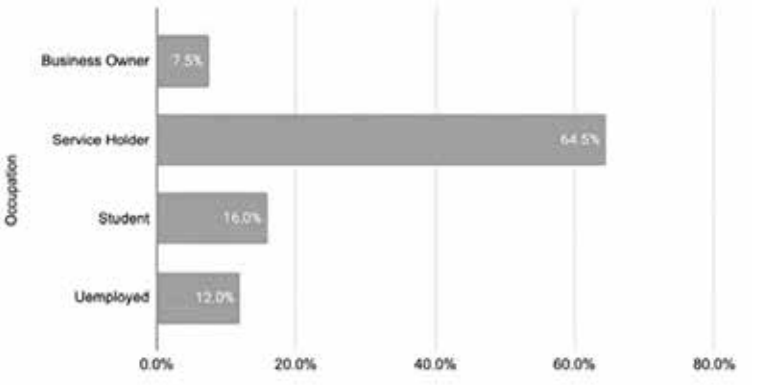
Figure 2: Age distribution of respondents



Lastly, 5.5% of respondents belong to the 46+ years age group. Thus, the study is skewed towards the younger population. Since young people tend to have limited savings, covid19-consumption nexus could be more prominent for them.

4.1.2 Occupational Distribution of Respondents

Figure 3: Occupational distribution of respondents



The highest occupational category of the respondents is service holder, which is 64.5% of all respondents. Among others, 16% of respondents are students, while 12% of respondents are unemployed. Finally, 7.5% of respondents are business owners. Thus, the study mostly captures the covid19-consumption nexus for the service holders.

A limitation of the study, however, is that the exact industry involvement of the respondents has not been captured. Industry-specific similar survey could overcome this limitation.

4.1.3 Employment Status of Respondents

During a pandemic, it is crucial to identify whether people lose jobs because of the pandemic. A person experiencing job loss suffers from a decline in monthly income as well as impact on cashflow. Under such circumstances it is possible for consumption to be affected since families would have less money to spend compared to before.

Figure 4: Unemployment during Covid 19

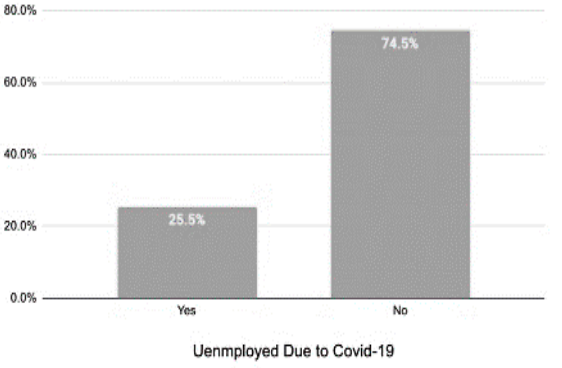


Figure 4 shows that 74.5% of respondents have claimed not to lose their job during the Covid19 pandemic, while 25.5% of respondents lost their jobs during the pandemic. This ratio is quite large and expected to have substantial impact on consumption to accommodate the decline in income. This would lead to cost cutting and not spending as much as before the pandemic. This behavioral change is explored in this study.

Besides jobholders, business owners may be affected too. In Bangladesh alone, several businesses are observed to close because of Covid19 (Ovi, 2020). Micro, small and medium enterprises are seen to suffer, where 33% of firms are not able to pay their loan installments and 37% of Micro and small enterprise workers lose their jobs (Ovi, 2020).

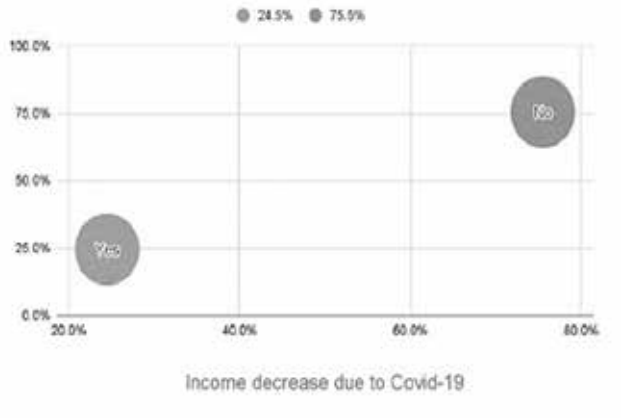
4.2 Decrease in Income due to Covid19

While the data indicates that people have experienced loss of jobs due to Covid19, another related phenomenon has been observed, i.e., decreased income. Many companies, during the pandemic, cut down employee salary to cushion business losses and to help their businesses survive without

laying off the employees. This means individuals did not lose their entire income; however, they experienced a decrease in their income.

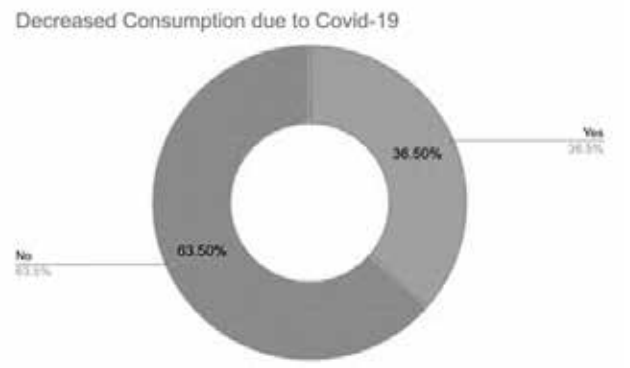
Figure 5 shows that 24.5% of respondents experience a decrease in income due to the pandemic, while 75.5% of respondents did not experience such a decrease in income. For individuals with reduced income face challenges to maintain the similar level of consumption to pre-pandemic period. Thus, exploring the pre- and Covid19 consumption priority is crucial, as it would shed some light on commodities which would be highly prioritized during a pandemic.

Figure 5: Decresed income caused due to Covid 19



4.3 Decrease in Consumption due to Covid19

Figure 6: Decreased consumption caused due to Covid 19

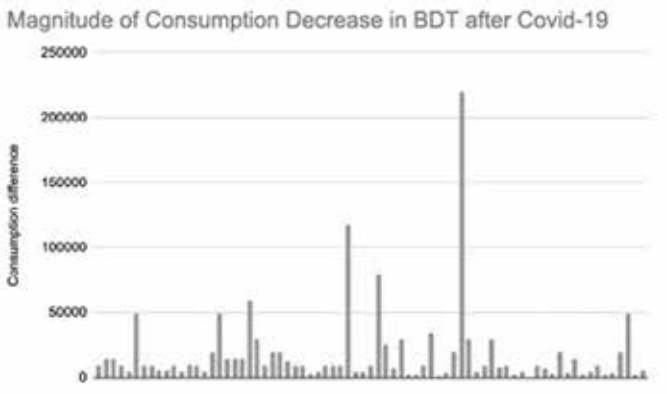


According to Figure 6, 36.5% of respondents admitted that they have reduced their consumption during the pandemic compared to the pre-Covid19 period. However, 63.5% of respondents informed that there was no change in their consumption due to the pandemic.

4.4 Magnitude of Consumption Drop due to Covid 19

For the 36.5% respondents who reported suffering from consumption drop due to Covid19, the magnitude of their consumption drop is further analyzed.

Figure 7: Magnitude of consumption decrease due to Covid 19



It is critical to understand the deviation or quantifiable change that occurred in consumption between the pre- and Covid19 period. Figure 7 shows that the magnitude has immensely varied. The lowest value of consumption drop is BDT 500, whereas the highest drop is a staggering BDT 2,20,000. However, most of the consumption drops are from BDT10,000 to BDT 50,000. To Be more specific, when income decreased, most people from the survey had decreased consumption from BDT10,000 to BDT 50,000. This is a clear indication that the middle-income group substantially suffered from consumption drop during the pandemic.

4.5 Comparison between Top Consumption Categories Pre and Post Covid19

To better understand the nature of consumption and consumption priorities during pre- and Covid19, respondents were asked to list their top consumption categories for both periods. Figure 8 shows that 19.54% of respondents have marked groceries as their top consumption priority during pre- Covid19 period. Rent payment and transportation costs are observed to be the second most important categories, both being marked by 15.76% of respondents. Among others, restaurant food is prioritized by 11.97% of respondents and clothes related expenditure is prioritized by 9.45% of respondents.

In comparison, when looking at the top five consumption categories during Covid19 period in Figure 9, groceries are still on the top of the list. However, in comparison to 19.54% during the pre-Covid19 period, 24.53% of respondents picked groceries as their priority during Covid19 period. Rent remained second highest during the Covid19 period with a support of 14.47% of respondents, which is slightly lower than 15.76% during pre-Covid19 period.

Figure 8: Top five consumption category prior to Covid 19

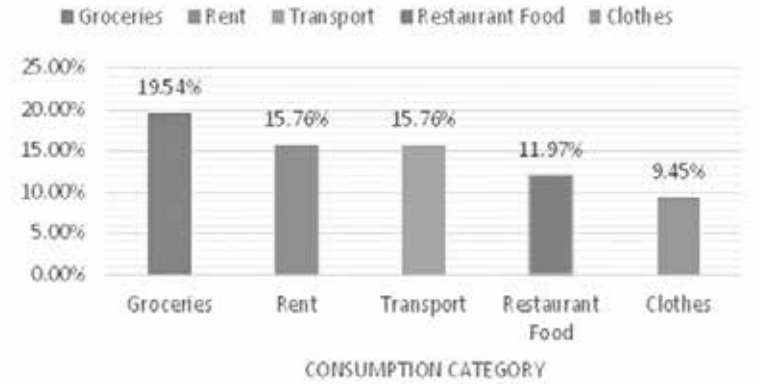
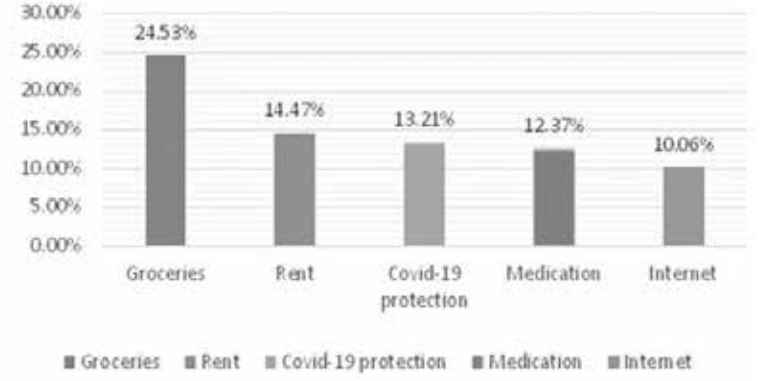


Figure 9: Top five consumption category during Covid 19



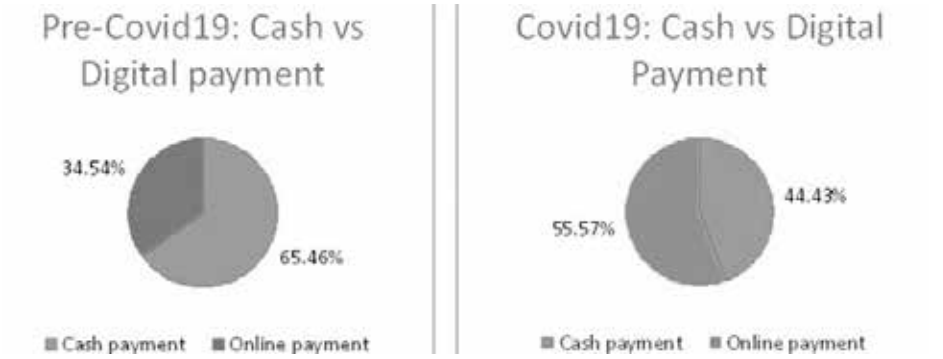
Thus, people spend even more on groceries during Covid19. Among others, Covid19 protection materials appeared as one of the major consumption categories during Covid19 with 13.21% response, followed by purchase of medication with 12.37% response and internet use with 10.06% response. Furthermore, categories such as Transport and Restaurant Food, which were among the top five categories during pre-Covid19 period are not prioritized during Covid19 period.

4.6 Purchasing through Cash vs Digital Payment

The survey data captures the preference of respondents with respect to cash versus online payment for pre- and Covid19 period. The figure below depicts the responses in the form of a pie chart in Figure 10. During pre-Covid19 period, on average, respondents preferred to make 65.46% of their purchases by using cash, and 34.54% through digital payment such as credit cards, debit cards, any mobile wallet (bkash, rocket etc).

In contrast, during the Covid19 period, on average, digital payment was preferred more than cash payments, standing at 55.57%. This indicates that due to Covid19, the preference for mode of payment has changed.

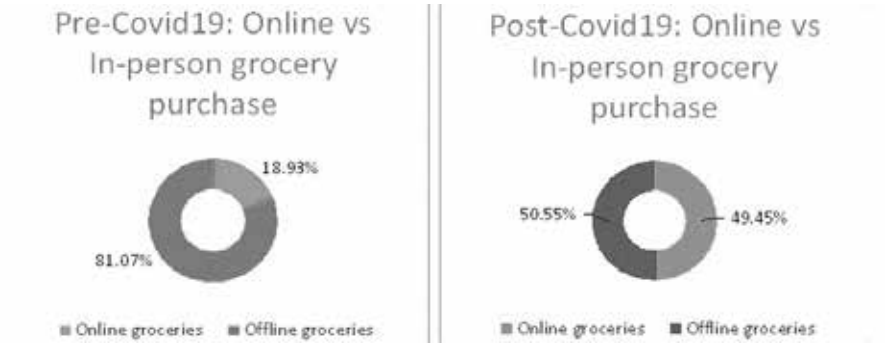
Figure 10: Preference of cash vs digital payment pre and Covid 19 period



It is also worth noting that a change of this nature may or may not be permanent, that is, people may go back to using more cash once the situation is more stable.

4.7 Purchasing Groceries Online vs In-person

Figure 11: Preference of online vs in-person grocery for pre and Covid 19 period



As Covid19 caused lockdowns nationwide as well as worldwide, it raised caution among people about going outside for purchasing necessary items such as groceries. In Bangladesh, it was seen that stores from local neighborhoods or communities started offering home delivery service for groceries. In addition, online grocery companies such as Chaldal continued to provide grocery deliveries. On the other hand, other companies such as Pathao, a rideshare service and Foodpanda, a restaurant food delivery company, introduced grocery delivery services, which was initially not a part of their core business idea.

On that note, when looking at responses from the conducted survey, people on average made 81.07% of their grocery purchases in-person through visiting stores before Covid19. During Covid19 period, this distribution seems to have become more even, on average, online purchases were 50.55% and in-person purchase was 49.45%. While preference of in-person purchases declined by around 30%, it was still almost equal to the preference of online groceries. This means that even if online groceries are preferred more in comparison to pre-Covid19 period, in-person groceries were preferred equally.

5. Conclusion

The research explores the Covid19 - Consumption nexus that occurred in Bangladesh economy. The study discovers that the impacts that took place through income and consumption decrease, change in consumption preference and a stronger intention for online shopping and cashless payments. More respondents reported on consumption decline (36%) than income decline (25%), which may be due to the conservative purchase

behavior because of fear of infectious disease, the limited access to the marketplace and the fear of future income drop. This finding is consistent with the claim of Watanabe (2020) that Covid19 generated demand shock is stronger than the supply shock; and the claim of Chetty et al. (2020) and Miyakawa et al. (2021) that pandemic transmitted consumption decline leads to job losses, especially in small and medium-sized business. Tanaka (2021) and Aum et al. (2020) correlate the job losses to the supply shock and ensures that Covid19 is a combination of demand and supply shock. Reduced international trade (Hayakawa & Mukunoki, 2021) and pessimism among remittance-dependent households (Murakami et al., 2020) also causes consumption decline during pandemic.

The study also identifies that the sectors such as transport, restaurant and clothing suffer from the pandemic, while health care sector and internet services gain during this time. This finding is consistent with Keogh-Brown and Smith (2008), Fernandes and Tang (2020) and Joo et al. (2019) who observed similar consequences during SARS and MERS. The possible reasons for such a sectoral shift include long lockdown and the risk of infection in public places. In fact, Inoue and Todo (2020) and Zhang (2021) identify lockdown as a cause of strong consumption drop during Covid19.

The study entirely relies on graphical and descriptive analysis of survey data. The number of respondents could not be increased due to limited access because of the ongoing lockdown. However, a further modification and reorganization of the dataset would allow further statistical analysis. The authors recommend such analysis as a future research scope.

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