FOOD TRENDS IN THE FIRST HALF OF 2020

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Abstract
The COVID-19 coronavirus outbreak has affected people around the world. In this short period of time, the critical situation became synonymous with medical, social and economic challenges. The results of several restrictions applied throughout the states resulted in major disruptions especially in working patterns, supply chains and food consumption. Uncertain times caused people actively change their usual habits especially diets. The present paper wants to track the trending food commodities of this already shaking half year of 2020, analyzing both global and local market trends, focusing on the FMCG sector, highlighting the opportunities and threats in order to make the short-term future lesser blurred in the food sector.

Keywords: *Food sector, supply chain, pandemic, consumer and food trend.*
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Introduction

COVID-19 has caused shockwaves on all segments of the food supply chains, affecting production at farms, processing, distribution and logistics of foods and overall demand. Impacts have not been felt equally across the supply chain, different products experiencing complications in totally different areas. Most of the disruptions stressing food supply chains are representing the direct results of policies adopted to shrink the virus spreading power.
The rapid response from the food supply chain actors has proved that the international trade environment openness is key, an opportunity that allows producers and other stakeholders in this area to connect via alternative mediums when existing ones are at risk (OECD, 2020).
Food production has been mostly affected in the inputs section, labour force as the main driver. Some sectors such as fruits and vegetables harvesting being more labour dependent while cereals require typically lesser labour, the mobility limits and social distancing have negatively impacted the food sector in many countries (OECD, 2020).
Shifting the consumers demand from restaurants and out-of-the-house options to eat towards food-consumed-at-home has been creating challenges for the supply chains operations. Restaurants and similar places suffered the most as the lockdowns were introduced.
The pandemic implications are not even close to be accurately measured as several disrupting effects have already caused a sudden change in the food industry. Disconnections in processing, empty shelves phenomena, especially in the early days of the COVID-19 crisis, has led to temporary oversupplying for some foods, basically recording simultaneously surpluses for producers, and their incapacity of delivering to the retailer-final consumer, and shortages for consumers.
Grocery shops have been replenished their shelves all this time, as consumers reduced their initial volume of food purchases after the initial stockpiling as supply chains have adapted to the extraordinary demand increase. Stocking activities represented the first buffer of the pandemic, despite general trend of keeping safety stocks. Stocks of cereals, at global level, considered to be larger than 2007 and 2008 food price crisis (Schmidhuber & Qiao, 2020).

The lockdowns have actually shifted important volumes to the retail sector, one that faced logistical challenges, households' consumption patterns also came different during the pandemic, for example food away and restaurant used more cheese and meat, they usually order larger blocks and packages while individual consumers purchase in smaller quantities and packages, these together with other extra requirements from retailers also putting additional pressure to the suppliers.
Food processors and retailers also took several steps to adapt to the pandemic, they have increased the operating hours in factories and on some places hired additional employees, retailers having to hire more staffing. Also, they changed the displayed variety of products and focused on most requested products. This action directly influenced manufacturers' changeovers and optimized inventory management at retailers together with alternative supply sources faced as the actual disruptions.
Supply chain actors adopted the use of new distribution methods such as online sales while farmers started using IT&C applications to sell their products directly to the final consumers and restaurants swapped to delivery and take-outs, with grocery service, initiatives that also managed to directly link farmers to final consumers.
The research hypothesis assumes that Romania did follow the global food trends for the first half of 2020.
Global food brands have described the current pandemic situation as the biggest single impact that completely shaped the consumer behavior in recent times. The general lockdown, especially in the food sector, has put big pressure in the food supply chain, as observed by multiple global companies, eating occasions are now in the middle of a fundamental change. Out of the three main daily meals, most eating occasions for out-of-home venues, would happen during lunch and dinner. As people are now unable to visit their work/school cafeteria, favorite restaurants or hotels, eating out possibilities narrow and the fact that delivery possibility was not introduced everywhere, it would be difficult to bring the specific dish and experience at home. Another problem derived from this would have to be the impossibility of exactly replicating the whole restaurant feeling at home, people have been tried different recipes and new cooking habits arise, and often opportunities appear for spending time in family (Bassett, 2020).
The extra time required for the food preparation has made cooking a new trend, a way to engage with children as adults and children didn't need to be physically present at work or at school.
In the early times of the current pandemic, people have been looking for shelf stable food, items that can be easily stockpiled in case that the food supply chain would get interrupted. Brand, known to be the most important decision factor when a food was considered for purchase, has become a past era criteria, consumers orientated towards the availability of the respective commodity if the favorite brand was absent at shelf, easily trading consistency to availability. Situation that also pushed forward the brand trust and food safety, criteria that wouldn't be so popular without a safety and cleanliness increased awareness.
Another problem that consumers face is to find solutions to prepare and serve the meals while working, this difficulty directly requiring the use of self-served solutions, parents and sometimes children need extra focusing time especially during the key meal-serving hours.
This time food producers didn't have to bother with new products introduction as new choices could not be viable alternatives and the items won't be noticed, a trend that registered impressive popularity is the online services of the food companies, big confrontations has been held over the online and delivery solutions supremacy.
The current paper has been so far presenting the context of the changes that the food sector face since the beginning of the year 2020 while next chapters it will be focusing on: clearly

identifying the international bodies statements and research on food sector importance in the current COVID-19 situation, observing international changes directly resulting from the pandemic state and highlighting the similarities between the global and Romanian food sector.
The largest companies that have been selected in the following chapters to represent the top players in the food industry and their reported results represent, on the one hand, the direct impact of the pandemic hit and, on the other hand, the trust that consumers have in the respective brand even in uncertain times. Global players invest significant amounts of resources to build a strong relationship with their customers and a significant drop in sales could easily represent consumers mistrust and company's incapacity to adapt in the short run to the demanding health & safety measures.
National indicators have been selected to correctly interpret the Romanian food market as local food companies are known for undertaking only year-end financial reporting and business insights usually comes from media sources that would clearly present a diluted statement of the real market trends.

1. Literature review

Meanwhile, the novel coronavirus presents itself as a serious global scale issue from the end of 2019, progressively expanding worldwide, global confirmed cases are tracked by the World Health Organization (WHO) and officially at 1 October 2020, the global death counter surpasses the unfortunately 1 million toll (WHO, 2020).
As discussed in the previous section, an extra barrier was implied to the food sector caused by the reluctance of consumers in using public services, catering industry recording dramatically losses. Food delivery applications as a mobile online-to-offline emerging enhancement, have been widely gain popularity by both businesses and consumers (Zhao & Bacao, 2020).
Precaution measures taken at the beginning of the crisis resulted in the closely monitoring from the food safety authorities around the world and even further in the pandemic, despite no evidence that food is a transmission route, gathering information processes are still functioning (Rizou, Galanakis, Aldawoud, & Galanakis, 2020).

Table 1. Safety Measures during COVID-19 Pandemic

Be Healthy (A)	**Wash Hands (B)**	**Disinfect Surfaces (C)**	**Working Environment (D)**	**Preparation (E)**	**Delivery (F)**	**Social Distance (G)**
Stay at home if sick; Check for known symptoms; Cover your mouth when coughing or sneezing.	Wash hands often with soap & water; Avoid touching your eyes, nose and mouth unwashed; Use a minimum 60% alcohol-based sanitizer.	Disinfect often touched surfaces; Use sanitizers according to label instructions; Follow protective measures.	Apply proper disinfection of toilet areas; Develop open plan workspaces; Use window ventilation.	Separate raw from cooked products; Wash fruits and vegetables before eating them; Cook food in appropriate temp. (>70˚C.)	Try to use "no touch" deliveries; Maintain time and temperature controls; Ensure that transport containers are cleaned and sanitized.	Stay at least 2 m from other people; Do not gather in groups; Stay out of crowded places and avoid mass gatherings.

Source: (FDA, 2020), (Dietz, et al., 2020), (Chin, et al., 2020) and (Kissler, Tedijanto, Goldstein, Grad, & Lipsitch)

Table 2. Supply Chain - from Food to Fork

Agricultural Production	Post-Harvesting Handling	Processing	Distribution/Retail	Consumption
1	2	3	4	5

Source: Author's correlation

Table 3. Correlation Matrix of COVID-19 Safety Measures in the Supply Chain

1	2	3	4	5
A & B	A, B & C	A, B, C & D	A, B, C & F	A - G

Source: Previous tables' author's correlation

In the above figures it can be observed the summarized suggested solutions to keep the food safe during the pandemic, highlighting the essential caution requested at each stage in the food supply chain, from the farm to the final consumer. The presented actions are sorted by medical appliances as seen in Table 1, most of the actions have already been undertaken at multiple levels. Even though these pandemic state measures do find appropriateness in all stages of the food chain, most insurance is necessary during the final stages when the food is consumed. The reasoning behind this statement comes from the fact that the more deeply the supply chain is investigated, the more people are involved, increasing the potential source of infection exponentially. Another aspect that needs to be assured by the food sector is that food reaching plates is fully safe and does not imply any risks, no matter how the food itself is procured (Rizou, Galanakis, Aldawoud, & Galanakis, 2020).

2. Results

2.1. Globally

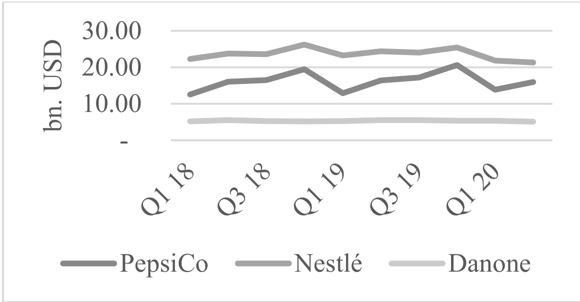
Precaution measures have been considered, the beginning of the pandemic caused many restaurants, cafeterias and health authorities in Central Europe to stop serving some steaking under specific cooking methods even though at that time no scientifically evidence has been offered to support these actions (Foote, 2020). A few weeks after the initial breakdown, restaurants and cafeterias around the world locked down and some of them remained up and running only with the help of the take-away or delivery services.

While sales are what consumers buy and demand is what they want, in this paper, as demand could not be precisely estimated, sales figures have been considered in order to reflect market trends toward different products in the food sector.

Price on the other hand, when confronted with periodically fluctuations might represent true demand assessments.

In order to analyze the most competitive food & beverages global companies' trends, as a starting point, it would observe companies' sales from the first quarter of 2018 until the second quarter of 2020, at worldwide and regional scale.

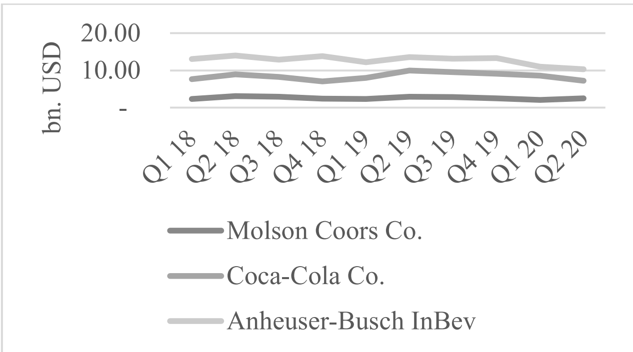
Figure 1. Food & Beverage Worldwide Quarterly Sales



Source: Quarterly reporting – Financial Statements for each brand

Companies that secure their sales in both the food and the beverage industry as seen in the above figure, mostly reflect decreasing sales over the past two quarters except for PepsiCo. Year 2020 as seen by these numbers recorded a 15% increase for PepsiCo, 2% decrease for Nestlé and a 5% decrease for Danone quarter over quarter. When comparing the year over year quarterly figures, PepsiCo recorded a 3% decrease in Q2 2020 vs Q2 2019 while Nestlé surpassed this negative difference with a higher margin, reaching a 13% decrease over the same period and with Danone recording an 8% decrease. Looking in the first quarter, both PepsiCo and Danone recorded increases against the 2019 numbers, reaching 8% and respectively 2%. Looking at the half year results, the three companies recorded an average decrease in sales of 4% against 2019 and a 2% decrease against 2018, the only company with increases being PepsiCo with a 2% increase over the first half of 2019 and a 4% increase over the first half of 2018. The third and fourth quarter yearly increases that can be observed in the graph, with the peak around the transition from Q3 to Q4 represent the winter season holidays and general family time increase. The actual Q2 to Q1 variance across the years has been the smallest throughout the 3 years analyzed period, in the current year the before mentioned increases and even the decreases for Nestlé and Danone didn't match the historically trends of 28% Q2 vs Q1 increase in both 2019 and 2018 for PepsiCo or the smaller but still representative increase of a 6% average for Nestlé or Danone.

Figure 2. Beverage Worldwide Quarterly Sales



Source: Quarterly reporting – Financial Statements for each brand

In the second figure, the only company that recorded increases from Q1 to Q2 of 2020 is Molson Coors, sitting at a 19% increase while Coca-Cola recorded a 16% decrease and

Anheuser-Busch recorded a 6% decrease. Molson Coors being the only analyzed company in the beverage sector to record a quarterly level of sales figures before the pandemic, with a 1% increase, the company shows good results even during these uncertain times while Coca Cola recorded a 20% decrease against pre pandemic operations numbers, decrease almost proportionate with the Anheuser-Busch decrease of 23%. On the second quarter, all the three brands recorded significant reductions, with the largest reduction of 28% in Q2 of 2020 to Q2 of 2019 for Coca Cola and comparing Q2 of 2019 to Q2 of 2018, there were recorded reduced decreases at an average of 3.5% for Molson Coors and Anheuser-Busch while Coca Cola recorded an increase of 12%. What could be observed in the previous years is that peak sales are recorded in Q2, situation that didn't happen this year, the respective record sales can be shifted from Q2 to Q3 to align with the restaurants partial re openings and general calm.

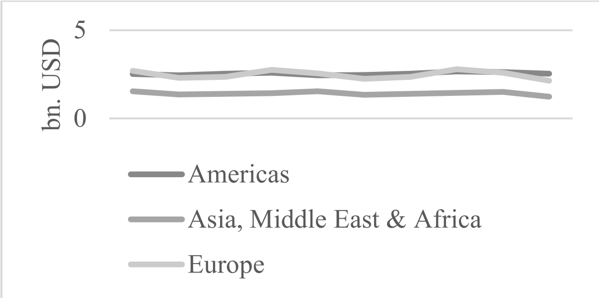
Figure 3. Food Worldwide Quarterly Sales

Source: Quarterly reporting – Financial Statements for each brand

In the third figure, the only company that recorded a negative increase quarter over quarter is General Mills, sitting at 12% decrease from Q1 2020 to Q2 2020 while the other three companies recorded smaller but important increases, averaging at 3%. Tyson Foods recorded all times heights (2018-2020) in the second quarter of this year, matching with the third quarter of 2019, meaning that the pandemic didn't have that much impact on their operations, first half of 2020 being the best 6 months since 2018. Comparing first quarters of 2020 to 2019, General Mills recorded the largest increase of 19% while Kraft Heinz and Kellogg recorded similar variances.

On all these famous companies in the food industry it could be observed that the first half of 2020 wasn't that much of a blow, no recordings of disastrous crashes nor unbelievable increases. In the following figures, regional sales would be analyzed in order to catch a glimpse of the real regional impact of the pandemic.

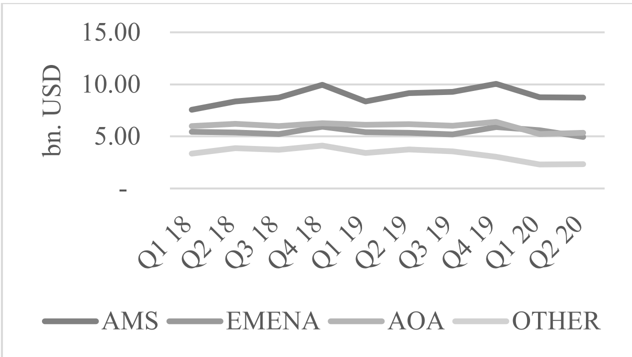
Figure 4. Mondelez International Regional Quarterly Sales



Source: Quarterly reporting – Financial Statements

For Mondelez International, as presented in the fourth figure, Europe has been confronting with significant fluctuations across all presented quarters. In the second quarter of 2020, the largest decrease compared to Q1 was in the Asian region with 18% while the Americas recorded only a 3% decrease. Looking on the whole half year of 2020, it is reduced by 5% and 2% for Asia and Europe while in the Americas it recorded a 5% increase compared to first half of 2019. The Asian and European decrease in the second quarter of 2020 are the largest quarterly reductions from the whole analyzed time frame (Europe -17% & Asia -18%).

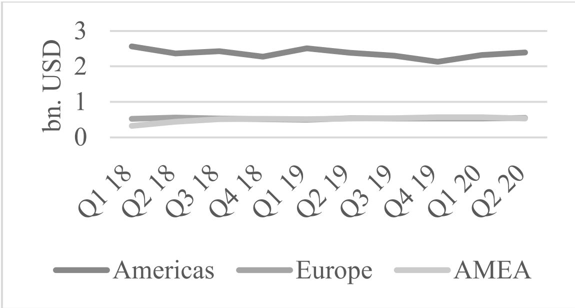
Figure 5. Nestlé International Regional Quarterly Sales



Source: Quarterly reporting – Financial Statements

In the above figure, the most important quarterly reduction for the year 2020 is the one in the European, Middle East and North African (EMENA) region where it recorded a decrease of 11% while the other regions registered small increases. Observing the yearly variances when comparing Q2 over Q2 of 2019 all the regions recorded reductions, the most prominent decrease is for the other region with 38% while AOA recorded a 14% decrease and the AMS only a 4% decrease. The same pattern can be observed against the second quarter of 2018 with diminishes over the sales amounts for all the regions but the Americas. The second quarter of this fiscal year didn't manage to get its numbers at previous years levels.

Figure 6. Kellogg International Regional Quarterly Sales

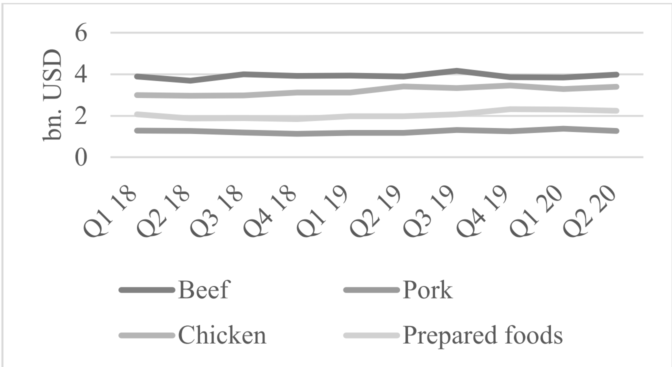


Source: Quarterly reporting – Financial Statements

In the sixth figure, Kellogg's figures are presented for Europe and Asia, Middle East and Africa regions present similar numbers, even though the quarterly differences in the first half of year 2020 have been opposite, Europe recorded a 4% increase while AMEA a decrease of 6%. Comparing Q2 of 2020 to Q2 of 2019, fluctuations between regions have not been material, no variance for the Americas, 1% increase in Europe and 1% decrease in AMEA. The Americas represent most of Kellogg's sales but when analyzing the half year results to 2019, this specific region recorded a 4% decrease while both Europe and AMEA had increases of an average of 4%.

In the following paragraphs two stakeholders' sales of the meat market will be described in order to check if this specific sector was severely injured by the pandemic, both companies mostly undertake their operations in the Americas region.

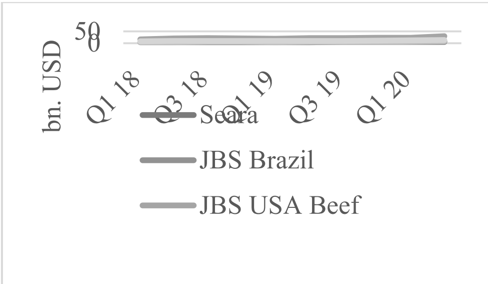
Figure 7. Tyson Foods International Regional Quarterly Sales – By Category



Source: Quarterly reporting – Financial Statements

Tyson Foods' meat categories sales can be observed above, the second quarter of 2020 registered increases in the Beef and Chicken sector (4% and 3% increases over Q1 2020) while Pork and Prepared Foods categories recorded decreases of 4% and 3% respectively. Comparing over the years, in the second quarter of 2020, all the categories recorded an upside compared to the second quarter of 2019 with the largest increase of 13% in the Prepared Foods category. Prospecting the half year results, the current year is by far reporting increased numbers to the previous year with a significant 13% increase in Pork sector and 15% in Prepared Foods sector while the Beef and Chicken sectors have only recorded increases.

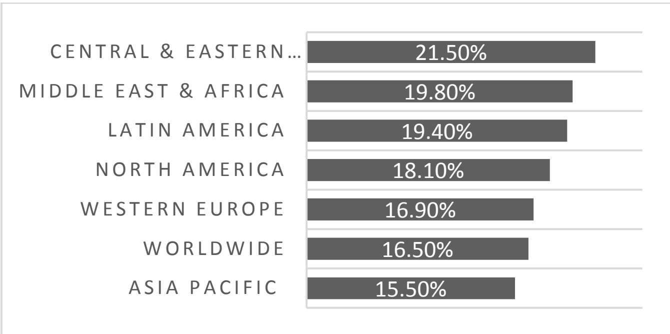
Figure 8. JBS International Regional Quarterly Sales – By Category



Source: Quarterly reporting – Financial Statements

JBS's sales figures on main categories can be observed in the figure above where Q2 2020 recorded increases in all categories, the leading sector being the Beef meat in the U.S. with a 31% increase over Q1 of 2020 while the smallest increase of 7% was recorded in Brazil. Comparing the second quarter over the year, all categories recorded impressive increases, with an average increase of 31% across all categories. Looking at the first half of the year, 2020 again recorded large increases, the most increase over 2019 half-year being in the U.S. Pork sector with a 36% increase and the smallest increase was in the Brazil sector with a 21% increase.

Figure 9. Retail Ecommerce Sales Growth Worldwide, by Region, 2020 variance to 2019



Source: eMarketer

As stated in previous sections of the paper, online delivery and internet-based solutions used in the food sector have indeed recorded increases worldwide. Looking at the previous figure, e-commerce as the consolidated commodities and other goods sold online also includes the food products. Significant year over year variances have been yet experienced having the Central & Eastern Europe region with the most popularity increase across regions and Asia Pacific recording the smallest variance.

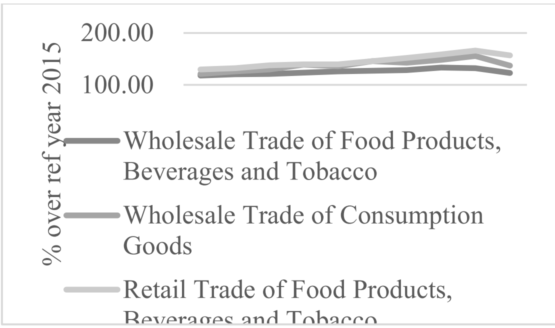
Food and beverages sales in the first half of 2020 have presented fluctuating numbers. Quarter over quarter figures during the first six months for the top 3 companies in the food

and beverage industry recorded significant differences especially comparing 2020 quarters with end 2019 numbers; the beverage top 3 companies also recorded a descending trend. Summarizing the top 4 companies' sales strictly in the food sector, it can be observed both increases and decreases for the current half year. The most notable revenue increases Q2 over Q1 in the current year are globally – PepsiCo, Molson Coors and regionally – Kellogg's Americas.
During the current status, global food systems already at risk became more affected by the virus spread itself, food exports discrepancies and delays, mono-cropping, environmentally harming actions and industrial agriculture further decreasing the supply chain resilience.
Moreover, learning from past experiences, international bodies have joined forces and stood against economic unilateralism. The World Trade Organization, Food and Agriculture Organization of the United Nations and the World Health Organization stated together for governments to keep the trade channels up and running, due to their essentiality to assure the food security (Zhou & Delgado, 2020). On the 21st of April, current year, the G20 agricultural ministers raised objections to unjustified restrictive measures that would increase the food price on the global markets that could eventually threaten the food and nutritional security for a large number of people (FAO, 2020). In this crisis, even the international bodies took act.
Business as usual already proved unsustainable in the long run, the current sanitary crisis further pushing the boundaries of necessary action towards better care for the food sector that is indeed essential for all.

2.2. Locally

In Romania as local brands in the food industry do not report at such a detailed rate, several indices from the National Institute of Statistics have been considered in order to replicate a genuine market behaviour. Prices and food commodities' trade can easily represent the consumers demand but from this surely the full picture couldn't be drawn, but the following representations foster a pertinent scheme in order to present the current food trends in Romania, in alignment with the international food situation.

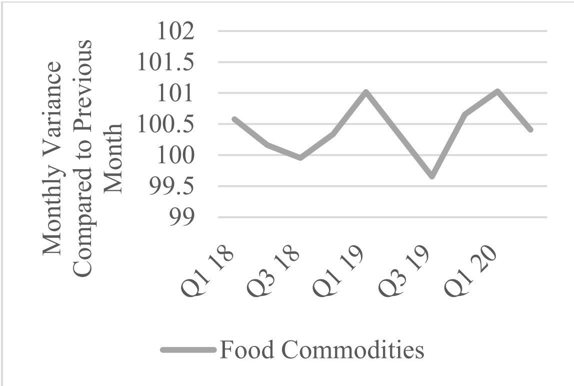
Figure 10. Trade Sales Revenue adjusted by working days



Source: National Institute of Statistics – Romania

As it could be observed in the previous figure, sales revenue numbers were peaking in the first quarter of 2020. It would be important to see how fast the world, and especially the food sector, can return to pre pandemic numbers, estimates are stating that it would require a couple of years for a complete return to normal. The old normal basically never being a one-to-one journey but the new normal would come in place, all these safety and health requirements will dictate our long term behaviour. The quarter over quarter difference for all trades types were negative, the largest difference was in the Consumption Goods category with 18.4% reduction in the second quarter of 2020 against the first quarter. Comparing with Q2 of 2019 the only category that recorded an increase in 2020 is the Retail Trade at 10.5%, the other categories recording reductions this year. As a result of an all times peak in 2020's Q1 for all the categories, the first half of 2020, even with all the diminishes in Q2, still recorded impressive increases versus the first half of 2019 with a 37% increase for Retail Trade, 10% upside for Cosumption Goods in Wholesale Trade and 2% increase for Food Products in Wholesale Trade.

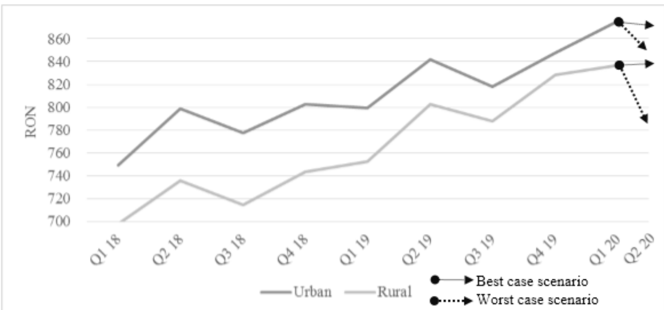
Figure 11. Consumer Price Index



Source: National Institute of Statistics – Romania

Consumers price index match the trade trend that dropped significant amounts in the second quarter of 2020. The decrease of Q2 over Q1 represents lesser than 1% but the important Q1 increase was recorded in 2020 over Q4 2019, positively influencing the first half of 2020 over 2019. Important thing to notice is the behavior of the second quarter of 2019 that also recorded a decrease over Q1 of 2019, this quarterly decrease being also replicated in 2018 and it could be described as a normal behaviour that was further highlighted by the pandemic.

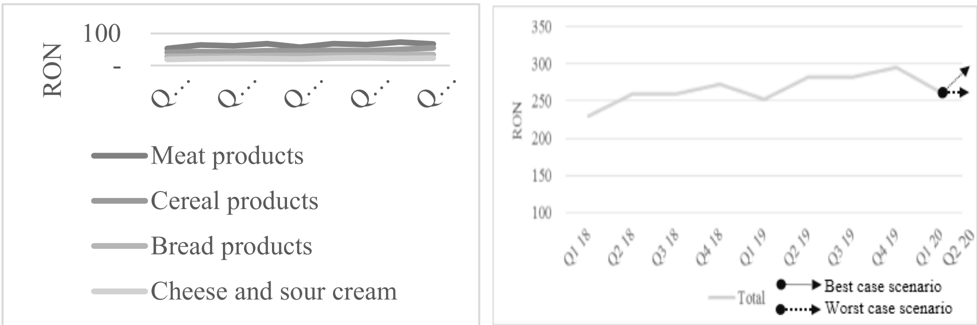
Figure 12. Monthly average expenses per household – food and non-alcoholic drinks



Source: National Institute of Statistics – Romania

The 12th figure reflects the average monthly household expenditure Romanians' food, unfortunately, no data available for the second quarter of 2020 to note the trend line in accordance with the consumer price index. If Q2 of 2020 would have shown a decrease that would be in line with the above-mentioned price and sales revenue decreases of Q2 against the first quarter of 2020 it could easily be stated that similar behavior recorded in Romania. The household expenditure in the first quarter of 2020 recorded increases over the last quarter of 2019 for both urban and rural population, the largest increase being recorded in the urban areas standing at 3% while the expenditure increases in rural areas with only 1%. Looking at the year over year perspective, the net increase stands at 9% for urban areas and 11% increases for rural areas over the first quarter of 2019. Forecasting the second quarter for 2020 using as the best case scenario the trend line assumption and as the worst scenario the quarterly average it could be stated that the expenses match the sales revenue and consumer price index for all scenarios, except the best case variant for the rural population.

Figure 13. Food expenses per capita – main categories out of total



Source: National Institute of Statistics – Romania

As presented above, total food expenses diminished, opposing to the household expenses of food and non-alcoholic products first quarter of 2020 over last quarter of 2019. Updated numbers of the second quarter for the current year are not yet available to completely draw a conclusion strictly based on per household and per capita food expenditure. In this case, total food expenses diminished in the first quarter of the current year with 11% and another important category, meat, with only an 8% decrease; cereals and cheese increased with 11% and 3% over the last quarter of 2019 while bread products remained still. Comparing the same period of the previous year, all categories recorded increases, the most notable variance being in case of cereals with a 23% increase over the first quarter of 2019. Using the same forecasting process of trend line for the best case scenario and the quarterly average for the worst case scenario, neither of these methods reflected numbers to match the decreases in revenue, price index or household expense meaning that per capita expenses couldn't be correctly estimated for Q2 using the statistical methods but of course could be represented as a theoretical decrease against Q1 for the total food expenses per capita following the global trends and the previous indices.

Romania's sales behavior also mimics the average international figures, second quarter of 2020 generally going down compared to the first one while also prices at consumers for commodities shrank in Q2 compared to Q1 even though, food expenses per household and per capita not being officially presented for Q2, but using statistical methods to catch a glimpse of how the reports would look, it is indeed confirming that future is still uncertain and a Q2 decrease over Q1 is highly expected in the food sector.

Conclusions

The COVID-19 pandemic has made a radically change in the food supply chain and in the whole food industry. While the full impact of this state is not yet calculated, challenges are still expected ahead in order to ensure the food safety. Going deeper and deeper in the supply chain, increasing measures need to be taken as the largest numbers of people are located during the latest stages of the supply chain.

Inputs sector for the food industry and the FMCG have felt the largest hit from the pandemic, pieces of work domain as intensive labour being highly affected due to undertaken health measures. While restaurants seem to find breathing air with the e-opportunities and delivery, hotels and work cafeterias do not see clear horizon ahead. As the food supply chain is increasing its numbers down the final consumers, it is essential to have the food products safe and virus-free when purchased or even consumed by the final customers.

Main differences in the food industry compared to the latest most impactful crisis (The Financial Crisis of 2007-2008) is that, back a couple of years in the past, nobody seemed to be threaten in the food supply chain and the consumer behavior didn't feel any change, together with the restaurant industry being up and running.

Restaurants have certainly shown great malleability and they swiftly adopted, where possible, to online delivery and e-sales but have also dealt with temporary raw material shortages due to the initial lockdown/restrictions imposed. Different food processors and retailers, together with other supply chain actors, adopted IT&C apps to safely reach the final consumers.

Consumer's demand is going through a continuous change, the new normal being radically redefined in a short period of time, while increasing fears of the possible food supply chain interruptions caused people to oversupply, direct changes in the first half year of 2020.

Important behaviour shifts caused by the general lockdown and the virus spreading are now impacting all our lives, outside eating occasions shrinking, children spending more time indoor with their working-from-home parents while cooking has continuously growing popularity do represent the characteristics of the current period.

Along this article, the research hypothesis has been partially confirmed as Romanian food trade and food expenses decreases match with the largest brands' international sales decrease, making e-commerce difficult to calculate as specific numbers just for the food sector have not been yet published but as a general observation, as restaurants and other retailers implemented delivery and online shopping, it could easily be stated that growth in this sector is also highly expected and the international stage also dictated the local actions.

International trade openness has been key, stakeholders easily coping with local limitations, concentrating efforts to break the boundaries in situations like the COVID-19 pandemic. Technology applications also eased farmers work in terms of directly delivering the food to final consumers, shorting up the supply chain and even improving it. As occasions to eat outside drastically went down, people are not willing to try new in-house solutions to feed themselves and their families, giving more time together and disconnecting possibilities from the ordinary activities.

COVID-19 pandemics has highlighted the importance of a robust and resilient food system, that should correctly function no matter what circumstances arise, and should be able to secure the access to enough food at affordable prices for all citizens. The pandemic also raised awareness of the inter linkage between healthcare, ecosystems, food supply chains, consumption patterns and nature's boundaries. It is obvious at all levels that higher efforts need to be undertaken for our health and our planet. This crisis being just an example. Increasing frequencies of draughts, floods, wildfires and the appearance of new pests/viruses is a constant reminder that our food system is at risk and that it should become more sustainable and resilient.

References

1. Bassett, J. (2020, April 16). The impact of COVID-19 on food trends. (G. Mills, Interviewer) Retrieved from https://www.youtube.com/watch?v=__VGM9sQaBM&ab_channel=GeneralMills
2. Chin, A. W., Chu, J. T., Perera, M. R., Hui, K. P., Yen, H. L., Chan, M. C., Peiris, M. M., & Poon. L. L. (2020). Stability of SARS-CoV-2 in different environmental conditions. The Lancet, Microbe.
3. Dietz, L., Horve, P. F., Coil, D. A., Fretz, C. M., Eisen, J. A., & Wymelenberg, K. V. (2020). 2019 Novel Coronavirus (COVID-19) Pandemic: Built Environment Considerations to Reduce Transmission. Minireview | Applied and Environmental Science.
4. FAO (2020, April 21). Retrieved from Joint Statement on COVID-19 Impacts on Food Security and Nutrition: http://www.fao.org/news/story/en/item/1272058/icode/
5. FDA (2020, September 30). U.S. Food and Drug Administration. Retrieved from Food Safety and the Coronavirus Disease 2019 (COVID-19): https://www.fda.gov/food/food-safety-during-emergencies/food-safety-and-coronavirus-disease-2019-covid-19
6. Foote, N. (2020, March 11). Euractiv. Retrieved from No evidence of COVID-19 transmission through food, says EFSA: euractiv.com/section/coronavirus/news/no-evidence-of-covid-19-transmission-through-food-says-efsa/
7. Kissler, S. M., Tedijanto, C., Goldstein, E., Grad, Y. H., & Lipsitch, M. (2020). Projecting the transmission dynamics of SARS-CoV-2 through the postpandemic period. AAAS | Science, 860-868.
8. Notes (2020, September 20). Harvard Education. Retrieved from what is the Food Supply Chain? https://hwpi.harvard.edu/files/chge/files/lesson_4_1.pdf
9. OECD (2020, September 30). OECD Policy Responses to Coronavirus (COVID-19). Retrieved from Food Supply Chains and COVID-19: Impacts and Policy Lessons: http://www.oecd.org/coronavirus/policy-responses/food-supply-chains-and-covid-19-impacts-and-policy-lessons-71b57aea/
10. OECD (2020, September 30). OECD Scheme for the Application of International Standards for Fruit and Vegetables. Retrieved from Preliminary Report: Evaluation of the Impact of the Coronavirus (COVID-19) on Fruit and Vegetables Trade: https://www.oecd.org/agriculture/fruit-vegetables/oecd-covid-19-impact-on-fruit-and-vegetables-trade.pdf
11. Rizou, M., Galanakis, I. M., Aldawoud, T. M., & Galanakis, C. M. (2020, August). Safety of foods, food supply chain and environment within the COVID-19 pandemic. Trends in Food Science & Technology, 293-299.
12. Schmidhuber, J., & Qiao, B. (2020). Comparing crises: Great Lockdown versus Great Recession. FAO. doi: https://doi.org/10.4060/ca8833en
13. WHO (2020, October 1). WHO Coronavirus Disease (COVID-19) Dashboard. Retrieved from WHO: https://covid19.who.int/
14. Zhao, Y., & Bacao, F. (2020, October). What factors determining customer continuingly using food delivery apps during 2019 novel coronavirus pandemic period? International Journal of Hospitality Management.
15. Zhou, J., & Delgado, C. (2020). The impact of COVID-19 on critical global food supply chains and food security. Web-based: sipri.