RESEARCH ARTICLE

The Impact of E-commerce on Consumer Purchasing Behavior for the Coronavirus Disease (COVID-19)

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Abstract: The purpose of this study is to evaluate how COVID-19 is changing consumer behavior and how it is changing e-commerce trends. This study has been conducted through a qualitative approach. The Coronavirus changed worldwide patterns intensively. These differences are caused by the high levels of accidental and secondary funding that this virus reflects. This study showed how e-commerce has grown due to the coronavirus. As individuals deal with their new living conditions, they have changed their shopping behavior to meet their requirements. The COVID-19 pandemic significantly affects many aspects of life, including how individuals deal with their needs and not their needs. The behavior of people, the nature of businesses, and the manner of life have changed. It spreads fears among individuals that they should avoid interacting with. The effect of Coronavirus has transformed the nature of business in the entire e-commerce globe. In particular, COVID-19 has a substantial influence on global e-commerce and in certain cases, has negative consequences, although generally, e-commerce is quickly increasing because of coronaviruses. Moreover, e-commerce businesses confront various problems, including extended delivery times, movement control challenges, social distance, and lock-up or lock-down. The shipping and supply processes are now rather sluggish, yet people are still buying since they do not have any other option. Thus, people move to technology because of coronaviruses. This study has shown the trend of e-commerce in recent times and also shows how consumers tend to adopt e-commerce. There is no such issue in the previous literature. This study fills in the gaps on these issues and also helps to improve the global economy.

Keywords: E-commerce, COVID-19, Global perspective

1. Introduction

United Nations Conference on Trade and Development (UNCTAD) has played a vital role in promoting awareness of emerging crisis possibilities by expanding the use of e-commerce and digital solutions since the emergence of the new Coronavirus Disease (COVID-19). UNCTAD has also expressed worry about the danger of increased digital
disparities, especially in the least developed countries \[1\]. The 2020 E-Commerce Week conducted almost exclusively by UNCTAD and E-Commerce partners has offered a unique forum for a wide array of stakeholders to evaluate the consequences of the crisis and examine in-depth important digital concerns in the framework of the COVID-19 pandemic \[2\]. UNCTAD has evaluated, to monitor the size of the impact, identify important trends and issues facing the e-commerce companies, on the effects of e-commerce enterprises in developing countries and lower developing countries \[2\].

A coronavirus is a group of viruses that basis minor illness and a certain type of virus can infect the lower airway, and commencing severe illnesses such, pneumonia, bronchitis. People who have been infected with this virus can be contagious in both dangerous and benign ways. Throughout history, many pandemics have altered human existence. COVID-19 began on December 12 in Wuhan, China, and it was discovered that individuals were infected with pneumonia through an illusory link to a business that sells fresh seafood to customers. Millions of individuals in China have been infected with the virus within a week (World Health Organization -WHO, 2019). In addition, 205 nations and their economy are currently afflicted with the virus. It is a worldwide challenge and affects trends in e-commerce \[3\].

According to WHO (July, 2021), Figure 1 shows that total cases in the United States have confirmed 36,049,015, France 6,178,632, Russia 6,334,195, Brazil 19,986,073, India 31,769,132, Argentina 4,961,880, United Kingdom 5,923,820, and Turkey 5,795,665.

**Total Cases (worldwide)**

“Total Cases” = total cumulative count (200,304,173). This figure includes deaths and recovered or discharged patients (cases with an outcome).

According to WHO (July 2021) referred the total confirmed cases were 200,304,174 worldwide (please see Figure 2) (Source: Worldometer). According to WHO (July 2021) referred that the trend of new cases is higher than the number of recovery cases (Source: Worldometer-Please see Figure 3). This growth rate may change the behavior of people to purchase common goods which can meet the demand of people to purchase goods through e-commerce.

Coronavirus is changing world patterns dramatically. In every business, a fast shift has taken place. The behavior of people, the nature of businesses, and the manner of life have changed. It spreads the fears among individuals that they avoid interacting with. For the above reasons, this study is essential for the buyer and business perspective as well as all stakeholders.

Andrienko, O examined consumer trends on e-commerce where \[4\] showed e-commerce trends only but they emphasize the on-trend of e-commerce. They didn’t refer about how the purchaser’s frenzy of behavior. This

### Distribution of cases

![Distribution of cases](https://www.worldometers.info/coronavirus/worldwide-graphs)

**Figure 1. Country cases distribution**

Source: Worldometer\(^2\) - www.worldometers.info

\(^2\) https://www.worldometers.info/coronavirus/worldwide-graphs
was the main limitation of previous studies. This is the research gap in this study. This study emphasizes why needs e-commerce is essential in this situation like COVID-19 pandemic. It also emphasizes how people adopted e-commerce and how the purchaser’s frenzy of behavior.

2. Effect of COVID-19 on E-commerce

The effect of Coronavirus has transformed the nature of business in the entire e-commerce globe. Research shows that 52% of consumers do not go shopping in brick-and-mortar and congested locations. In addition, 36% avoid brick and mortar until they are vaccinated with coronavirus [4,5]. The varied impact of coronavirus on the various types of products means that COVID-19 has a very high influence on certain items and less impact on some products [3].

Total e-commerce sales rose with this virus, people avoided going out, kept the social distance, and bought from home, and e-commerce work from home as Walmart e-commerce grew 74% [4]. In addition to the rise in media use this time and Facebook, Google updates its functionality so that more individuals may connect on their own, for example, Facebook launches Messenger for 44M people competing with Zoom. Likewise, Google has also released a revised version [4]. The top 10 e-commerce retailers are listed below.

Figure 4 shows the top 10 e-commerce sites worldwide where Amazon.com has taken place in the first position, eBay.com second position, Rakuten.co.jp third position.
Most of the items you buy during the pandemic include toilet paper, yoga mat, kettlebells, exercise ball, disposable gloves, freezer, bidet, paint by numbers, bread machine, peloton, puzzle, treadmill, air purifier, refrigerator, coloring book, stationary bike, and exercise equipment\(^5\).

However, the COVID-19 (pandemic) has led to mixed fortunes for many e-commerce enterprises, therefore reversing the earnings of companies supplying services for example ride-hailing and travel. According to an estimate in the UNCTAD study released on 3 May 2021, the significant surge in E-Commerce in the face of the mobility constraints caused by the COVID-19 boosted the percentage of online retail sales from 16% to 19% by 2020 (UNCTAD, May 2021). The study was published by UNCTAD and sponsored a two-day e-Commerce and digital economy measurement conference. In some nations, online retail sales rose sharply, the Republic of Korea’s biggest proportion being 25.9% in 2020, up from 20.8% in the previous year (Table 1). In the meantime, worldwide e-commerce sales increased 4 percent from 2018 to $26.7 trillion in 2019, according to recent projections. This covers both business-to-business (B2B)

![Figure 4. Top 10 E-Commerce site](https://www.statista.com/statistics/274708/online-retail-and-auction-ranked-by-worldwide-audiences/)

**Table 1. Online retail sales, selected economies, 2018-2020**

| Economy     | Online retail sales $(billions) | Retail sales $(billions) | Online share (% of retail sales) |
|-------------|---------------------------------|--------------------------|----------------------------------|
|             | 2018   | 2019 | 2020 | 2018   | 2019 | 2020 | 2018 | 2019 | 2020 |
| Australia   | 13.5   | 14.4 | 22.9 | 239    | 229 | 242 | 5.6 | 6.3 | 9.4 |
| Canada      | 13.9   | 16.5 | 28.1 | 467    | 462 | 452 | 3.0 | 3.6 | 6.2 |
| China       | 1,060.4 | 1,233.6 | 1,414.3 | 5,755 | 5,957 | 5,681 | 18.4 | 20.7 | 24.9 |
| Korea (Rep.)| 76.8   | 84.3 | 104.4 | 423    | 406 | 403 | 18.2 | 20.8 | 25.9 |
| Singapore   | 1.6    | 1.9  | 3.2  | 34     | 32  | 27  | 4.7 | 5.9 | 11.7 |
| United Kingdom | 84.0 | 89.0 | 130.6 | 565    | 564 | 560 | 14.9 | 15.8 | 23.3 |
| United States | 519.6 | 598.0 | 791.7 | 5,289 | 5,452 | 5,638 | 9.9 | 11.0 | 14.0 |
| Economies above | 1,770 | 2,038 | 2,495 | 12,752 | 13,102 | 13,003 | 14 | 16 | 19 |

Source: UNCTAD, based on national statistics offices\(^6\)

\(^5\) [https://www.statista.com/statistics/274708/online-retail-and-auction-ranked-by-worldwide-audiences/](https://www.statista.com/statistics/274708/online-retail-and-auction-ranked-by-worldwide-audiences/)

\(^6\) [https://unctad.org/news/global-e-commerce-jumps-267-trillion-covid-19-boosts-online-sales](https://unctad.org/news/global-e-commerce-jumps-267-trillion-covid-19-boosts-online-sales)
and business-to-consumer (B2C) sales and is comparable to 30% of worldwide GDP that year. These statistics (Table 1) demonstrate the rising relevance of internet activity. They also emphasize the need for such information for countries, particularly developing ones, as they rebuild their economy in the aftermath of the COVID-19 epidemic (pandemic).

In emerging nations, including Malaysia, Singapore, Pakistan, & Thailand, others, E-commerce has boosted customers. E-commerce was launched in Pakistan in 2000 but was very bad, just 3% of all Pakistani citizens bought electronically (online) [6-9]. But e-commerce in Pakistan is currently reported to rise by 10% in the daily record and 15% in Internet users. The requests for items rise by 30-40%. To give customers ease, fast service food panda is launched. Pakistan hopes that the e-commerce trend would be on the rise in terms of electronic commerce [10].

2.1 E-commerce is Growing Rapidly and Declining

The COVID-19 pandemic significantly affects many aspects of life, including how individuals deal with their needs and not their needs. The e-commerce business is already flourishing with online retail sales expected at 6.5 trillion dollars by 2023 [11]. Since the epidemic, however, internet purchasing has been overdriven. Even the world’s biggest merchants struggle to meet customer demand – but what precisely do consumers purchase? Stack-line has examined e-commerce sales in the U.S. to answer this issue and created an average list of the fastest-growing, falling e-commerce classes (March 2020 versus March 2019) [11].

2.2 The Purchaser’s Frenzy of Behavior

As individuals deal with their new living conditions, they have changed their shopping behavior to meet their requirements. While panic purchases in certain nations may have slowed, consumer supplies and “pandemic pantry items” are still in stock. Many customers also take their newly-found time to focus on their health, with 85% of consumers doing social isolation and 40% indicating that when limits are raised, they want to keep it going. The changes in behavior have led to an increase in demand in several categories of products, although many are practical, others are marvelously strange [11].

2.3 Categories of the Fastest Growing

While the following list contains numerous goods with a shelf life, it looks that consumers are taking things into their own hands and shops are selling bread manufacturing machinery in second place & retailers sell out of their top models (Table 2). The list (Table 2) shows that, while individuals are alone, customers contemplate good lifestyle improvements, like exercise, smoking loss,

| Rank | Category               | % change in March 2020 vs. 2019 | Rank | Category               | % change in March 2020 vs. 2019 |
|------|------------------------|---------------------------------|------|------------------------|---------------------------------|
| 1    | Disposable Gloves      | 670%                            | 51   | Incontinence & Tummy   | 129%                            |
| 2    | Bread Machines         | 652%                            | 52   | Multivitamin           | 126%                            |
| 3    | Cough & Cold           | 535%                            | 53   | Cat Litter             | 125%                            |
| 4    | Soups                  | 397%                            | 54   | Training Pads and Trays| 125%                            |
| 5    | Dried Grains & Rice    | 386%                            | 55   | Juices                 | 125%                            |
| 6    | Packaged Foods         | 377%                            | 56   | Smoking Cessation      | 122%                            |
| 7    | Fruit Cups             | 326%                            | 57   | Dried Fruit & Raisins  | 120%                            |
| 8    | Weight Training        | 307%                            | 58   | Salt & Pepper Seasoning| 118%                            |
| 9    | Milk & Cream           | 279%                            | 59   | Craft Kits & Projects  | 117%                            |
| 10   | Dishwashing Supplies   | 275%                            | 60   | Batteries              | 116%                            |
| 11   | Paper Towels           | 264%                            | 61   | Trash Bags             | 116%                            |
| 12   | Hand Soap & Sanitizer  | 262%                            | 62   | Nuts & Seeds           | 116%                            |
| 13   | Pasta                  | 249%                            | 63   | Hair Coloring          | 115%                            |
| 14   | Vegetables             | 238%                            | 64   | Sauce & Gravy          | 115%                            |
| 15   | Flour                  | 238%                            | 65   | Deli Foods             | 114%                            |
| 16   | Facial Tissues         | 235%                            | 66   | Syrups                 | 114%                            |
| 17   | Allergy Medicine       | 232%                            | 67   | Bread & Bakery         | 114%                            |
| 18   | Women’s Health         | 215%                            | 68   | Minerals               | 113%                            |
| 19   | Cereals                | 214%                            | 69   | Condiments             | 111%                            |
### 2.4 Categories of the Fastest Decline

An unprecedented surge of annulments of events and holidays has a major influence on the items which people consume. For example, luggage and suitcases, cameras, and men’s swimwear have all declined in sales. Whatever the list below, it is apparent that the pandemic has had both a beneficial and a bad impact on retailers of any kind.

E-commerce retail sales demonstrate that the influence of COVID-19 on e-commerce is considerable, and its sales are anticipated to exceed $6.5 trillion in 2023.\(^1\) The virus has been significantly affected by many products, such as disposable gloves, soups, cough and cold, packaged food, fruits cups, bread machine, dried grains and rice, dishwashing supplies, weight training, milk and cream, vegetables, hand soaps, and a sanitizer, pasta, flour, facial tissues, paper towel, and allergy medicine and many more.\(^1\) The products declining in coronavirus on the other hand are luggage and suitcase, gym bags, briefcase, and breathing groups all increase.

Interestingly, toilet paper grew more than infant foods, while cured meats grew more than water. While there is a significant surge in demand in certain categories, others are plummeting in the pandemic economy.

#### Rank | Category | % change in March 2020 vs. 2019 | Rank | Category | % change in March 2020 vs. 2019
--- | --- | --- | --- | --- | ---
20 | Power Generators | 210% | 70 | First Aid | 108%
21 | Laundry Supplies | 200% | 71 | Nail Care | 108%
22 | Household Cleaners | 195% | 72 | Humidifiers | 105%
23 | Soap & Body Wash | 194% | 73 | Art Paint | 104%
24 | Toilet Paper | 190% | 74 | Office Chairs | 104%
25 | Jerky & Dried Meats | 187% | 75 | Deodorant | 103%
26 | Chips & Pretzels | 186% | 76 | Jams, Jellies & Spreads | 102%
27 | Crackers | 184% | 77 | Coffee | 101%
28 | Health Monitors | 182% | 78 | Spices & Seasoning | 100%
29 | Popcorn | 179% | 79 | Skin Care | 99%
30 | Computer Monitors | 172% | 80 | Pain Relievers | 99%
31 | Fitness Equipment | 170% | 81 | Cooking Vinegar | 98%
32 | Single Vitamins | 166% | 82 | Air Purifiers | 97%
33 | Nut & Seed Butters | 163% | 83 | Granola & Nutrition Bars | 97%
34 | Cat Food | 162% | 84 | Pudding & Gelatin | 97%
35 | Fruit Snacks | 162% | 85 | Toy Clay & Dough | 95%
36 | Baby Care Products | 162% | 86 | Single Spices | 95%
37 | Refrigerators | 160% | 87 | Bird Food & Treats | 91%
38 | Baking Mixes | 160% | 88 | Lab & Science Products | 90%
39 | Toilet Accessories | 160% | 89 | Eczema & Psoriasis | 90%
40 | Dog Food | 159% | 90 | Ping Pong | 89%
41 | Diapers | 154% | 91 | Chocolate | 86%
42 | Yoga Equipment | 154% | 92 | Baking Ingredients | 84%
43 | Bottled Beverages | 153% | 93 | Energy Supplements | 84%
44 | Baby Meals | 153% | 94 | Respiratory | 82%
45 | Cookies | 147% | 95 | Office Desks | 82%
46 | Digestion & Nausea | 144% | 96 | Potty Training Supplies | 82%
47 | Snack Foods | 141% | 97 | Herbs, Spices & Seasonings | 82%
48 | Herbal Supplements | 136% | 98 | Keyboard & Mice | 80%
49 | Cooking Oils | 135% | 99 | Body Lotion | 79%
50 | Water | 130% | 100 | Safes | 69%

Source: Jones, K.\(^1\)

\(^{{\circ}}\) [https://www.visualcapitalist.com/shoppers-buying-online-commerce-covid-19/](https://www.visualcapitalist.com/shoppers-buying-online-commerce-covid-19/)

\(^{{\circ}}\) [https://www.statista.com/statistics/1109814/fastest-declining-ecommerce-categories-usa/](https://www.statista.com/statistics/1109814/fastest-declining-ecommerce-categories-usa/)
| Rank | Category                | % change in March 2020 vs. 2019 | Rank | Category                | % change in March 2020 vs. 2019 |
|------|-------------------------|---------------------------------|------|-------------------------|---------------------------------|
| 1    | Luggage & Suitcases     | −77%                            | 51   | Wine Racks              | −40%                            |
| 2    | Briefcases              | −77%                            | 52   | Men’s Shoes             | −40%                            |
| 3    | Cameras                 | −64%                            | 53   | Clocks                  | −39%                            |
| 4    | Men’s Swimwear          | −64%                            | 54   | Baby Girl’s Shoes       | −39%                            |
| 5    | Bridal Clothing         | −63%                            | 55   | Bracelets               | −39%                            |
| 6    | Men’s Formal Wear       | −62%                            | 56   | Men’s Boots             | −39%                            |
| 7    | Women’s Swimwear        | −59%                            | 57   | Tapestries              | −39%                            |
| 8    | Rash Guards             | −59%                            | 58   | Camping Equipment       | −39%                            |
| 9    | Boy’s Athletic Shoes    | −59%                            | 59   | Men’s Bottoms           | −38%                            |
| 10   | Gym Bags                | −57%                            | 60   | Cell Phones             | −38%                            |
| 11   | Backpacks               | −56%                            | 61   | Tool Storage & Organizers| −38%                           |
| 12   | Snorkeling Equipment    | −56%                            | 62   | Necklaces               | −38%                            |
| 13   | Girl’s Swimwear         | −55%                            | 63   | Swimming Equipment      | −37%                            |
| 14   | Baseball Equipment      | −55%                            | 64   | Men’s Hats & Caps       | −37%                            |
| 15   | Event & Party Supplies  | −55%                            | 65   | Girl’s Shoes            | −37%                            |
| 16   | Motorcycle Protective Gear| −55%                      | 66   | Industrial Tools        | −36%                            |
| 17   | Camera Bags & Cases     | −54%                            | 67   | Juicers                 | −36%                            |
| 18   | Women’s Suits & Dresses | −53%                            | 68   | Desks                   | −35%                            |
| 19   | Women’s Boots           | −51%                            | 69   | Classroom Furniture     | −35%                            |
| 20   | Cargo Racks             | −51%                            | 70   | Bar & Wine Tools        | −35%                            |
| 21   | Women’s Sandals         | −50%                            | 71   | Glassware & Drinkware   | −35%                            |
| 22   | Drones                  | −50%                            | 72   | Musical Instruments     | −34%                            |
| 23   | Boy’s Active Clothing   | −50%                            | 73   | Power Winches           | −34%                            |
| 24   | Lunch Boxes             | −50%                            | 74   | Home Bar Furniture      | −34%                            |
| 25   | Store Fixtures & Displays| −50%                      | 75   | Office Storage Supplies | −34%                            |
| 26   | Automotive Mats         | −50%                            | 76   | Girl’s Active Clothing  | −34%                            |
| 27   | Men’s Outerwear         | −49%                            | 77   | Women’s Tops            | −34%                            |
| 28   | Watches & Accessories   | −49%                            | 78   | Bracelets, Splints & Supports| −34%                        |
| 29   | Cargo Bed Covers        | −48%                            | 79   | Car Anti-theft          | −34%                            |
| 30   | Track & Field Equipment | −48%                            | 80   | Rings                   | −34%                            |
| 31   | Ceiling Lighting        | −47%                            | 81   | Blankets & Quilts       | −33%                            |
| 32   | Camera Lenses           | −47%                            | 82   | Women’s Athletic Shoes  | −33%                            |
| 33   | Girl’s Coats and Jackets| −47%                      | 83   | Kitchen Sinks           | −33%                            |
| 34   | Women’s Hats & Caps     | −47%                            | 84   | Golf Clubs              | −33%                            |
| 35   | Women’s Outerwear       | −47%                            | 85   | Equestrian Equipment    | −33%                            |
| 36   | Video Cameras           | −46%                            | 86   | GPS & Navigation        | −32%                            |
| 37   | Wheels & Tires          | −46%                            | 87   | Recording Supplies      | −32%                            |
| 38   | Motorcycle Parts        | −45%                            | 88   | Home Audio              | −32%                            |
cameras, rash guards, men’s swimwear, athletic shoes, women swimwear, toys, bridal dress, wallets, men formal dress, boys, lunch boxes, watches, boy’s top’s and caps, girl’s jackets and coats, etc. [11].

3. Discussion

The COVID-19 outbreak and restrictive actions against it altered the global economy instantly. The rapid introduction of digital technology was one of the most essential stages of change. The interruption of freedom of people’s movement & social dissociation measures put into effect by several countries drove companies and consumers into a new way of life and to actively use digital solutions to continue to operate remotely [11].

COVID-19 has a substantial influence on global e-commerce and in certain cases negative consequences, although generally, e-commerce is quickly increasing because of coronaviruses. Coronavirus obliges clients to use the web and to use it daily [12]. Moreover, e-commerce businesses confront various problems, including extended delivery time, movement control challenges, social distance, and lock-up or lockdown [13]. The shipment and supply processes are now rather sluggish, yet people are still buying since they do not have any other option. Thus, people move to technology because of coronaviruses.

In addition, there is a strong market demand for some items. Even retailer shops are unable to provide client requirements, including hand sanitizers, toilet tissues, groceries, disposable gloves, and dairy goods. On the other side, COVID-19 has a detrimental effect on tourism, planes have been delayed and foreign trade has been exceedingly slow and stayed in place.

E-commerce in this scenario has grown into a substitute source, and e-commerce supplies items normally bought by consumers in a supermarket. In the meanwhile, this study wants to understand their effectiveness in both costs and benefits for stability and the actions associated with the upcoming arrival.

4. Conclusions

In this research, we have reviewed & deliberately discussed the COVID-19 outbreak in China. This research is particularly interested in the propagation and consequences of coronaviruses on e-commerce not only within China but also worldwide. Awareness about nearly this issue can counteract better information in persons and discussions of how coronavirus-affected e-commerce, business, and economics in countries. How e-commerce offers consumers various ways of satisfying their requirements. E-commerce has been improved by COVID-19. As individuals deal with their new living conditions, they have changed their shopping behavior to meet their requirements. The COVID-19 pandemic significantly affects many aspects of life, including how individuals deal with their needs and not their needs. The behavior of people, the nature of businesses, and the manner of life have changed. It spreads the fears among individuals that they avoid interacting with. The effect of Coronavirus has transformed the nature of business in the entire e-commerce globe. COVID-19 has a substantial influence on global e-commerce and in certain cases negative consequences, although generally, e-commerce is quickly increasing because of coronaviruses. Moreover, e-commerce businesses confront various problems,
including extended delivery time, movement control challenges, social distance, and lock-up or lockdown. The shipment and supply processes are now rather sluggish, yet people are still buying since they do not have any other option. Thus, people move to technology because of coronaviruses. Finally, this study provides a guide for future research. How the coronavirus has affected e-commerce will encourage other researchers to delve more deeply into this issue, for example, e-commerce trends how it has been changed by corona & future trends.

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