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FACULTY OF ECONOMICS AND SOCIAL SCIENCES,  
GÖDÖLLŐ



Visegrad University Association

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CHANGES UNDER THE  
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# Impact of Covid-19 on EU agricultural market, trade, and production of milk and dairy products

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## **Abstract**

*The global pandemic of Covid-19 has negatively influenced the EU agricultural market and the farmers in the recent months. The long-term impact and consequences of the restrictions are still uncertain even though some effects are already seen in fall of demand for food products or restrictions in labour and movement across the countries resulting in lack of labour in agriculture in general due to quarantine measures. European Commission has prepared measures to support the agri-food sector and to provide assistance for agricultural and food markets that were affected the most by the pandemic. The paper is focusing on comparison of the prices between the pandemic months with the prices in the previous year in case of the milk and dairy products that is one of the most affected food sector and is going to be supported by the European Union. Moreover, we will examine the impact of the Covid-19 pandemic on milk and dairy products production and EU external and internal trade in 2020 compared with the previous year.*

**Keywords:** covid-19, agricultural market, milk, dairy products

**JEL Classification:** Q10, Q17, Q02

## **1. Introduction**

Currently, the coronavirus pandemic is spread all over the world with approximately 11.6 million of active cases and almost 1.2 deaths worldwide (Worldmeters, 2020). The virus has hit every continent and brought chaos, concerns and uncertainty to many sectors in almost every country. The agricultural sector is not an exception and the overall effect of the pandemic on the productivity and consumption of agricultural commodities can't be estimated precisely, but what we can know for sure – the spreading virus has negatively impacted the world agricultural market and decreased both demand and supply of the agricultural products due to the pandemic restrictions. The next challenge is therefore to ensure high level of food safety and consumer confidence (Nakat & Bou-Mitri, 2021). One of the main goals is to secure the national borders as open as possible and to maintain the stability of trade so the supply chains could function even during the pandemics (Rieder, 2020).

According to Torero (2020) one of the main issues arising from the worldwide virus crisis in globalized world is the instability of supply chains in agricultural sector. The examples which point to the seriousness of this problem are the cows fed by strawberries in India because they could not be delivered into cities or pouring milk by farmers in United States or Canada. The problem is not only connected to limitation in delivery of agricultural products, but also in the limitation of seasonal labour movement who are needed as a working force to harvest the seasonal fruit and vegetables in Europe.

The fact that the consumption of food products is quite inelastic, the adaptation of the production to the changes in prices will take more time than only few months. The main effect of the pandemic would be seen in world production and consumption. It seems, that the crisis has the highest impact on the

production of commodities which are the high value-added products such as meat and dairy (Elleby et al., 2020).

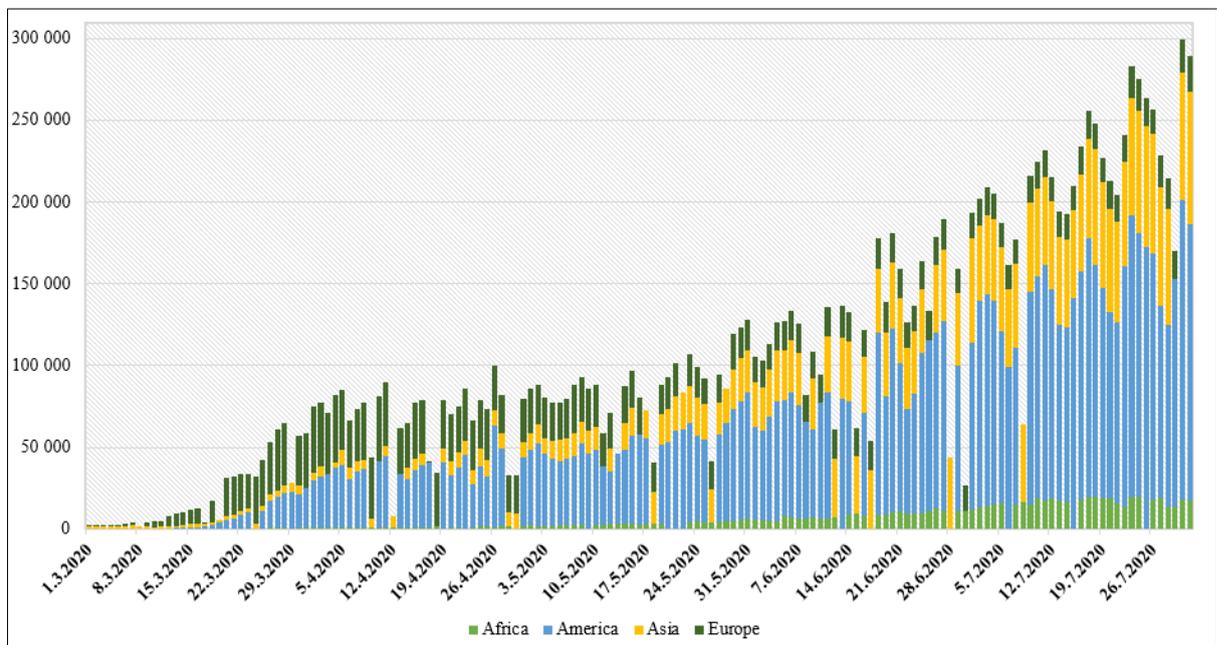
### 1.1 Development of COVID-19 pandemic in EU

The virus has originated and was firstly identified in China in December 2019. Afterwards the virus has spread also to other continents including Europe.

#### 1.1.1 First wave of COVID-19 pandemic in EU (March – July)

When the number of new cases in Europe on 13<sup>th</sup> of March exceeded the number in China, the World Health Organization started to consider Europe as a new epicentre of the pandemic (Nebehay, 2020, BBC, 2020). The result of the quick spread of coronavirus resulted in more than 250 million people in lockdown across the Europe (Henley and Oltermann, 2020). As is seen in the Figure 1, strict restrictions caused a slowdown of the virus since middle of the month May continuing to the summer so Europe could ease up restrictions for a certain period of time.

**Figure 1: Daily new Covid-19 cases in the first wave of the pandemic**



Source: Own processing. Data from: European Centre for Disease Prevention and Control (ECDC), 2020

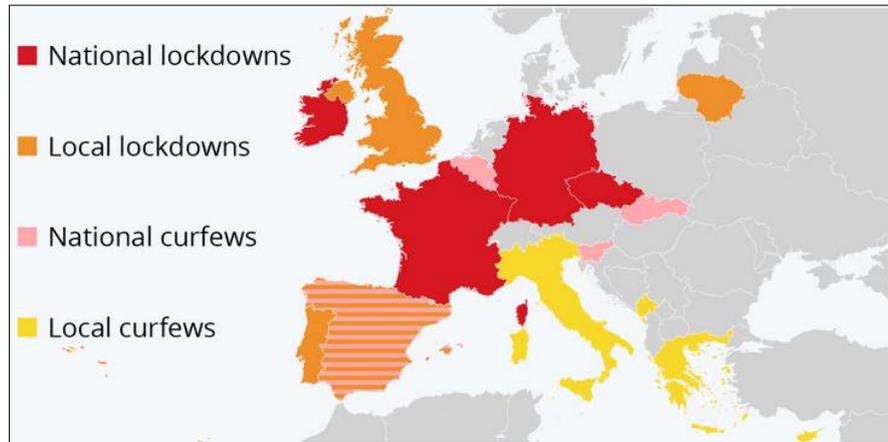
#### 1.1.2 Second wave of COVID-19 pandemic in EU (August – present)

The Europe hardly pulled of the tough first wave of the pandemic together and the second wave already hit the European countries even harder than before. The second wave is expected to bring costs in form of human lives and devastating economic impact (Cacciapaglia, Cot and Sannino, 2020). The European countries were forced to tighten the restrictions as Europe is considered as epicentre of the pandemic again (Chazan, 2020).

The countries imposed again lockdowns and curfews as a part of the measurements aiming to slowdown the transmission of the virus. Imposing the national lockdowns started in Ireland, which has been under a nationwide lockdown since 22<sup>nd</sup> of October. The countries which followed the trend are Czech Republic, France and Germany. The lockdowns imposed locally are in United Kingdom, Latvia and Portugal while in Spain there is a combination of local lockdowns with national curfews. Other countries imposing national curfews are Slovakia, Slovenia, Belgium as well as Luxembourg. The slighter version of curfews is imposed locally for example in Italy or Greece. Restaurants are also shuttering early in Croatia and

Denmark while they were forced to stop accepting all sit-in diners in the Netherland and Poland (Buchholz, 2020).

**Figure 2: European countries by second-wave COVID-19 lockdown measures imposed**

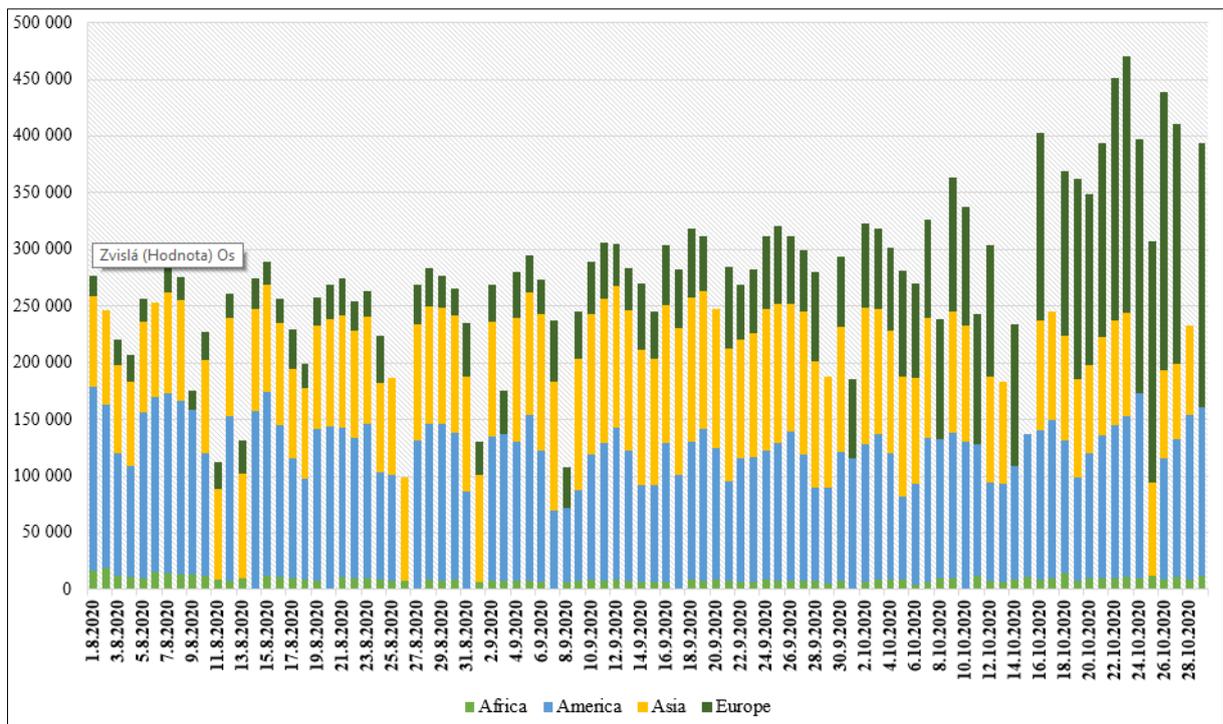


Source: Statista – based on media reports, 2020

The Figure 3 shows how the Europe has quickly and unexpectedly become again an epicentre of the pandemic with the highest number of new cases across the continents.

According to Sharma, Borah and Moses (2021) the factors that positively influence the proactive and reactive strategies to Covid-19 pandemics are centralized governance, learning from the past pandemics and healthcare infrastructure.

**Figure 3: Daily new Covid-19 cases in the second phase of the pandemic**



Source: Own processing. Data from: European Centre for Disease Prevention and Control (ECDPC), 2020

### ***1.2 Pandemic effects on agriculture and dairy and milk sector***

According to the OECD-FAO Agricultural Outlook 2020-2029 (2020), the pandemic is expected to decrease the demand of agricultural commodities in the next few years and moreover it could be a threat to food security.

Despite the pandemic, FAO (2020) report that the world milk production will possibly increase by 0.8 percent in 2020. However, the exports of milk are expected to decrease by 4 percent due to lower import demand. However, the Food Outlook of FAO (2020) forecasts that the milk production in the EU and UK will drop by 0.5%. The lockdown and limited number of available workers could have an effect on decreased production of dairy products and also in milk processing.

Moreover, the significant decrease in GDP growth across the countries causes a drop in international dairy products prices by 4–7% compared to a usual situation (Elleby et al., 2020).

### ***1.3 The EU reaction to the pandemic in form of support for the most affected farmers***

The coronavirus pandemic had a various impact on EU agricultural markets and farmers. The biggest effect was on the demand side because of the closure of the hotels, restaurants, and cafés due to the restrictions imposed in European countries almost overnight. Due to the current transmission of the virus and the extending restrictions in the Member States of EU, there has been experienced a decrease in demand for certain dairy and milk products, especially cheeses. The coronavirus crisis and the restrictions related to it that limited the number of workers available, mainly in the stages of production of milk. Furthermore, the closure of restaurants, shops or outdoor markets has led the industry to experience significant changes in the expected demand for dairy and milk products. The catering and hospitality industry represent around 15 % of the EU domestic demand for cheese. Moreover, the decrease in prices results in cancelling the actual contracts and delaying the conclusion of new contracts (European Commission, 2020).

According to the Syngenta group survey (2020) nearly half of the large farmers in the European Union (46%) say that they have been impacted by the pandemic. The moderate effect on farmers was observed in France, Germany and the Netherlands while in Poland, Spain and especially Italy were farmers much more negatively impacted by the pandemics, where 78% of farmers reported that they have been affected and 48% say they have been highly affected. The 57% of large EU farms experienced a decline in revenue and 51% observed a disrupt in supply chains and shortages.

Taking into consideration the struggles of EU farmers resulting from the pandemic and the restrictions related to it, the European Commission announced the support of agricultural and food markets that are affected the most by the pandemic. In this pandemic EU help package are measures for private storage aid (PSA) in the dairy and meat sectors, the authorisation of self-organisation market measures by operators in hard hit sectors and flexibility in fruits and vegetables, wine and some other market support programmes implementation. One of the biggest tools of helping farmers is that the Commission allowed the Member States of the EU to use rural development funds to compensate farmers with the amounts of up to €5,000 and €50,000. The European Commission is going to provide support in form of private storage aid for dairy (e.g. skimmed milk powder, butter, cheese) and meat products. The measure makes it possible for farmers to temporary withdraw their products from the market for a minimum of 2 to 3 months, and a maximum period of 5 to 6 months (European Commission, 2020).

## **2. Data and Methods**

The main aim of the paper is to compare the prices of raw milk in the pandemic months with the prices in the year 2019 as the dairy sector is considered as one of the most affected food sector by the Covid-19 crisis and is going to be supported by the European Union. Moreover, the impact of the Covid-19

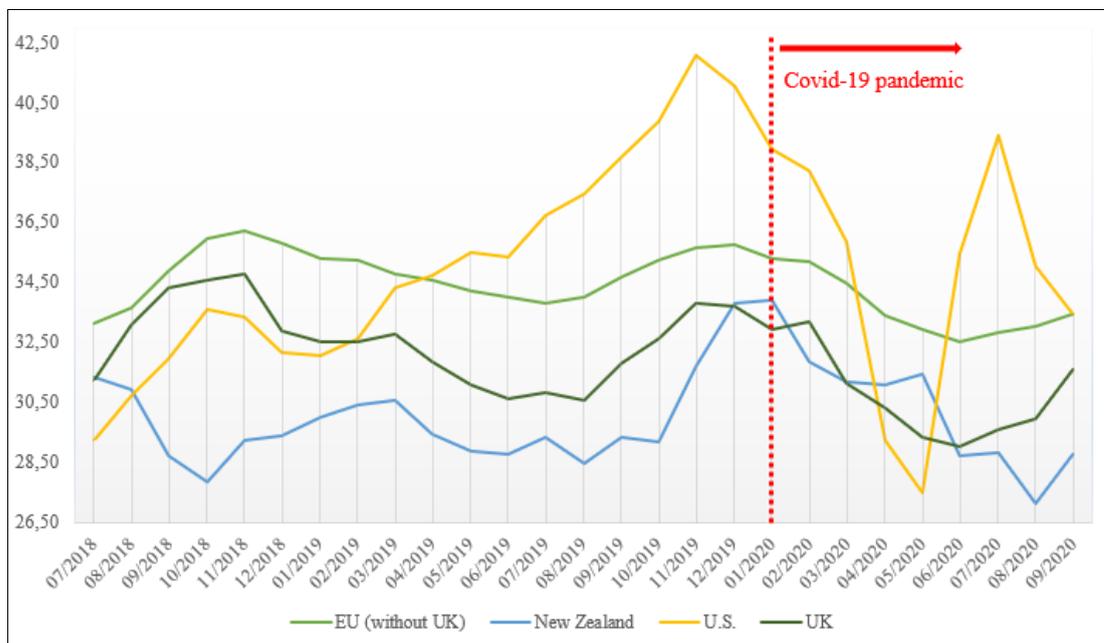
pandemic on dairy sector production and the volume of the EU external and internal trade with milk and dairy products in 2020 will be compared with the previous year. The data for the analysis were retrieved from European Commission current reports and CLAL data. As for the year 2020 there were available only data until August or September, the production and trade in the months from January to August/September were compared. In case of development of prices were used a period from July 2018 to September 2020, reflecting the three season peaks of milk production in the EU. The EU raw milk prices were compared with the prices in the world major capitalistic producers of raw milk – United States, New Zealand, and UK as a former member of the European Union. The similar approach was chosen by New Zealand foreign affairs and trade that examined the impact of Covid-19 on Agricultural Markets.

### 3. Results and Discussion

#### 3.1 Effect of the COVID-19 pandemic on EU agricultural market with dairy and milk products

The restrictions and logistical problems resulting from the pandemic cause a decrease in EU intra-trade of milk and therefore the raw milk is being processed partially into products that are less labour demanding and products with longer shelf life like skimmed milk powder or butter which now exceed the normal market demand. The problem is that many supply chains are not able to process milk into butter or milk powder and are still producing milk for which there has been a sharp decrease in demand. These imbalances are reflected into prices of milk that decreased significantly after March 2020 during the pandemic in comparison with the values in the same months the previous year 2019. The prices of skimmed milk powder decreased by 19% and butter prices dropped by 14% (European Commission, 2020).

**Figure 4: Development of prices of farm-gate raw milk (in EUR)**

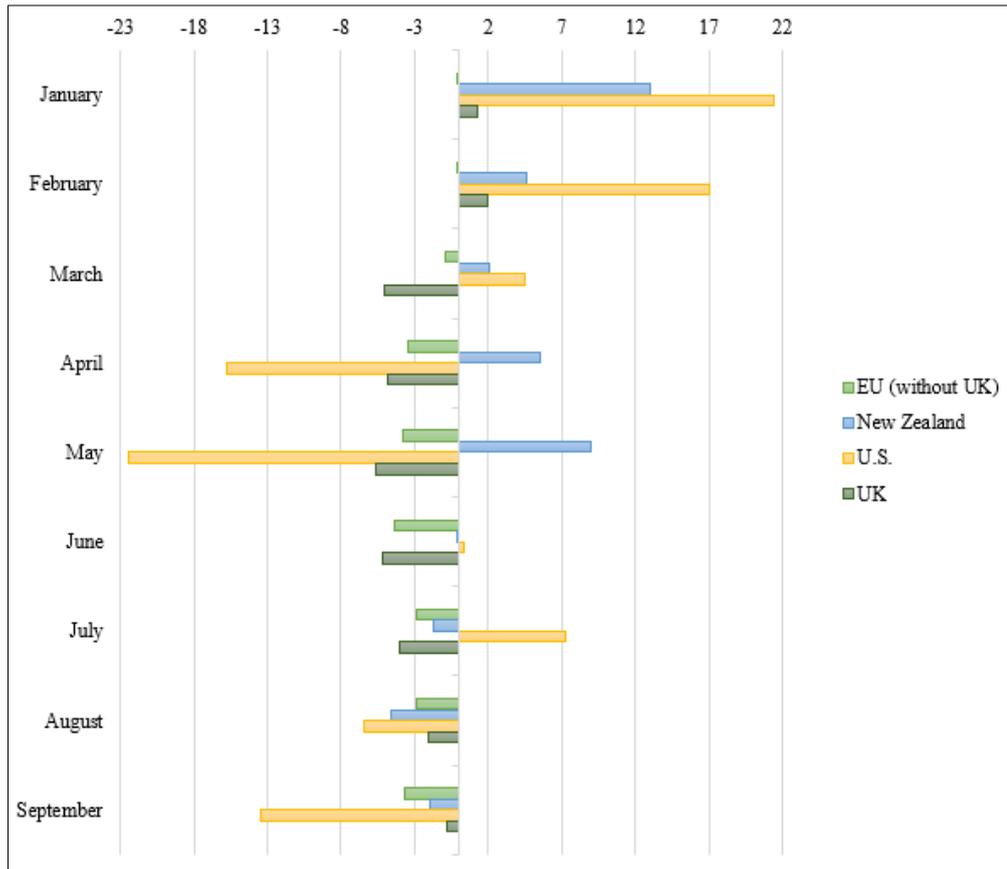


Source: Own processing. Data from: European Commission and CLAL, 2020

The Figure 4 shows how the prices of farm-gate raw milk developed since the season peak in 2018 until September 2020 and it compares the EU with other main producers of raw milk such as U.S. and New Zealand as well as UK as it is not EU member state anymore. The interesting fact seen in the figure is that in the time of first wave of pandemic in spring months the prices exceptionally dropped due to the restrictions. The largest drop in price experienced the U.S. and it reached the minimum in May 2020. In the EU and other countries, the prices of raw milk continued to fall and reached the minimal prices in the summer months as the volume of the milk production increased due to the seasonpeak.

The Figure 5 below shows the percentage difference in prices of farm-gate raw milk between months of 2020 and year 2019 while the biggest producer countries were compared as well. In the beginning of the year the prices tended to be higher than in the previous year, however, with the outbreak of the pandemic the prices started to be lower than in the previous year. The sharp drop in USraw milk prices was recorded in May, but it recovered in June continuing into July (National milk producers federation [NMPF], 2020). However, the prices in August and September have become lower again compared to the previous year. The EU countries continue in reporting lower prices of raw milk since the beginning of the pandemic but the percentage difference between the years 2020 and 2019 has decreased over the months.

**Figure 5: Difference in prices of farm-gate raw milk in 2020 compared with year 2019 (in %)**

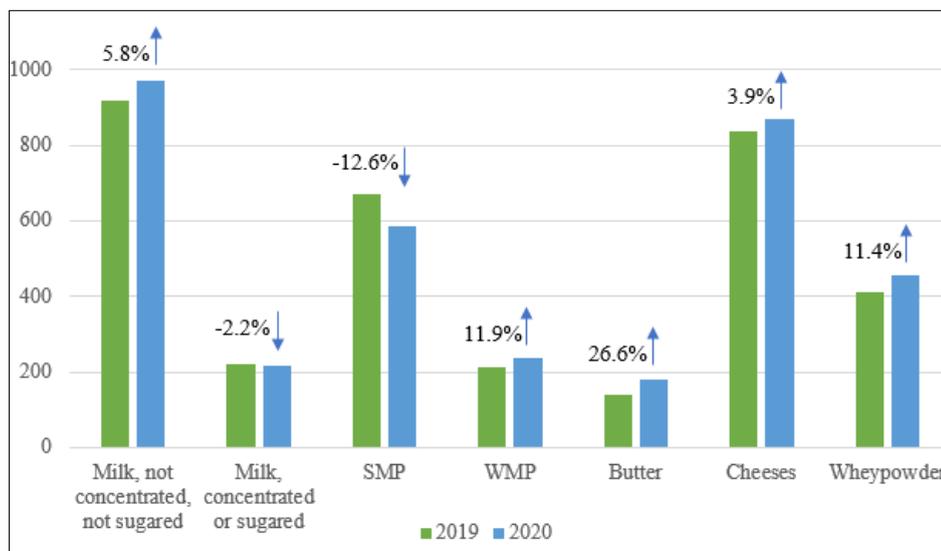


Source: Own processing. Data from: European Commission and CLAL, 2020

### 3.2 Effect of the COVID-19 pandemic on EU international trade with dairy and milk products

The transmission of the virus all around the globe affected the international trade as a result of restrictions and logistic limitations. Even though the EU exports of milk and dairy products decreased in the first quarter of the year, when taking into consideration the whole period from January to August 2020 compared with the previous year, the external demand for the whey powder, butter, cheeses and whole milk powder (WMP) with higher shelf life has increased as is shown in the Figure 6. The highest increase in exports is reported for butter which was 26.6% higher from the January to August 2020 than in the year 2019.

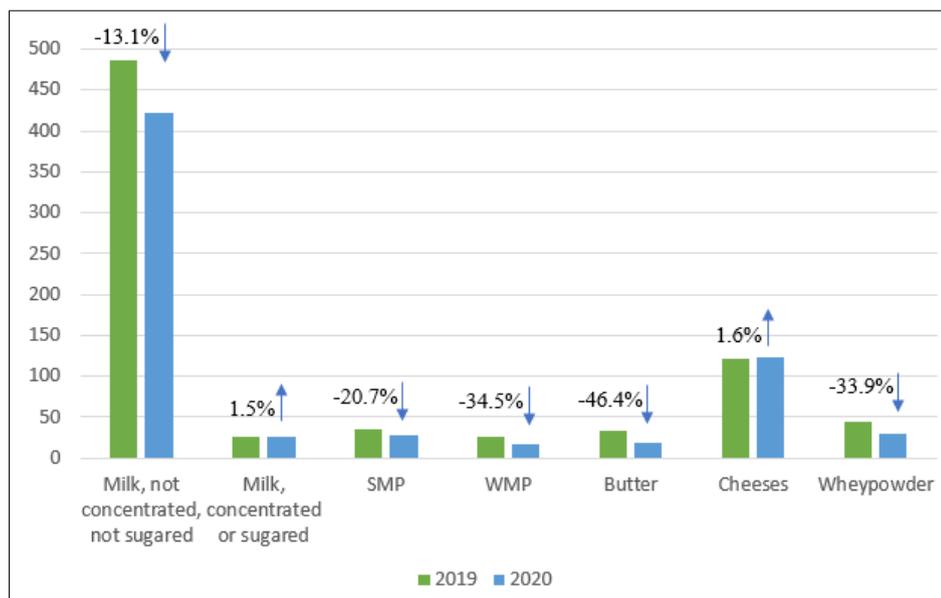
**Figure 6: Extra-trade from January to August: EU dairy products exports to third countries in year 2020 compared with the year 2019 (\*1000 tonnes)**



Source: Own processing. Data from: European Commission, 2020

As for the skimmed milk powder the one of the main importer is China where due to the coronavirus pandemic were imposed very strict measures, the exports from the EU to third countries decreased from January to August 2020 by 12.6%. Moreover, since February 2020 the price of SMP in EU dropped by 17% as a result of the surplus of this product due to decreased import demand and so the private stocks of SMP could increase to 125 000 tonnes in 2020 (European Commission, 2020).

**Figure 7: Extra-trade from January to August: EU dairy products imports from third countries in year 2020 compared with the year 2019 (\*1000 tonnes)**



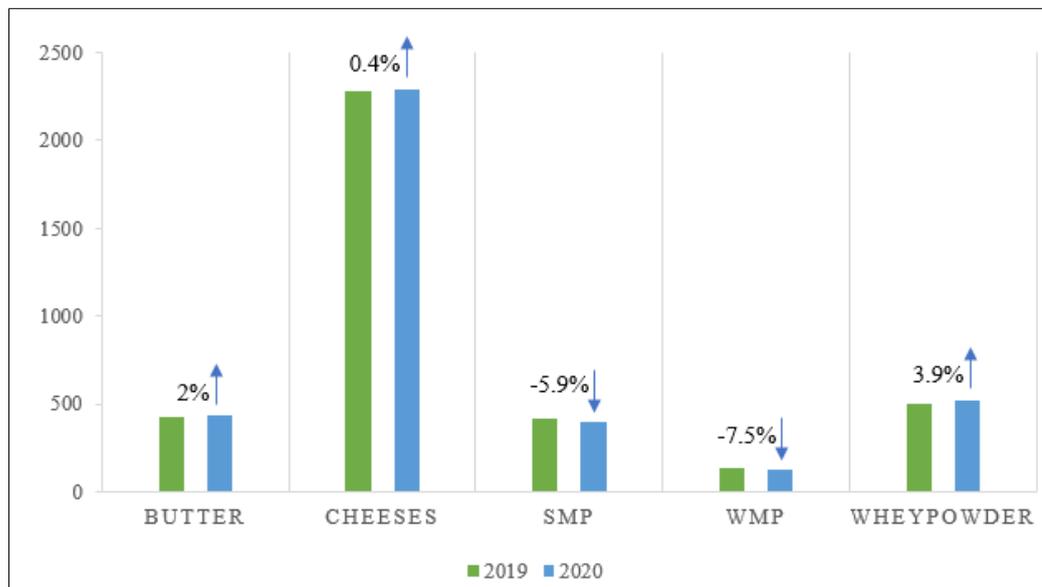
Source: Own processing. Data from: European Commission, 2020

In case of the milk and dairy products imports from the third countries to the EU, there is seen the most significant decrease due to the pandemic in butter, whole milk powder (WMP), whey powder and skimmed milk powder (SMP) imports by 46.4%, 34.5%, 33.9% and 20.7% respectively from January to August 2020 when compared with the same period in 2019 (see Figure 7).

The restrictions and measures resulting from the outbreak of the pandemic in Europe in the first half of the year affected also EU intra-trade – which is a trade between the EU member states. As is shown in the

Figure 8, there has been recorded an increase in trade with whey powder (3.9%), butter (2%) and cheeses. On the other hand the trade with whole milk powder (WMP) and skimmed milk powder (SMP) fell by 7.5% and 5.9% respectively.

**Figure 8: Intra-trade from January to August: Change in EU dairy products intra-trade(\*1000 tonnes)**



Source: Own processing. Data from: European Commission, 2020

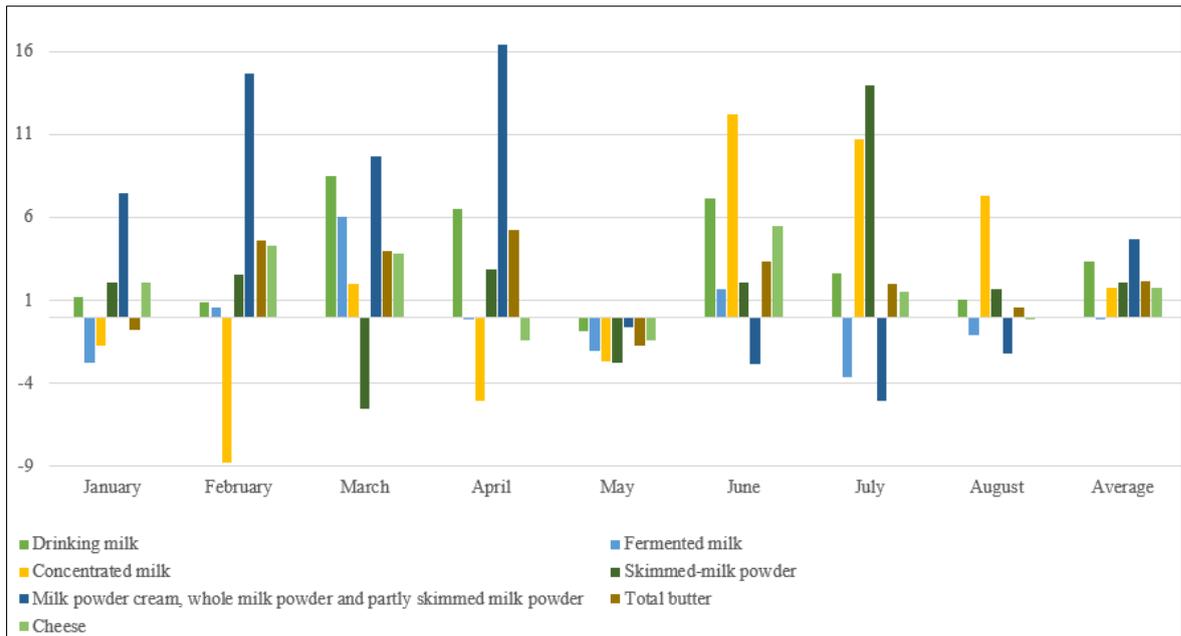
### 3.3 Effect of the COVID-19 pandemic on EU production of dairy and milk products

The first wave of the pandemic in Europe caused a decrease in demand and also in intra-trade of raw milk and so it is rather processed into dairy products with longer shelf life such as milk powder or butter which now excess the normal market demand.

In the Figure 9 is shown how the EU milk powder production increased significantly from February to April compared to the same months in the previous year. In April the production of milk powders exceeded the production in the year 2019 by more than 16%. During the summer months (June to August) the production of concentrated milk raised significantly as it has longer shelf life quality. On the other hand, the production of fermented milk has decreased as its shelf life is shorter and therefore riskier during the Covid-19 crisis. In May the EU production of all dairy products decreased in comparison with production in May 2019.

In average EU experienced an increase in the period of January to August 2020 in production of all milk and dairy products compared to the previous year except the fermented milk.

**Figure 9: Change in EU dairy production: Comparison of month production in 2020 with the year 2019(in %)**



Source: Own processing. Data from: Eurostat, 2020

#### 4. Conclusion

The main aim of the paper was to provide an overview of the effect of the Covid-19 pandemic crisis on the EU milk and dairy products prices, trade, and production in comparison with the previous year 2019. The results have shown that in the first wave of pandemic which was from January until August the prices dropped due to the restrictions that were a result of the pandemic outbreak. The U.S. experienced the most significant drop in price of raw milk, and it reached the minimum in May 2020. In the EU and other countries, the prices of raw milk continued to fall and reached the minimal price in the summer months as the volume of the milk production increased in the season peak. The prices compared to the year 2019 were lower in the EU since the outbreak of the pandemic in Europe, but the percentage difference between the years has decreased until September.

The international trade of milk and dairy products in the EU decreased in the first quarter of the year, but when the whole period from January to August 2020 was compared with the previous year, the external demand for the whey powder, butter, cheeses and whole milk powder (WMP) has increased and the exports of these products raised as well. For instance, the export of butter was 26.6% higher from the January to August 2020 than in the year 2019. The biggest decrease in exports in the period from January to August 2020 compared to the previous year (-12.6%) was recorded for skimmed milk powder (SMP) exports as a result of the pandemic restrictions in China which is one of the largest importer of European SMP. Moreover, the European Union experienced a significant drop in imports of dairy products from the third countries such as butter or milk powders. As for the trade among the EU member states (intra-trade), the countries traded more with whey powder (3.9%), butter (2%) and cheeses compared to the year 2019, however, the trade with whole milk powder (WMP) and skimmed milk powder (SMP) decreased by 7.5% and 5.9% respectively.

The spread of the coronavirus had not decreased the production of milk; however, it increased the supply of the dairy products as the producers focused on products with longer shelf life like milk powders, cheeses, or butter. The production of these particular products increased significantly during the pandemic first wave months. In average the production of dairy products increased from January to August 2020 in comparison with the year 2019 except the fermented milk even though the production of all milk and dairy products was lower in May 2020 than in May 2019.

Since the transmission of Covid-19 resulted in the second wave of the pandemic in Europe, the overall effect on the dairy sector could not have been estimated properly in this paper. Therefore the further research and deeper analysis should be continuously done during the second wave as the data are collected mostly monthly for better picture of how to address the negative effect of the pandemic on the dairy sector as well as to evaluate the effectiveness of the EU support for this sector.

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# Effects on digitalization of agriculture industry post the COVID-19 lockdown in India: An overview of the developments in e-NAM

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## **Abstract**

*The implications of the Covid-19 crisis have been many, but in particular, it has exposed the fragility of unsustainable fresh product supply-chain systems, that have been in practice for decades in India. The markets witnessed high price volatility, loss of tons of perishable items and steep fall in demands right at the time of one of the major harvest seasons in March and April. Although there are many digital platforms that have already been in implementation and creation since 2015 promoted by the “Digital India Campaign”, which could have softened the impact of such crisis. But they have not reached their full potential and now have gained more relevance and necessity in the eyes of the Indian government.*

*The consequences and effects of the unanticipated halt in the agricultural industry, which normally contributes about 15-16% to India’s GDP, have been extensively researched and explored in many papers and journal articles in the previous months since the start of the pandemic. Following that, this paper aims to identify and list the rapid agriculture digitalization reforms made in India and by the government specifically in National Agriculture Market (e-NEM) to create a unified national market for agricultural commodities by financial year 2021-22.*

*Consequently, there is a noticeable trend moving towards optimizing the number and role of stakeholders and transportation in the supply chain as the pandemic lockdown limited the movement of people, produce across state-borders and the timings for trade and mandis (market yards) operations. The objective of this paper is also to use the data to theorize the possible opportunities for existing or start-up agri-tech businesses using technological solutions for making the process more sustainable even in a pandemic scenario.*

**Keywords:** e-NAM, COVID-19, Digitalization, Pandemic, Supply Chain

**JEL Classification:** D81, O33, O38

## **1. Introduction**

The onset of the biggest lock-down in India, opened the eyes of the government towards the fragility of its agricultural economy. It is no surprise that in India there was a huge gap between the other industry sectors which have embraced Industry 4.0 long time ago and the agriculture industry which has been operating in the 2<sup>nd</sup> industrial revolution phase so far. Despite the challenges and hardships caused by COVID- 19, the crisis has also shed light on weaknesses in India’s Agri-food system(Kumar, Padhee, & Kumar, 2020).

In the initial stages of the lockdown in India, the regulated and registered agriculture markets remained closed for a few weeks and further inter-state movement of transport vehicles and agricultural harvest equipment suffered due to delays from mandatory border checks, a lack of personal protective equipment to abide by social distancing guidelines, and local norms, fears, and misinformation about COVID-19(Ceballos, Kannan, & Kramer, 2020).This had a catastrophic effect of the food supply chain of the industry and resulted in massive wastage of food and fresh produce and volatile price fluctuations created uncertainty among the small and marginal farmers.

Upon observation, it can be noticed that even though there were significant relaxations given to agriculturist and traders during the nation-wide lock-down for free movement and trading, owing it to be

an essential activity yet, there were major operational discrepancies which led to huge losses for all the stakeholders and food wastage because of lack of logistics infrastructure and warehousing, cold storage facilities for small scale rural farmers.

Before the onset and declaration of the COVID-19 pandemic, the focus brought about by the talk on Industry 4.0 in India was majorly in the field of “precision farming” or “precision agriculture”, which involves the use of Internet of Things, big data, drone analytics and cloud computing to improve and increase productivity and overall quality. But since then, in the pandemic scenario, the key word being productivity, is not really a concern for the government in the Indian agriculture context. Industry 4.0 is an extensive vision with clear contexts and reference architectures, principally categorized by the bridging of physical industrial resources and digital technologies in so-called cyber-physical systems (Patil & Shekhawat, 2019).

The pressing issue during a crisis like COVID-19 is on improving efficiency of agricultural product marketing, trading platforms, robust logistics and warehousing/storage facilities in the supply chain. The impetus is put on digitalising post-harvest technology for value creation and sustainable income for producers even in pandemic scenarios. Digitalization of such procedures is rapidly being implemented like never before and this can be witnessed by the thorough assessment of the official notifications released by the Agriculture Ministry post the implementation of country wide lock-down due to the pandemic in the end of March 2020.

## **2.Literature analysis on the topic:**

A starting point for economic recovery following the COVID-19 outbreak, however, is the effectiveness and equitable distribution of the current and evolving business and community support packages being enacted at regional, national and supra-national levels. Kerr (1993) identified that, every such crisis in the history of economics has been followed by some period of disequilibrium in the economy. This state is apparent in the context of covid-19 in India. Experts and economists expect markets to return to state of almost previous equilibrium in many of the situations (Kerr, 2016). The disequilibrium precipitated by the COVID-19 economic disruption, however, has been much more rapid and possibly larger than previous major shocks like the financial crisis of 2008, the Great Depression of the 1930s, and the Second World War (Kerr, 2020). Governments around the world have been putting in place a range of policies either aimed at dampening the degree of disequilibrium or to ensure that economic actors have the wherewithal to resume their previous levels of commercial activity (Kerr, 2020). Key among the needed changes are agricultural market reforms and digital solutions to connect farmers to markets (Kumar, Padhee, & Kumar, 2020).

With the new-found focus, Union Minister of Agriculture & Farmers' Welfare, Rural Development and Panchayati Raj, Shri Narendra Singh Tomar on April 02, 2020, launched new features of National Agriculture Market (e-NAM) Platform to strengthen agriculture marketing by farmers which will reduce their need to physically come to wholesale mandis (market yards) for selling their harvested produce, at a time when there is critical need to decongest mandis (market yards) to effectively fight against COVID-19. Also as Kumar et al. (2020) recognised that based on central government recommendations several state governments have temporarily suspended the Agricultural Produce Market Committee (APMC) Act and let farmers sell farm produce anywhere, which was previously not allowed under the act.

Consequently, there was a rapid increase in the number of APMCs that were connected to the e-NAM platform post the coronavirus prevention measures were brought into action. According to Agriculture Ministry data the number of connected APMCs has gone up 65% from the previous since the lockdown. The eNAM is a national e-market platform for transparent sale transactions and price discovery initially in

regulated markets and willing states need to accordingly enact suitable provisions in their APMC Act for promoting e-trading (Reddy & Mehjabeen, 2019).

## **2.1 Overview of e-NAM**

The electronic National Agriculture Market (e-NAM) is a digital all-India wide e-marketing and trading platform which was established to foster fair, transparent and electronic trade of agricultural produce and commodities while bridging the gap between farmers and traders. It is regarded as one of the most successful initiatives that were introduced under the “Digital India campaign”. It is facilitated and managed by Small Farmers’ Agribusiness Consortium (SFAC) in association with each regional strategic partner. The e-NAM initiative launched by the Prime Minister on April 14, 2016 aims at using technology for establishing an effective and transparent price discovery mechanism by overcoming the limitations of the conventional system (Suri, 2018). It improves transparency in price discovery, reduces possibility of formation of cartels among the local traders as distant traders too can participate in the e-bidding (Reddy & Mehjabeen, 2019).

The e-NAM portal provides information on the arrival of commodities to market and the respective prices, buy and sell trade offers, provision to respond to trade offers, payment settlements and grievance redressal among other services, while the material flow (agriculture produce) continues through the APMC markets (Reddy & Mehjabeen, 2019). In the duration of its operation since its launch in 2016 it has facilitated and proven beneficial in many aspects of agricultural marketing. These benefits include farmers getting access to more buyers, farmers get negotiation power to seek a higher price for higher quality, traders get access to the larger national market, and companies bear reduced intermediation costs, through direct participation in the local trade (Chaudhary & Suri, 2020).

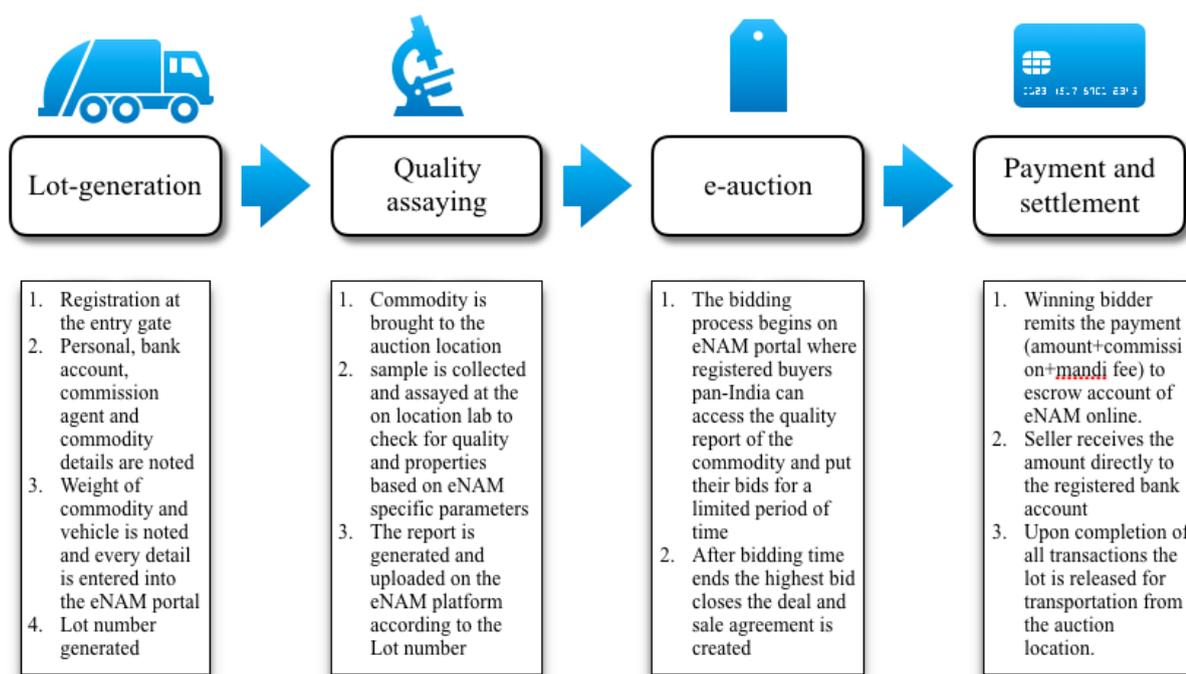
The e-NAM process flow:

During normal operations, the APMCs are the busiest around the harvest seasons of different crops and hence streamlining the process is necessary to give every registered farmer, producer or trader the opportunity to market their product in time and at a remunerative price while also getting paid and compensated on the same day. Hence, the e-NAM process has been proven to be very time efficient as a seller can start by bringing their produce to the APMC, in the day and receive the payment directly to their bank account within 24 hours of trading.

- The first step after arriving with the produce at the APMC is the gate entry where all the requisite personal information about the farmer is noted and registered if not registered before. The bank account details are updated and the weight of the produce and vehicle is recorded in the e-NAM portal. A specific lot number is generated at the completion of stage 1.
- Step 2 is concerned with the quality assaying, where a sample from the entire lot is taken and tested in the on-site lab and a report is generated based on the standardised e-NAM parameters. The report is attached to the specific lot for the reference of the bidders. The assessed sample from the lab is equally segregated into three different sealed packages and one of each is given to the seller, the bidding trader and the inspecting officer.
- Step 3 is when the auction process commences completely online where registered buyers from all over India can offer their bids and upon completion of bidding duration the highest bidder is notified and a sale agreement is created. Farmer has <sup>[L]</sup><sub>[SEP]</sub> the right to reject the price offered if he is not satisfied with the outcome of <sup>[L]</sup><sub>[SEP]</sub> bidding and they may opt to reapply for the bidding process again (Suri, 2018). <sup>[L]</sup><sub>[SEP]</sub>
- The final step 4 is the remittance of payment which includes the agreed amount for the lot+

commission fee (if any) +mandi fee). Facilitation of Unified Payment Interface (UPI) through BHIM helped in easing out the payment to farmers by reducing the payment realization time from buyers account to pool account and in turn disbursement to farmers (Small Farmers' Agri-Business Consortium, 2020). This total amount is transferred to the escrow account of e-NAM and the seller receives the payment through e-NAM directly in their registered bank account.

Figure 1: Process-flow in e-NAM portal source:(National Agriculture Market, 2020)



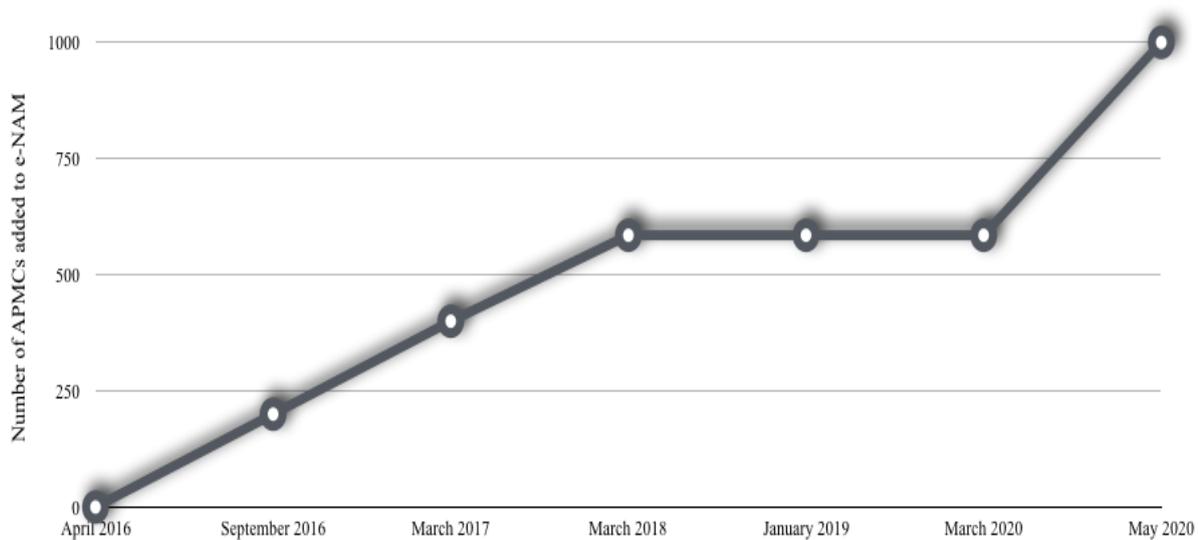
The above process brought about a formal structure for the commodities marketing and was gradually developed based on practical feedback and trials over time. The major expected result through the adaptation of e-NAM was to make sure the farmers income is increased and they have the choice to sell their produce to the highest price bidder from anywhere in India. The online market reduces transaction costs and information asymmetry (Reddy & Mehjabeen, 2019). In addition, the exploitation of farmers due to the existence of local commission agents (middlemen) cartels was also reduced.

The new developments after the start of the covid-19 pandemic have been implemented to reduce excessive number of stakeholders arriving on the daily basis to the local APMCs and foster trading and marketing facilities from remote locations or from the registered warehouses where the farmers choose to store their produce. These warehouses should be registered with the Warehousing Development and Regulatory Authority (WDRA) and hence are transformed into deemed marketing venues with a quality assaying lab on the location. This can ensure regular trading but with no or lesser physical presence of various stakeholders in the same location.

The producers and commission agents are no longer required to bring their entire lots to the auction site but using e-NAM's new module they should upload the assaying report and photograph of the sample so that the buyers and traders can easily make the pricing decision based on these evidences. This has increased the transparency without compromising on safety and convenience of the stakeholders.

Figure 2: Chart depicting yearly increase in the number of APMCs associating with e-NAM source:(Small Farmers' Agri-Business Consortium, 2020)

e-NAM Milestones Since Implementation over the years



As can be noticed in the figure 2, there was a slow but consistent rise in the number of APMCs associating with the e-NAM platform from the time of its conception from April 2016 to March 2020 but based on the data released by the e-NAM portal after the covid-19 pandemic 415 more APMCs joined the platform. Liberal licencing of traders/buyers and commission agents by the state authorities without any pre-condition of physical presence or possession of shop/premises in the market yard is a precondition for introducing eNAM (Reddy & Mehjabeen, 2019). Harmonization of quality standards of agricultural produce and provision for assaying (quality testing) infrastructure in every eNAM to enable informed bidding by buyers is another precondition for effective functioning of eNAM (Reddy & Mehjabeen, 2019).

The mobile application facility is an added advantage of the e-NAM which was updated with various features in 2019. Some of the notable facilities the application provides are, advance gate entry, a multilingual interface with 9 different languages to choose from, lot progress tracking system, handy assaying and sampling facility, the traders can make payment using the mobile application and the seller can receive immediate SMS alerts on the successful receipt of payment.

Configurations made in e-NAM after COVID-19 pandemic:

Based on the press released by the Ministry of Agriculture & Farmers Welfare on 2nd April 2020, to fight against the challenges posed by covid-19 pandemic, the Union Minister of Agriculture & Farmers' Welfare, Rural Development and Panchayati Raj, Shri Narendra Singh Tomar launched the following new software modules and reforms in e-NAM (Press Information Bureau Government of India, 2020):

Warehouse based trading module in e-NAM software: facilitates direct trading from warehouses based on Negotiable Warehouse Receipt (e-NWRs) module –

- Under this new development, the intended goal is to facilitate small and marginal farmers to store their lot in Warehousing Development and Regulatory Authority (WDRA) registered warehouses and trade directly from the warehouse.
- The module allows online payment for the completion of transaction from the warehouse itself.

Farmer Producer Organization (FPO) trading module in e-NAM –

- FPOs can trade their produce from their collection centres without bringing the produce to APMC.
- Facility provided to FPO to upload assaying report / photo of their produce from their premise to enable traders to visualise the produce before bidding.
- Enhanced logistics module aggregators of transport logistic platform –

Provides farmers with a selection of trackable logistics service providers for transporting their produce

- The farmers get links of the available logistics service providers to navigate through the available options and select the relevant service.
- This will enable smooth inter-state transportation for buyers from distant locations

The minister stated that e-NAM is well poised to play a critical role during the period of Covid-19 to decongest mandis (APMCs) while helping the farmers make a living while being socially distant and safe at same time (Press Information Bureau Government of India, 2020). As agriculture is under the responsibility of the provincial state government, it was recommended by the ministry for them to facilitate bulk buyers and big retailers to buy from marginal farmers directly without congesting the market yards or APMCs. The APMC Act was also relaxed and farmers were allowed to sell their produce anywhere in the areas beyond the borders of the registered APMCs.

### 3. Discussion

The major identified priority for the authorities with the reforms and digital upgrades on the e-NAM platform was to:

- Decongest the mandis (Market yards, APMCs)- restricting the number of stakeholders at the auction site is important to ensure social distancing measures can be implemented
- Minimise physical presence on the premises while still making competitive prices available on the e-NAM platform
- Facilitate direct marketing from the warehouses, harvest centres or door step of the farmers and producers
- Provide efficient and trackable logistics and increase the number of transport vehicles to allow seamless movement of produce to the consumption markets.

The government has had a long-term agenda of creating a “One nation, one market” model and this crisis is giving it the fuel to make radical transformations and accepting technology to realise this goal earlier than anticipated. It took a long time for Indian agriculture to progress from a “ship to fork” after gaining independence to a self-sufficient and surplus producing agricultural economy after the green revolution in the 1960s. Though the covid-19 pandemic is another blow that has caused a lot of disequilibrium in the market, the rapid response and action from the agriculture ministry are evidently going to recover the balance in a better manner. Key steps going forward include encouraging farmers to join FPCs and farmer producer organizations (FPOs) and building their capacity and providing guidance on digital and direct marketing solutions (Kumar, Padhee, & Kumar, 2020).

A technology driven government intervention is the need of the hour to resolve marketing and logistical issues faced in the agriculture industry. A successful e-market should incentivize farmers through higher prices and timely payments; incentivize traders through regular, large and quality market arrivals and reduced transaction costs, providing logistics and maintaining reasonable profits; and satisfy the commission agents through higher market arrivals and turnover to make their business viable (Reddy & Mehjabeen, 2019). Digitalization in agriculture sectors exposed new standpoints for youth generation with

all elements in supply chain is being intricate through co-innovative approach which set to correct direction(Patil & Shekhawat, 2019).

Further observations and challenges posed to the Indian agriculture sector post COVID-19:

Large labour migration - is major challenge posed by the covid-19 pandemic as most agriculture labourersmigrated from distant rural settlements to the large farms or plantations and most were either forced or chose to migrate back to their native hometowns due to lack of financial and living resources and aid from the employers and government when the lock-down was first enacted. It has been previously recorded that agriculture is one of the major employers in India and this caused a huge disruption in the agriculture output of the nation in the previous harvest season. There is a need to recognise this and formulate sustainable policies and models to overcome such labour shortages in the future.

Lack of investment - is another demotivating factor when it comes to financing technology based developments in the agriculture industry as the annual budget allocated by the government for the research and implementation of digital applications for agriculture is not sufficient compared to the actual cost that is incurred to cover the demand all over India. The covid-19 crisis has also forced the government to divert a lot of the funds towards financial aid provided to farmers and stakeholders and economic recovery initiatives, therefore, the agriculture ministry has been promoting the association of more private investments and companies to fill the investment gap.

With reference to e-NAM, the public-private partnership is fostered by the inclusion of private logistics companies to provide trustable and trackable transportation services with companies like Rivigo Services Pvt Ltd,Truck Suvidha,Transin Logistics,Truck Guru,eParivahan,Jusda India,Mavyn, Blackbuck, Elastic Run and more are expected to join after the government notification released to apply for such partnership.

Inadequate infrastructure for implementing digital systems is an obstacle in rural India. Majority of the locations still lack basic un-obstructed internet and telecommunication infrastructure to facilitate traceability, online markets and digital data records. Lack of resources like enough computers and computer savvy staff to maintain such services for a large number of users is also predominant in many locations. There is a need of more quality and assaying labs, equipment and skilled lab technicians at all locations to speed up and fully automate the assaying process.

Awareness and training programs- Despite proving to be beneficial and convenient, facilities like e-NAM only cater to a small percentage of the overall number of agriculture stakeholders who are from remote and rural areas, as they are un-aware of them and lack the literacy to understand the process. Many farmers also do not possess important pre-requisites of registering for digital platforms such as Aadhaar card (national identification card), bank accounts and phone number. A collective disregard and reluctance to implement digital systems is also observed in many traditional mandis (market yards) which can only be overcome by training and awareness programs.

The agriculture industry is the backbone and major employment sector for India yet on the contrary it has not been at the forefront of the prominent policy decisions while the possibility and uncertainty of more future crisis is inevitable with the climate change and changing geo-political scenarios. Hence, the bigger challenge is to make the policy makers realise our dependence on it and strengthen the sustainability of the industry against any such catastrophes in the future.

#### **4. Conclusion**

The COVID-19 pandemic caused a huge disruption in the global scale and its devastating effects also

uprooted the long going traditional agricultural marketing practices in India. It exposed how unsustainable and fragile the system is in the state of economic disequilibrium. The 7000 regulated mandis (market yards) or APMCs in India were required to be functional with adequate safety measures to ensure supply of essential food produces across India during the long lock-down period but many could not sustain the work load. Amid the chaos, the 585 APMCs that were functioning with the support of the e-NAM portal were recognised to be performing better than other APMCs pan-India. The beneficiaries of e-NAM enjoyed price transparency, instant payments, remote quality assaying, trading from home and door-step pick-up logistics and transportation services.

The ministry of agriculture also recognised that the e-NAM system was also efficient in reducing congestion in the auction sites and APMCs which is necessary to implementing social distancing measures and ensure safety for the duration of the pandemic. In figure 2, it can be observed that the number of APMCs affiliated to e-NAM increased slowly since its implementation in 2016 but there was a rapid rise since April 2020 after the new reforms were made in the system when 415 more APMCs were made e-NAM compatible. This rapid spread in digitalization is not surprising after the pressure put upon the economy after the coronavirus pandemic. The interesting part is that these changes and reforms are not temporary and have already opened the path to more digitalization of the Indian agriculture industry.

Consequently, the inclusion of the e-NWR module on-site trading from warehouses registered under Warehouse Development Regulatory Authority (WDRA) reduces the transportation costs of the commodities for the small and marginal farmers. It also solves the surplus storage issue wherein the farmers have the option to store their produce in the warehouse until the prices rise up to the desirable rate and sell later. The quality assaying labs are also present on the location and final report and photograph of the sample is uploaded on the portal for increased transparency. The new and improved e-NAM logistics module is an extensive database of available logistics service providers which use technology based systems to provide tracking facilities for the traders.

Further SFAC and the agriculture ministry will have to perform more outreach programs regarding e-NAM to reach the goal of “one nation, one market” by associating with all the APMCs and realise the full potential of the digital portal. There is potential for further research and study on the effectiveness of these developments after some duration has passed and data is made available.

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# The Psychological And Social Challenges Upfront By Indian Postgraduate Students During The Pandemic.

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## Abstract

*During a pandemic, society undergoes many economic and social changes. The study focuses on the changes in the field of education in India; such as rapid change in teaching techniques and online platforms used by educational institutions. The approach is to underline the change in teaching and learning methods and challenges for both teachers and students. The object of the study is to understand the stress causing factors in the students and teachers as well. The study focuses on the difficulties and stress caused by the online learning methods for students. The increase in Stress level, Anxiety and depressive symptoms due to increased screen time and lack of practical training. Increased screen time is causing many health issues like lack of concentration, insomnia etc. Restriction of social interaction is also playing a key role in causing other mental disorders like anxiety. An economical problem of parents or guardians due to falling economy in pandemic is putting extra pressure to perform and earn money. The methodology used for the study is quantitative technique using online survey on post graduate students. Students migrate from their home town to other developed city for sake of education and due to this unexpected happening they have to relocate to their home town with lots of unanswered questions and unambiguity towards the future. The answers to these questions are still not confirmed resulting into psychological burden. The study conclusively provides insights about the stress causing factors in students during the pandemic.*

**Keywords:** changing teaching and learning patterns, fear of COVID-19, stress in students

**JEL classification:** D1, I1, I12, I15, I31

## 1. Introduction

The major objective was to look at the effect of COVID-19 on the student's psychological state. COVID-19 problem was raised in late December 2019 in Wuhan and Hubei provinces in China. In February 2020, the planet Health Organization designated the disease COVID-19, which stands for coronavirus disease in 2019 (MOAWAD, 2020). The virus that causes COVID-19 is designated severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2); previously, it had been mentioned as 2019-nCoV. The distribution of viruses from one place to another is called epidemiology. It is a large group of viruses. It is consisting of genetic material surrounded by enveloping protein spike. It has many sorts that damage the respiratory system and gastrointestinal system. The symptoms are cough, pneumonia, fever, and shortness of breathing and sore throat. Besides its worrying effects on human life, the novel strain of coronavirus (COVID-19) has the potential to significantly hamper not only the Chinese but also the worldwide countries. In the absence of vaccine, social distancing has emerged because it is the most generally adopted strategy for its mitigation and control. We need to count on classical communal health measures to curb the epidemic. The primary goal of such public health measures is to stop the person-to-person spread of disease by separating people to interrupt transmission. The tools we have are isolation and quarantine, social distancing and community containment/Lockdown, Community containment/Lockdown is an intervention applied to an entire community, city, or region, designed to reduce personal interactions and movements. Such interventions range from social distancing among (such as cancellation of public gatherings, school closures; working from home) to community-use of face masks to locking down entire cities or areas (cordon sanitaire). 'Social distancing' is intended to reduce interactions between people in a broader community, in which individuals may be infectious but have not yet been identified hence not isolated.

As the government had left with no choice instead of implementation of lockdown in the country. The first step taken by the government was to close school and college of the country and empty the hostels. Due to this, every student had to rush out towards their hometowns and their home states in very short notice which has given stress to students and also their parents for their safety while traveling. In few days nationwide lockdown was announced so the education body decided to take online classes to carry over the education system in the country. A study conducted by the Institute of Medical Education/National Centre for Health Professions Education Development, Peking University, Beijing, China says that online studying as effective as an offline study but with proper materials and style (Utsav Raj, 2020). Due to lockdown none of the educational bodies got a proper time to maintain the system of online classes and students were also not prepared to take online classes which resulted stress in students. The incidence of Pandemic had increased over the ultimate years with global warming, urbanization, globalization, and exploitation of herbal resources. With the previous epidemic and pandemic, the International Health Regulation and WHO was prepared to meet precise necessities for detecting, reporting on, and responding to outbreaks. Despite these improvements, significant gaps and challenges exist in global pandemic preparedness. Pandemics not solely affect the mortality morbidity however also the monetary growth and delays development stagger. There is social disruption, political anxiousness and behavioral changes, such as fear-induced aversion to workplaces and one of a kind public gathering places. Pandemic impacts the mental health of man as a whole result. Pandemics like COVID 19, influences the intellectual health due to several motives –Uncertainty, horrible prognosis, monetary loss, insecurity, confusion, emotional isolation, stigma, school/work closure, inadequate resources for scientific response, and deficient distribution of necessities. As a result, humans trip a lot of emotional disturbances such as stress, insomnia, frustration, irritability which ought to lead to psychiatric issues like depression, anxiety, behavioral adjustments (substance abuse), additionally post-traumatic stress ailment in later stages. Some may also additionally be extra vulnerable than others to the psychosocial effects of pandemics. In particular, people who contract the disease, these at heightened hazard for it (including the elderly, people with compromised immune function, and these living or receiving care in congregate settings), and people with pre-existing medical, psychiatric, troubles are at prolonged chance for adverse psychosocial outcome.

### **Title of the study:**

The Psychological and social challenges upfront by Indian Post graduate students during the pandemic.

### **1 Objectives:**

- To assess the challenges in front of post graduate students while using online platforms for learning during the pandemic
- To assess the stress causing factors and Psychological impact on the post graduate students while using the online platforms for learning during the pandemic.
- To gather possible suggestions and solutions from post graduate students to reduce stress while using online platforms for learning during the pandemic

### **2 Inclusion Criteria:**

- All Post graduate students from Maharashtra state can participate in the survey.
- Participant should be using online learning platforms.

### **3 Exclusion Criteria:**

- Participants other than post graduate students were not included in the study.

### **4 Operational definitions:**

- **Post graduate Students:** All students undergoing I, II, III, IV Basic Masters course in various colleges in Maharashtra.
- **Pandemic-** A pandemic is the worldwide spread of a new disease.

- **Psychological and social challenges:** Refers to the difficulties and obstacles that mobile learners encounter due to their finite mental processing ability.
- **Lockdown:** Restrictions imposed on the general public to remain indoors and maintain social distancing with each other in the outbreak of pandemic.

## 2. Data and methods:

**Design:** Cross sectional Descriptive study

**Population:** College Students pursuing master's study in any subjects.

**Target population:** MBA Students.

**Accessible population:** MBA Students of various colleges in Maharashtra

**Sampling Method:** Purposive sampling

**Data collection tool:** Online Questionnaire

**Data Measurement:** Data measurement was done by self-administered online survey

## 5 Method of Data Collection:

1. Permission was taken from the SPPU-SCN, MBA Programme department to conduct the study and ethical clearance was obtained.
2. Participants who were meeting the inclusion criteria were selected by convenient sampling.
3. Consent from the participants was obtained and the purpose of the study was explained to them through online survey questionnaire.
4. The self-administered questionnaire was distributed.
5. Participants who were unwilling to complete the questionnaire due to personal reasons were free to withdraw from the study.
6. The questionnaire was taken from the participants and analysis was done further.
7. Confidentiality of the collected data was maintained and used only for the research purpose.
8. Data collection was done from 45 participants on in the first week of Nov 2020.

## 6. Data Analysis

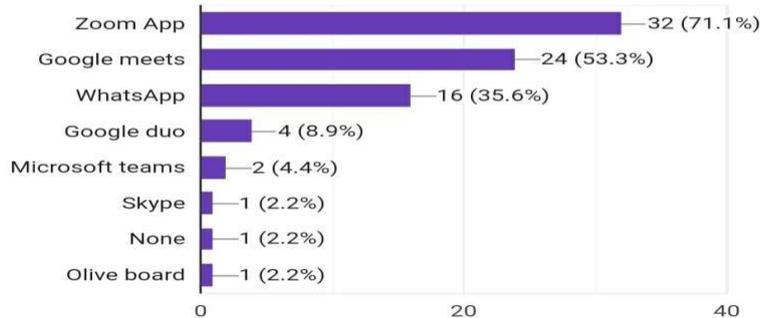
The collected data were organized as descriptive, and we have included the information about the online platforms used by students, the amount of time spent on these platforms on a daily basis, student's views about the usefulness of these platforms for learning, the problems that they are facing related to technical and personal difficulties (Deepika Sheroun, 2020).

	Criteria	Parameter	No. of respondents	Percentage (%)
1	Type of online platform	Zoom App	32	71.1
		Google meets	24	53.3
		Whatsapp	16	35.6
		Google duo	4	8.9
		Microsoft teams	2	4.4
		Other	3	6.6

**6 Table 1.1 Percentage of Users of various Online lecture platform**

1. What are the online learning platforms that you use daily?

45 responses



The highest percentage of usage is of Zoom App with 71% users. Many colleges and schools use because up to 100 users can be added in one session which can last for 40 minutes. And it is more user friendly for screen sharing and also provides control to lecturer (host) to permit student to attend the session. Google meet is second highest because it provide more session time but uses large amount of data.

	Criteria	Parameter	No. of respondents	Percentage (%)
2	Time spent -daily	Less than an hour	7	15.6
		1-2 hours	10	22.2
		3-4 hours	9	20
		5-8 hours	18	40
		Up to 16 hours	1	2.2

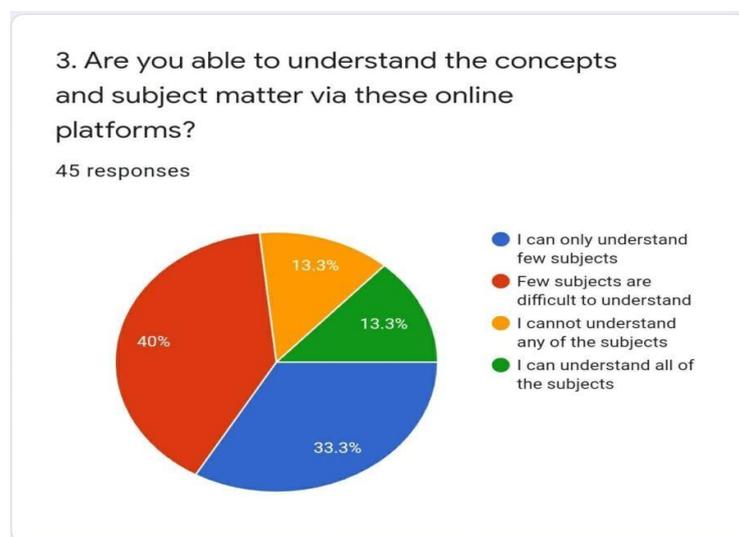
7 Table 1.2 Percentage of student Time spent on lectures

**Pie Chart 1.2 Percentage of student Time spent on lectures**

On an average 40% of students 5-8 hours in lecture. This amount of screen time increases stress on eyes and insomnia due to improper social interaction and insolation during lecture. Also 22% and 20% spent 1-2 hours and 3-4 hours for lecture and irregular because of lack of proper internet connection, mobile/laptop for attending lectures.

	Criteria	Parameter	No. of respondents	Percentage (%)
3	Understanding the subject matter via online platforms	Understand few subjects	15	33.3
		Difficult for Few subjects	18	40
		Don't understand any subject	6	13.3
		Understand All subjects	6	13.3

**8 Table 1.3 Percentage of student showing Understanding the subject matter via online platforms.**

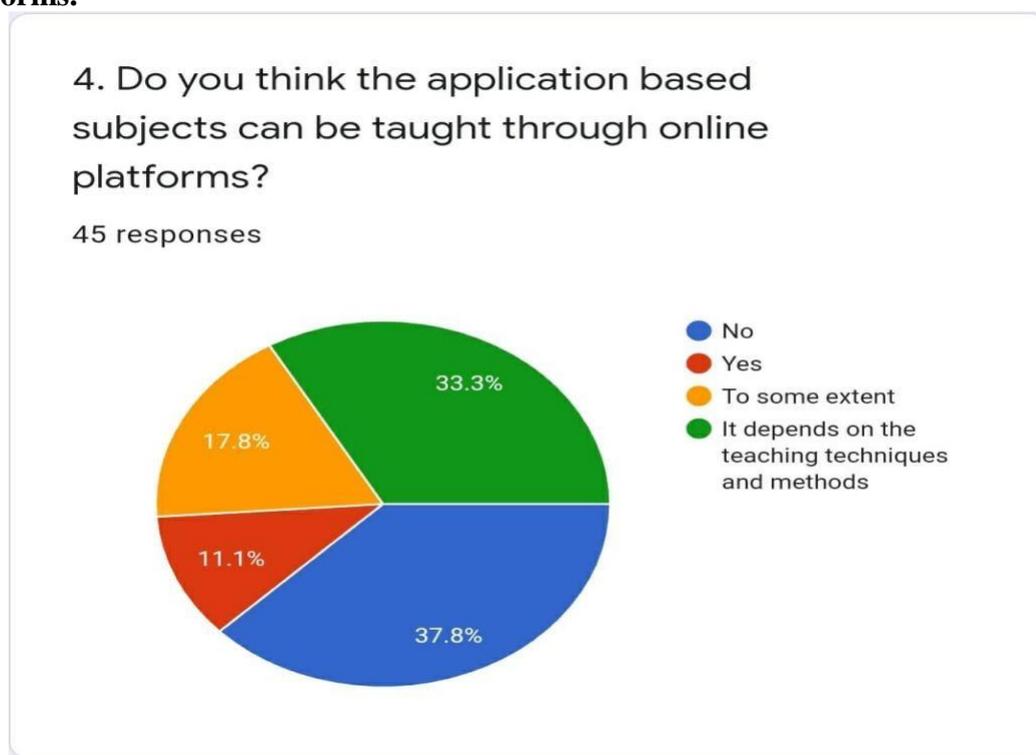


**Pie Chart 1.3 Percentage of student showing Understanding the subject matter via online platforms.**

Data shows 40% of student finds it difficult to understand few subject. As few subjects are mathematical or practical base. Also, few teachers are more expressive and interactive in actual classroom as compared to virtual class room. The lecture in which teachers are not able to bond with students are tend to divert student's attention towards surrounding in room which they are seating.

	Criteria	Parameter	No. of respondents	Percentage (%)
4	Understanding application based subjects via online platforms	No	17	37.8
		Yes	5	11.1
		To some extent	8	17.8
		Depends on the teaching techniques	15	33.3

**9 Table 1.4 Percentage of student Understanding application based subjects via online platforms.**

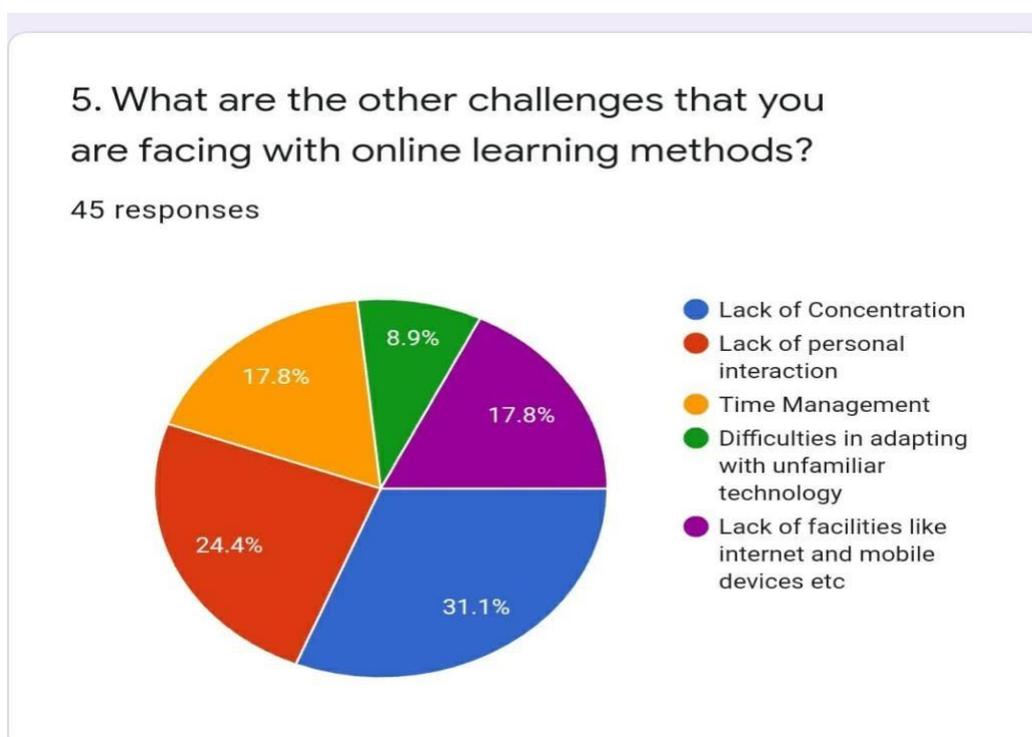


**Pie Chart 1.4 Percentage of student Understanding application based subjects via online platforms.**

It was found that very few students understand application-based subject in Online lectures. There are two types of students who don't understand anything and students who understand depending upon teacher. There are few subjects which are completely dependent techniques of teaching and experience of teacher. For example, Digital marketing subject should be taught by the person who has actual experience in Digital marketing and not by a person who knows all the theoretical knowledge. Also subjects such as Microsoft Excel are better be taught practically on projector in class room and everyone should perform it simultaneously to have better understanding.

	Criteria	Parameter	No. of respondents	Percentage (%)
5	Problems faced during online learning	Lack of concentration	14	31.1
		Lack of personal Interaction	11	24.4
		Time management	8	17.8
		Adapting new Technologies	4	8.9
		Lack of facilities	8	17.8

**10 Table no. 1.5 Percentage of Problems faced during online learning**

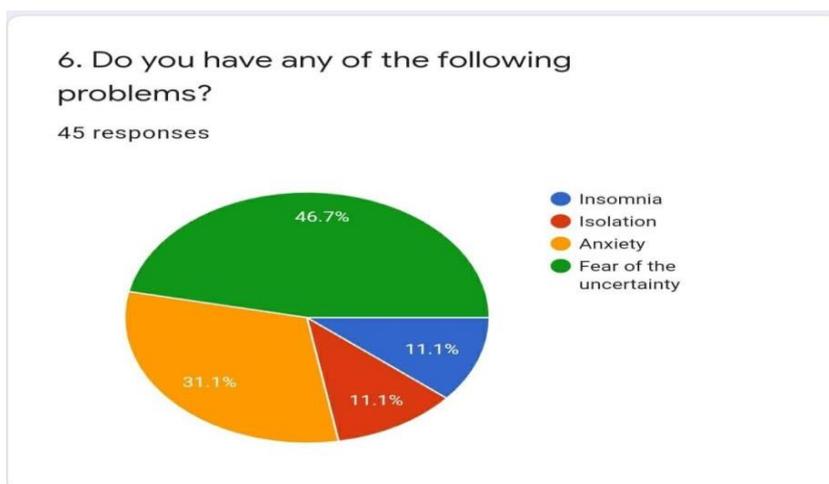


**Pie Chart no. 1.5 Percentage of Problems faced during online learning**

Problems faced by the students are lack of concentration, lack of personal interaction, timemanagement,adaptingnewtechnologiesandlackoffacilitiesandallaresevereand will require lot of attention. Among all the problem Lack of Concentration is faced by most of the students. All the problems need to be tackled by starting with increasing interactive sessions and providing basis infrastructure so that student can at least attend thelectures.

	Criteria	Parameter	No. of respondents	Percentage (%)
6	Psychological problems faced during online learning	Insomnia	5	11.1
		Isolation	5	11.1
		Anxiety	14	31.1
		Fear of uncertainty	21	46.7

**11 Table no 1.6 Percentage of student facing various Psychological problems.**

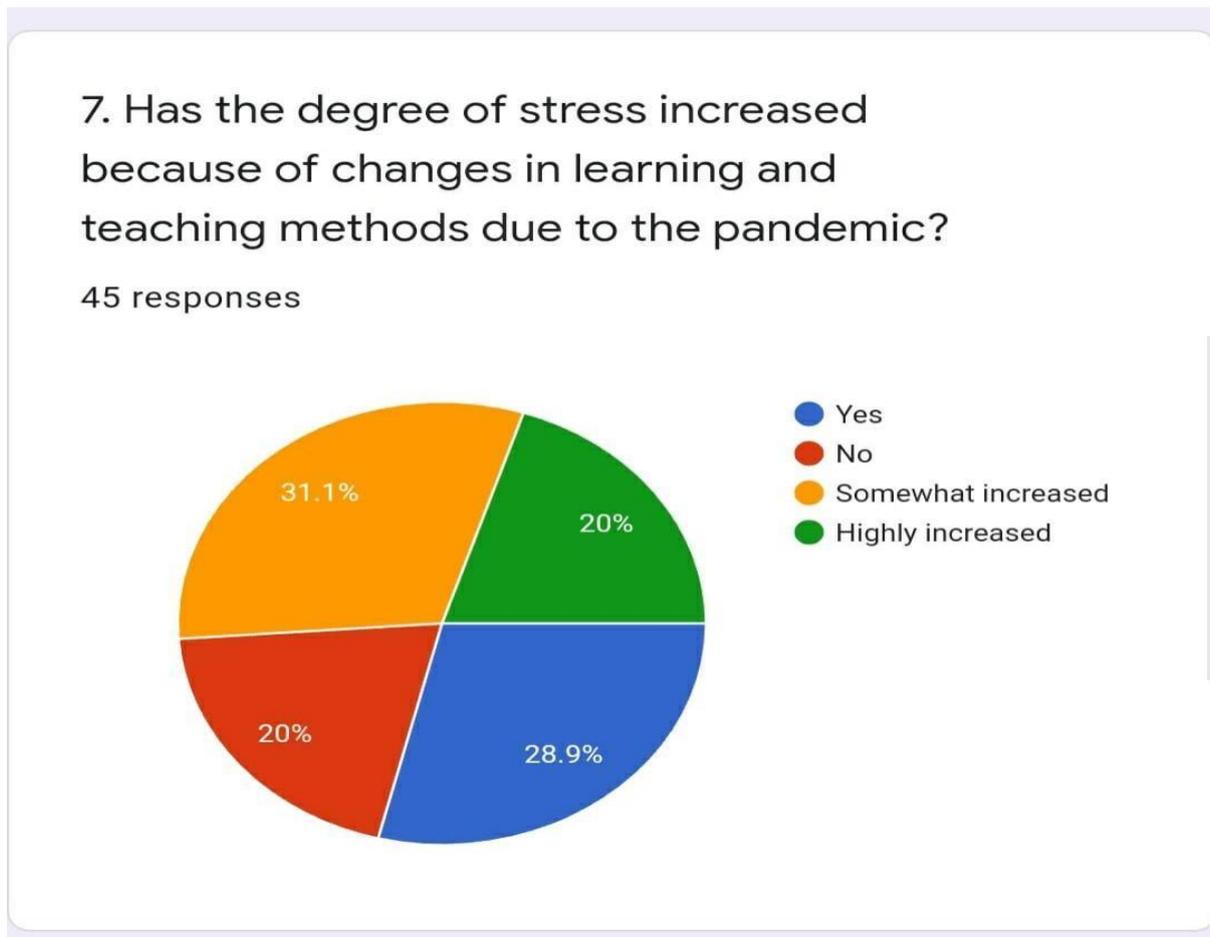


**Pie Chart 1.6 Percentage of student facing various Psychological problems.**

Psychological issues faced by the students are insomnia, Isolation, Anxiety and fear of uncertainty. Among all the problems, fear of uncertainty is faced by most of the students. All the problems are related to the fear of the unknown. To tackle this problem, students and teachers should work closely.

	Criteria	Parameter	No. of respondents	Percentage (%)
7	Change in degree of stress	Yes	13	28.9
		No	9	20
		Somewhat increased	14	31.1
		Highly increased	9	20

**12 Table no 1.7 Percentage of change in degree of stress.**

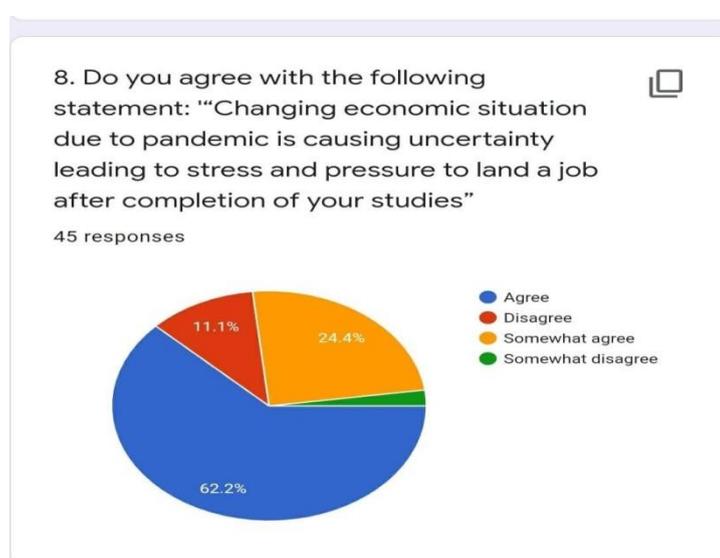


**Pie Chart 1.7 Percentage of change in degree of stress**

As visible in the above pie chart up to 20% students are severely affected by changed degree of stress in the pandemic and up to 31.1% confirm that it has somewhat affected them and almost 28.9% agree that stress has increased in lives of students since the pandemic.

	Criteria	Parameter	No. of respondents	Percentage (%)
8	Fear of uncertainty being a major stress causing factor	Agree	28	62.2
		Disagree	5	11.1
		Somewhat agree	11	24.4
		Somewhat Disagree	1	2.2

**13 Table no 1.8 Percentage of fear of uncertainty in students**



**Pie Chart 1.8 Percentage of change in degree of stress**

As visible in the above pie chart up to 89.9 % students strongly or partially agree to the statement that change in economic situation is putting extra pressure on them to land a good job.

	Criteria	Parameter	No. of respondents	Percentage (%)
9	Isolation being a major stress causing factor	Agree	24	53.3
		Disagree	7	15.6
		Somewhat agree	13	28.9
		Somewhat Disagree	1	2.2

**Table no 1.9 Percentage of students affected by isolation**

## 7. Conclusion

Overall results indicated that the highest stressor affecting the students is the uncertainty they feel regarding exams, the end of the semester, and their assessment. As stress occurs when a person is uncertain about something important, it affects both the body and mental health. Universities should be clear with their plans for exams and assessments as soon as possible, as this would help to reduce much of the stress the students are experiencing besides the stress of the COVID- 19 pandemic. Many disorders like anxiety , Insomnia caused due to an increase in course work that students are facing, specifically with internet problems and weak signals encountered by some students, is a stressor that puts students at risk as it can cause difficulties in further learning process as well. Many health related issues are increasing in university students during submission of their course work Hence, academic staff are advised to give their students more time for course work submission, are requested to be clear about assessment methods, and not to add more work as a substitute for exams because of the new situation everyone is facing.

As the COVID- 19 pandemic moves universities should instigate a number of measures to help reduce the negative psychological impact of the situation on their students, such as having proper online academic advisers, as well as psychological counselling for their mental health. Faculty members must be advised on how to incorporate new assessment methods to use with their students and embrace technology while paying attention to their students' experiences and effective learning. Decisions concerning students should not be left to individual departments, they should be maintained and issued by the university's administration to avoid confusion and provide consistency, which would reassure students' regarding fairness and alleviate their concerns.

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# Impact of COVID 19 on Micro Finance Business.

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## **Abstract**

*The Pandemic situation and its multifaceted impact are no more unknown to anybody globally. The long lasting and deep impact of it has hampered global economy adversely. Although the life blood of Indian Economy, banking and finance sector was contributing day in day out during this pandemic situation it could not save itself from the detrimental losses to the sector. The present study focuses on gravity /Intensity of disruptive impact of COVID 19 on Micro Finance Business in India.*

*The Micro finance sector is already witnessing tough times in Indian economy because of Covid 19 affected in large downfall in the business of Micro finance. This is an Empirical study highlighting the impact caused by COVID 19 on the generation of new business and managing the existing portfolio in Indian Market. The basic objective of this study is to identify the magnitude of impact of COVID 19 on the beneficiaries of Microfinance as well as on the supply side of Micro Finance. For this study six major micro finance players are selected for their individual financial and outreach data. In spite of announcement of various measures by RBI to restrict macro effect of COVID 19 on Indian economy like increase in moratorium period etc but majorly are for Private sector banks so the same is ambiguous for MFIs and hence the study becomes more significant.*

**Keywords:** Finance, financial player, micro finance, Indian economy, COVID19.

**JEL Classification:** A10, G01, G23

## **Introduction:**

The concept of Microfinance was introduced in India in the late 1980s. The primary function of these institutions is to lend money to the underserved and low-income population of society; some of them offer insurance facility in addition to it (Tucker and Miles, 2003). The financial inclusion movement has been gaining momentum since inception as NBFC and especially MFIs are playing a significant role in taking ahead of the financial inclusion agenda of the Government of India. The microfinance sector aims to provide unsecured, small loans to the underprivileged section of society across 32 states in India. MFIs have their strong network across the country with 40000 branches and a workforce of more than 3 lakh employees having a close connection with 5.6 Crore Low Income Households. MFIs are the only financial intermediaries who are standing closest to the LHIs to understand and work upon the ill impact of Covid 19. In the Covid 19 situation, Micro Finance Industry has completely suspended all debt collections and disbursements. Currently, the industry is using its widespread reach to create awareness about Covid 19 among its members (Shrivastava, 2020). The primary concerns of this sector are addressed by extending three months moratorium on loans repayments initiated from March 2020 to June 2020. Other measures are also taken like injecting additional liquidity in the financial system of the country (Microfinance Institution Network, 2020).

### **Literature Review:**

According to Financial Express Bureau's article on **Post-Covid revival: Microfinance institutions' collections rebound to 70-75% in July** published on 15th August 2020 Collections of microfinance institutions (MFIs), which had plunged to near zero in April because of the nationwide lockdown to stem the spread of the Covid-19 pandemic, have rebounded to 70-75% in July. According to Srinivas Lingamathu's (2020), Article **Impact of COVID-19 on the microfinance sector** published on 15th June 2020 in yourstory.com he has highlighted the opinion of ICRA and CRIF. According to ICRA, i.e. Investment Information and Credit Rating Agency of India, COVID-19 has resulted in a shortfall of liquidity as well as impacted on asset quality profiles of microfinance institutions and their ability to pay interest on borrowing. According to the data published by CRIF MicroLend, the portfolio at risk (PAR) for the Micro Finance sector for repayment between 31 days and 180 days recorded at 1.5 percent for Q3 of 2019-20 which is 50 percent higher on a year-on-year basis (Lingamuthu, 2020).

Malik et al., (2020), said in their study carried on **COVID-19 and the Future of Microfinance: Evidence and Insights from Pakistan** in April 2020 they focused on Implications for local microfinance institutions in Pakistan, a country with a mature microfinance sector, serving a large number of households. According to this study, COVID-19 pandemic is different from the crises that have come before. It has drastically influenced both the client-facing and the capital-facing sides of microfinance simultaneously. MFIs are suffering from both sides like a lack of repayments and a lack of access to capital and liquidity from stakeholders. According to an Interview with Hariprasad Radhakrishnan updated on 16th April 2020 as we **have to be better prepared for the post-Covid-19 scenario**, Mr Nitin Chugh, CEO, Ujjivan Small Finance Bank mentioned and highlighted that Ujjivan has the highest capital adequacy ratio of 28.3%. He further clarified that Ujjivan Group is vital in terms of portfolio quality, governance and management. Mr. Chugh in his interview emphasized that in fact, Covid-19 crisis is an excellent opportunity for MF businesses to understand their strengths, plan for the future, as many changes are expected in business models and customer behaviour in the post-crisis scenario (Financial Express, 2020).

### **Research Methodology**

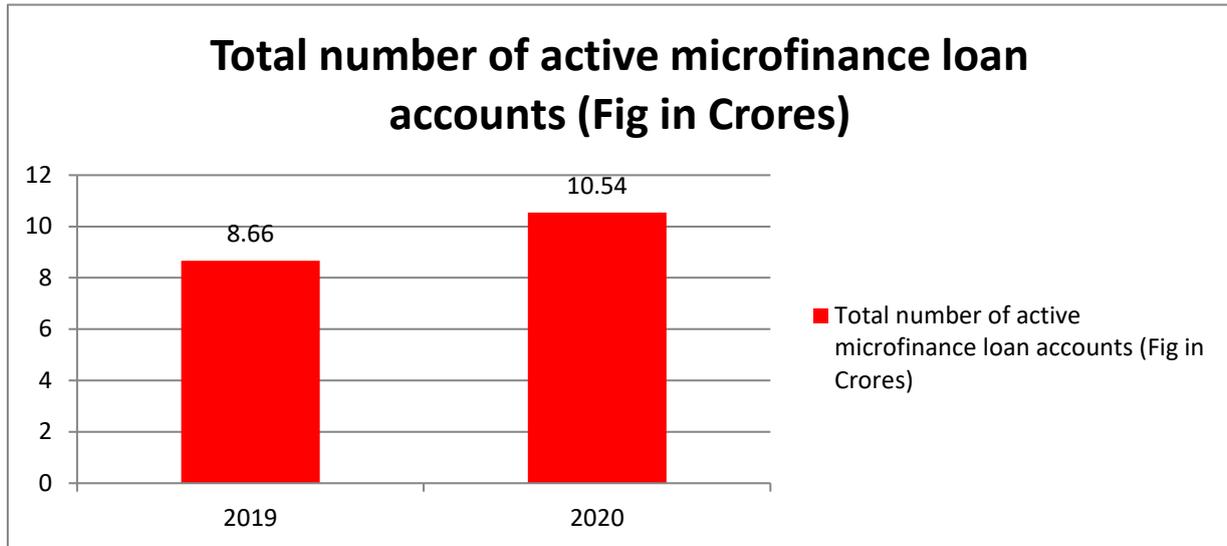
The objective of the study is to identify the magnitude of the impact of COVID 19 on the beneficiaries of Microfinance as well as on the supply side of Micro Finance. The study is related to Covid Impact on performance microfinance institutions in India. This study is focusing on the quarter one result of MFIs during Covid 19 Situation. In the limitation prospective non-availability of Quarter 2 (September 2020) financial performance data from MFIN (Micro Finance Institutions Network) and MIX (Microfinance Information Exchange).

### **Source of Data**

The study is primarily based on secondary data. The data have been collected from the Microfinance Institutions Network (MFIN), i.e., <https://mfinindia.org/>. The period undertaken for the study is the current fiscal year 2020 quarter one and two.

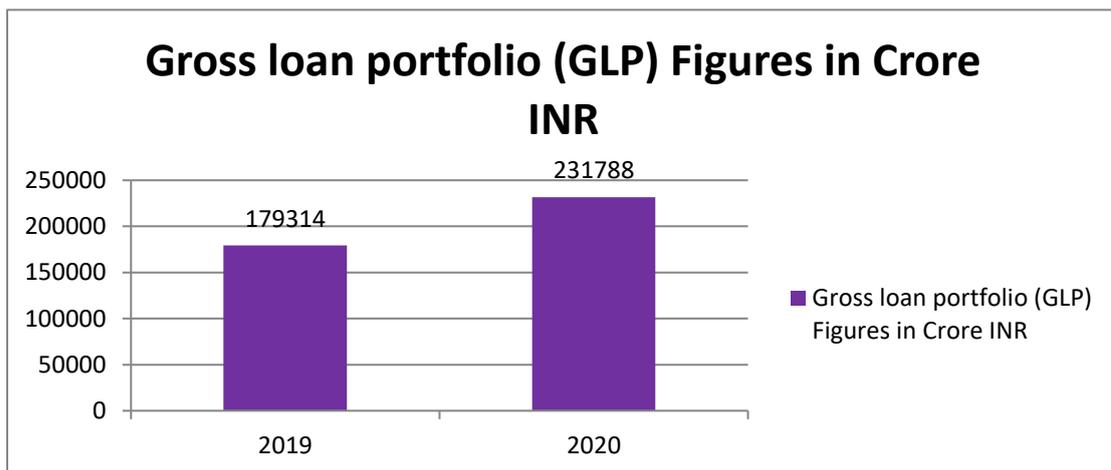
### **Data Analysis and Result:**

#### **Impact of Covid on MFI business in India**



Source – MFIN Report published on 20/06/2020 and 1/09/2020

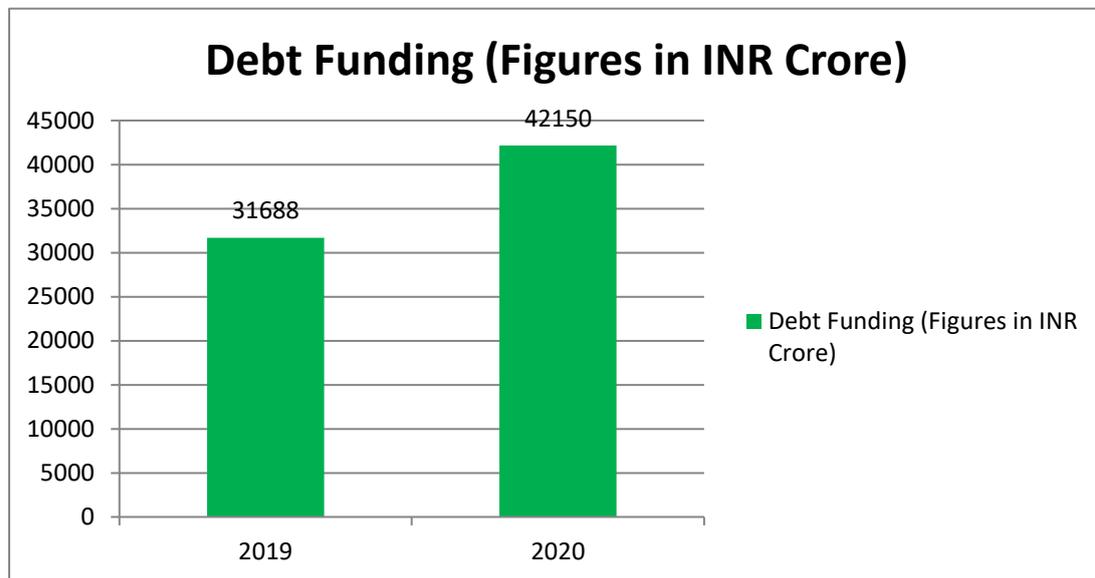
The financial reports published reflects that in the FY 2019-20 Micro Finance Industry has served more than 5.89 Crore unique borrowers through 10.54 Crore loan accounts. The Industry has registered total loan portfolio around INR 231788 crore after February 2017. Gross microfinance Loan Portfolio and Loan Accounts is showing a slow but steady increase since the last six quarters, reinforcing the rising need for active financial inclusion activity carried on by the Government of India. The total number of active microfinance loan accounts observed almost 10.54 crore as on 31st March 2020, with a remarkable increase of 21.65 per cent over 8.66 crore loan accounts as on 31st March 2019. The Total number of active microfinance loan accounts recorded at almost 10.37 Cr with 5.80 Cr unique borrowers as on June 30, 2020.



Source – MFIN Report published on 20/06/2020 and 1/09/2020

At the end of the first quarter of FY 2020-21 Microfinance loan portfolio stood at INR 2,27,727 Crore. From the published data Micrometer of MFIN, it is now clear that the Micro finance industry is serving almost 5.80 crore unique borrowers with 10.37 crore loan accounts. Positive growth of 29.26% is recorded in Micro finance loan portfolio in the financial year 2020-21, which is lending funds to more than 5.89 Crore borrowers through 10.54 Crore Loan Accounts.

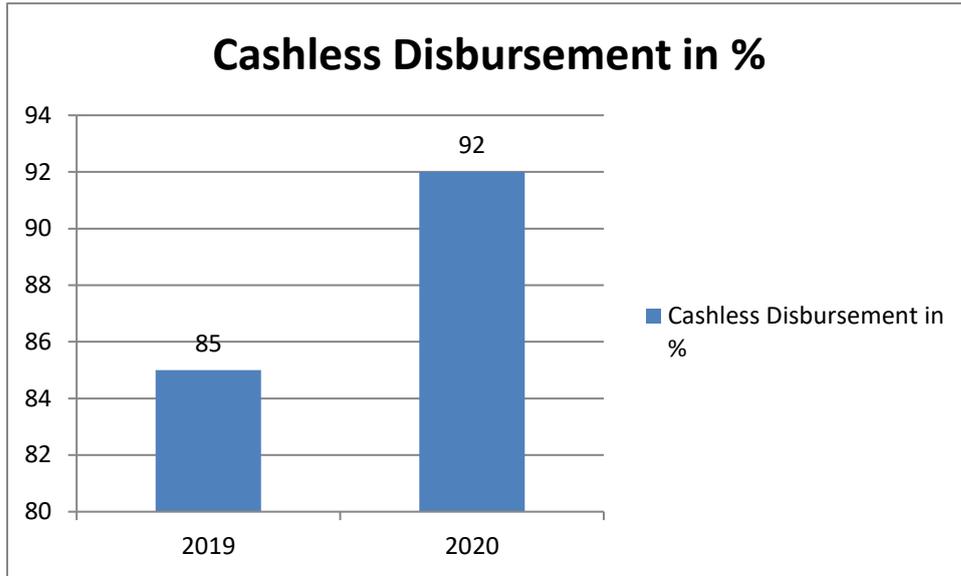
The Microfinance Portfolio and Loan accounts have reached to 170 entities as against 149 entities of last financial year. Gross loan portfolio (GLP) recorded as on 31st March 2020 is INR 2,31,788 crore, an increase of 29.26 per cent Year over year INR 1,79,314 crore as on 31st March 2019.



Source – MFIN Report published on 20/06/2020 and 1/09/2020

As far as Gross Loan portfolio (GLP) is concerned an increase of 19.43% year over year is observed, i.e. loan portfolios have increased from INR 190684 Crore as on 30th June 2019 to INR 227727 as on 30th June 2020. Similarly, Gross loan portfolio of NBFC Micro Finance Institutions registered a rise of 31% as compared to last year. The current portfolio stood at INR 74371 Crore for last quarter of FY 2019-20. The other remarkable development in NBFC MFI is it stood at INR 72170 Crore on 30th June 2020 with a rise of 25% compared to 30th June 2019 but -3% in comparison with 31st March 2020 (The Economic Times, 2020).

The other side of the coin is NBFC is the supply of funds to MFIs; NBFC MFIs have received a total of INR 42150 Crore in debt funding in the financial year 2020 which contributes 33% increase as compared to INR 31688 Crore during financial 2019. There is total equity growth of 40% in Q1 of FY 2020-21 as compared to Q1 of FY 2019-20 and is at INR 16807Crore.



Source – MFIN Report published on 20/06/2020 and 1/09/2020

MFIs cashless disbursement shows upward moving curve from left to right. More than 92% disbursement of FY 2020-21 is done in the cashless mode, which was recorded 85% in FY 2019-20. During this pandemic situation among the total MFIs registered in India, the top 10 accounted for almost 71% of total disbursement. Average loan outstanding per account as on 31st March 2020 was Rs. 19034, which is almost 6% higher than that of the previous year. In spite of Covid 19 pandemic situation Microfinance loans amounting to Rs. 570 Crore are disbursed in the June quarter of FY 2020-21 through 204000 accounts. In this first quarter of the financial year, 2020-21 rise of 4% is recorded in average loan disbursement per account, which is accounted for Rs. 27996. Even in this pandemic situation, the MFIs Interest rates are much below than the permissible threshold limits sanctioned by Reserve Bank of India. In the entire network of Micro Finance top 12 banks owns the largest share of portfolio in microcredit with that of the total loan outstanding, which is 40% of the universe amounting to Rs. 92675 Crore. Along with the Banking Industry existing in India, NBFC-MFIs are the next largest providers of credit. The contribution of these institutions is almost 31.1% of the total Industry portfolio accounting for 70819 Crore as outstanding loans. Small financial Banks have their own stake of almost 17.4 percent in the total loan outstanding amounting to Rs. 39667 Crore. In the composition on total registered organization, NBFC accounts for 9.8%, and other MFIs account for 1%.

In the recent records, it is found that the Gross Loan Portfolio includes a self-owned portfolio of Rs 55,296 Cr and managed a portfolio of Rs 16,874 Cr. As per recent reports, the five top states in terms of loan amount outstanding for MFIN Member NBFC-MFIs are Bihar, Karnataka, Tamil Nadu, Odisha and Maharashtra. These states account for 48 per cent of the Gross Loan Portfolio and the Top 10 states of MFIs account for 80 per cent of the total loan amount outstanding.

As on 30th June, the top 10 MFIs has set an extraordinary example by disbursing 96% of total NBFC MFI Industry disbursement for the said period. As far as debt funding is concerned NBFC MFIs received an almost equal amount of INR 5973 Crore in O1 of FY 2020-21 and Q1 of FY 2019-20, but it is almost 52% lower than Q4 of FY 2019-20 This again reflects the impact of Covid. At the end of the first quarter on an aggregated basis, NBFC MFIs have a network of 14,167 branches with more than 1,09,239 employees. Based on Q1 FY 20-21 data available for 52 NBFC MFI Members, loan amount disbursed through cashless mode is 93 per cent. As on 30th June 52% member, NBFC MFIs reported that 90% plus disbursement is done through

cashless mode while 42% reported zero disbursement in this quarter due to Covid pandemic situation. During the first quarter of FY 2020-21 drop in the loans disbursed is noticed. NBFC MFIs have disbursed 204000 loans amounting to INR 570 Crore which is much lesser than that of the previous year. In 2019 MFIs disbursed 59 lakh loans amounted to INR 15865 Crore. Which clearly indicates the impact of Covid can be understood.

### **Discussion and Conclusion**

Indian MFIs are growth-oriented. Equity holders will be more interested in investing in Indian MFIs. It is clear from past records and current trend that MFIs allocation of assets to their lending activity is greater for India. The gross loan portfolio of Indian MFIs has gone up by 19% in spite of Covid 19. The growth rate of the number of active borrowers of Indian MFIs is higher and rising continuously, so it assures financial inclusion. Majority MFIs were operating continuously. All most all branches of various MFIs were operational with very limited staff. Business continuity plan was functional, and ATMs were functional. Covid 19 has proved that Indian MFIs have reached the depth of outreach. Profitability in terms of return on equity is rising in Indian MFIs. The portfolio shows that Risk coverage is high for Indian MFIs.

The first quarter of the financial year April to June 2020 quarter has been unprecedented both for microfinance lending institutions and microfinance borrowers. Although this Covid 19 Lockdown has impacted the livelihood of Micro Finance customer drastically, MFIs without fail extended moratorium to its customers as per RBI guidelines. However, the moratorium was not extended to Micro Finance customers by all lenders, which subsequently resulted in financial stress to customers of those MFIs. Special Policy support in the form of TLTRO (Targeted Long Term Repo Operations) and Special Liquidity Facility assisted majority MFIs to overcome the difficult pandemic period. The COVID Pandemic period truly demonstrated the elasticity of the Micro Finance sector and its ability to adapt to the changing situation. Micro Finance Industry majorly adopted remote back-end operations, increased use of digital methods for spreading client awareness on COVID protocols and moratorium as well as repayments. The successful application of digital India mission has seen an empirical proof during the Covid period with MFIs spread across the nation. MFIs are conducting virtual group meetings to keep their client connect in very interior geographical locations too. The upward and positive growth is evident in the Micro Finance sector as borrowers seek to start the credit cycle to rebuild their livelihoods and funders and investors maintaining their support to meet this liquidity need. With the conversion of policy objective into actual liquidity flow to small and medium MFIs, we can certainly hope that by the end of this year, the repayment and disbursement cycle will move slow but consistently towards pre-COVID times.

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# The Effect of COVID-19 Pandemic on Tourists Behavior

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## **Abstract**

*The COVID-19 pandemic has a huge effect on all aspects of human life including traveling. It shows not only in tourism sector of economy, but also in people's minds. Current article represents the research about changes in tourist behavior after the almost a year of living in emergency. Travel restrictions mostly affected people who go on vacation, that is why the accent in the research is made on them. Relevant literature shows different data about people's willingness to travel which depends on number of factors: external and internal. For better understanding of the ongoing situation was created a questionnaire, the results of which are analyzed and presented in the article. The received data can be used by government, destination management organizations and tourism-related companies to plan their future activities.*

**Keywords:** COVID-19, independent travellers, organized travellers, tourist behaviour.

**JEL Classification:** L83, Z310, Z320, Z330

## **1. Introduction**

First cases of the atypical pneumonia were registered in China in the end of 2019. Since then unknown virus spread all over the world and as of October 30, 2020, it infected over 40 million people and caused approximately 1 million deaths (WHO, 2020). During the last one hundred years humanity did not deal with the pandemic of such a dangerous and wide spread virus. It had to be stopped, that is why a number of countries applied special rules on people, stores, and educational institutions. A lot of countries closed their borders, touristic traveling was banned. Such a restrictions had a huge impact on many people: they had to change their life habits, working schedule or even lose their jobs. Of course, all these changes caused problems in different spheres: social, political, environmental, and economic. Economic sector suffers the most. Until this moment there is no exact numbers of how much the COVID-19 pandemic is going to affect it. Than longer the situation takes the worse the forecasts are. In the beginning of 2020 specialists could only talk about possible recession on the market, but it was not clear how exactly it is going to progress offering different scenarios from optimistic to pessimistic ones (Carlsson-Szlezak, P., Reeves, M. & Swartz, P., 2020). Seven months later, after the pick of the COVID-19 crisis in China was over, people saw the actual way of economic recovery. Of course, the recovery process depends on many factors, as well as many factors can have a negative effect on it. In China, for example, it is high levels of debt, declining return to capital accumulation, and a shrinking working-age population in China (Clark, H., Dawson, J. & Pinkovskiy, M., 2020). However, in case of China, IMF (International Monetary Fund) predicts a positive number of the GDP in 2020 (IMF, 2020).

Tourism is one of the most important sectors of economy. In 2019 it had over 10% of the global GDP (Gross Domestic Product) (WTTC, 2020). Economies of some countries fully depending on tourism activity. According to UNWTO (United Nations World Tourism Organizations) 1.3 billion people traveled in 2017, the number was the same in 2018. In 2019

statistics shows 1.4 billion of international-tourist arrivals around the world (Blackall, M., 2019). In the same time tourism is one of the most affected sectors of the global economy (Alyazeera, 2020). UNWTO (2020) predicts that the tourism industry will lose 850 million to 1.1 billion international tourists, US\$ 910 billion to US\$ 1.2 trillion in export revenues, and 100 to 120 million jobs only directly related to tourism sphere are at risk.

The fear of being detained in the airport or in the hotel room for running tests or quarantine, getting infected with the new unknown virus and not being able to come back home made a lot of tourists and potential tourists cancel their plans. As a result, accommodation providers, transportation companies, tour operators, travel agencies and tourists themselves had huge losses, because none of them could imagine that such a thing might happen and nobody knew how to insure themselves from it. There are few examples of how tourism destinations suffered from it.

The tourism industry usually contributes almost 12% of London's GDP and accounts for one in seven jobs in the capital. However, during the pandemic the number of foreigner tourists decreased on 77% and domestic ones on 48% comparing to 2019. As a result, London lost over £ 10 billion that could be contributed into the economy by potential tourists (London Datastore, 2019).

Another example is the economic situation in Europe. Main restrictions about COVID-19 pandemic appeared here in April and since then the total service sector decreased on 16%, the tourism service sector fell on 75%. However, if the catering and accommodation services have the largest recovery, and transportation sector slightly get better, the travel agencies and tour operators do not have a chance to improve their situation (Eurostat, 2020).

There are people who think that the reason of why the tourism is affected that much is because some countries did not take the issues seriously from the beginning. In spring of 2020 specialists were saying that tourism professionals should focus on the last quarter of 2020 because the industry needs about ten months to recover from the COVID-19 pandemic (Aslanhan, U., 2020). However, now, when the situation changed and it is clear that the so-called "second wave" of the COVID-19 pandemic appeared, it is impossible to say when exactly people can start freely traveling again. Of course, it is related to the leisure travelers. People who are traveling for work or study still able to enter the country after fulfilling the needed procedure. As an example, international students can come to Hungary if they are ready to stay in quarantine or complete two negative tests for COVID-19.

Not only popular mass destinations suffered from the current situation, but also countries and places that were organizing global events, such as "Eurovision Song Contest" in Netherlands, "Asian qualifiers for the 2022 World Cup" in Qatar, St. Patrick's Day parades, "Cherry Blossom Festival" in Tokyo, "National Hockey League", "Baseball League", "Met Gala" and many other concerts, festivals and meetings had to be canceled. However, it was decided to make some of the events without the audience or online. For example, "WWE" (World Wrestling Entertainment), "Olympic Games" in Tokyo. (Zraick, K. & Garcia, S., 2020).

There is a way of supporting the tourism. The managing director of WTTC (The World Travel & Tourism Council) Virginia Messina suggested that governments of different countries should create good conditions to encourage people for traveling after the pandemic, for example, lowering taxes, increasing marketing budgets for destinations, removing or simplifying visa processes and allow people to postpone planned trips, not to cancel them (Faus, J., 2020). But how much time does tourism need for recovery process? Months? Years? At this moment nobody can tell for sure, because it need some steps. Medical safety is the most important step, that is why finding or creating the vaccine of COVID-19 is the top priority for WHO and every country. The economic situation in the world should improve, so different tourism related

organizations will be ready to accept tourists. Another important part is people and their willingness to travel. There are some factors that affected people, shift their incentives and lead to changes in their behavior. First of all, economic crisis caused by COVID-19 pandemic affected people's financial situations, what made them cut the expenditure of "luxury" goods and services, including tourism. Another reason is the boarding restrictions that prevent free movement of people established by the government of many countries. Mostly it includes running the high priced tests or long-term quarantine, which may last longer than the trip itself. In both described cases people might want to travel, but they are not able to (Barkas, P., Honeck, D. & Rubio, E., 2020).

Second of all, even if people have money for traveling and they want to, they might be afraid of going on a trip right after the pandemic. Similar effect was noticed after any catastrophe, disaster or a plane crash. According to statistics, presented by Evans, N. and Elphick, S. (2005), after the event of 9/11 the number of tourists all around the world decreased comparing data in 2000 and 2001:

- Africa: -1.4%
- Americas: -20%
- East Asia/Pacific: -4%
- Europe: -6.5%
- Middle East: -20%
- South Asia: -24%

Also for the last eleven months every possible source of information reminds people to wear masks, use sanitizers and practice social distancing. These instructions would stay with us for a while after the COVID-19 pandemic would be over. And the fear of getting infected will follow potential tourists, so they would prefer to postpone their traveling plans (Wilks, J., 2020).

On the other hand, there are travelers who did not take seriously the risk of getting infected from the beginning. Those people were traveling or would travel if they could during the pick of pandemic in spring. They also had their motivation factors. One of them is low price for plane tickets, another one is willingness to see usually crowded places free from tourists. For example, water channels in Venice with the clear water. At some point mass media started sharing the information about wild animals coming out of their usual area to the city, deers in Japan and monkeys in Thailand for example. Such a unique experience might also attract people (BBC, 2020).

To understand how exactly the COVID-19 pandemic is affecting people and their plans to travel, what kind of sources they trust and how fast they are ready to travel again is the purpose of current research.

## 2. Material and Methods

The goal of current research is to understand how the COVID-19 pandemic affected peoples' decision to travel and traveling habits.

**Table 1. Research questions and hypothesis correlation**

Research questions	Research hypothesis	Research Methods
How did the behavior of the organized tourists changed due	Organized travelers trust travel agencies as a source of information	Primary data

the COVID-19 pandemic?	about travel restrictions and danger due COVID-19 pandemic	Secondary data
How did the behavior of the independent tourists changed due the COVID-19 pandemic?	Independent travelers trust official information and other travelers as a source of information about travel restrictions and danger due COVID-19 pandemic	
Do people travel less?	Travelers of both types travel less	

Source: Based on my research (2020).

Secondary data was taken from the professional literature, scientific articles, official documents, websites of global organizations, Internet sources, etc. As an instrument of the primary data collection for current research was created an online questionnaire to study the point of view potential tourists. The distribution of the questionnaire took place in the Internet according to the principle of the snowball sampling (also known as chain sampling and referral sampling). The questionnaire was made in Google Forms because of its easy use, access and converting the results in Excel table. The research took place in November 2020. The questionnaire includes fifteen questions and consists of four parts:

1. The first part contains general questions about the travel habits of respondents to understand where, how often, with whom they prefer to travel and why.
2. The second part consists of only one question: “Please indicate the way of traveling which you prefer: Organized tours or Independent tours”, to separate these two types of travelers.
3. The goal of the third part is to collect the data about changes in travel habits of people after the COVID-19 pandemic, the reasons of it and also their willingness to travel in the future.
4. The aim of the last part is to collect data about demographic characteristics of respondents: age group, marital and material status, place of living.

The survey includes questions with the multiple choice, possibility to give short answer and the six point Likert scale. In my opinion the six point scale is more useful than the standard five point scale, because I would like to replace the option “neutral” with “slightly disagree” and “slightly agree” options that will make the received data more accurate. In current research the Likert scale question is helping to understand how people receive the information about COVID-19 pandemic and restrictions, related to it.

In the same time two directors of travel companies in Russian Federation were interviewed to obtain data about current situation on the tourism market from the professional point of view. The interview contained different questions about the tourists’ behavior after the COVID-19 pandemic started, how travel agencies trying to encourage people to travel and what are tourism specialists’ forecasts for the future.

During the data collection process for current research two interviews were held. Both interviewees are representatives of travel companies in Russian Federation. First one is Natalya Goryaeva, the director of “Tour Visa Travel”. This travel agency is located in capital of the country, Moscow, and specializes on outbound tourists. Another person, who agreed to give an interview is Irina Nikogosova, the director of “Visa Service” – tour operator of domestic destinations and travel agency of international destinations in Krasnodar region on South of

Russia. Both of the directors are very experienced, each of them have about fifteen years of working in tourism industry. These companies were chosen because of the difference in their activities and their location. Based on these factors the received data may be different and it will show difference between people living in the capital and the region; or it may be the same, what will show the similarity in organized travelers' behavior.

### **3. Results and Discussion**

#### **3.1 Interview results**

The data analysis of the travel companies' directors showed some common tourist behavior according to current situation in tourism sphere. According to both of them, after the COVID-19 pandemic started people are traveling less. In case of travelling to the international destinations it can be explained by the fact that a lot of governments created special borders restrictions to prevent contagious people from entering the country. After this tourists had three options:

##### **1. Changing a destination.**

This option was acceptable for those tourists, who only wanted to go on vacation and for whom the destination did not play an important role. For example, in summer 2020 those people could visit Turkey, Abkhazia, Belarus or Russian resorts: Sochi, Lago-naki, Dombai, and popular city-tour routs, such as "Golden Ring". Also, during the pandemic, new touristic destinations in Russia were highly promoted, Kaliningrad, for example. According to Irina Nikogosova, because of the COVID-19 pandemic and travel restrictions those people could explore Russia. However, the reason why most of people choose Russian destinations is fast grow of euro and dollar exchange rate, and even if tourists wanted to go abroad to Turkey or Egypt, they had to pay extra.

Interesting situation happened with tours to Egypt. It was open for booking, however there were no direct flights, because of the Russian government restrictions. In this case tour operators managed to organize a transit flights via airport in Istanbul. Not a lot of people tourist agreed on such a trip, because of the increased time and price of traveling, but not because of governmental restrictions, tourists trusted the travel company in this situation. As a result, this trip was banned by the government.

##### **2. Postponing the trip.**

In the situation, when tourists did not want to change the destination of their tour or they are afraid of traveling because of the threat of getting infected, the tour operator could keep the amount of money, creating a deposit. Natalya Goryaeva noted that people, who got used to a "higher class" places than Turkey, for example, Spain, Malta, Italy, prefer this option, because later, when the situation stabilizes, they can spend this deposit to choose another tour. It should be noted, that both interviewed specialists mentioned the fear of COVID-19 as a reason of cancelling or postponing trips. In Natalya Goryaeva's opinion, 30% of travelers changing their plans because of this fear.

##### **3. Requesting tour operators to return the money for a tour.**

Some people, who could not or did not want to change their travel plans asked tour operators to return money for the tour. The knowledge about other possible solutions and the fee did not affect their decision. The reason of it is the possibility to spend those money on other spheres of life, especially during pandemic time, when a lot of people lost their jobs.

On the question about the future of the tourism industry both interviewees are noticing, that people in Russia do have money for traveling (it can be the amount of money that they received

after their tour was cancelled, or the deposit), and they do want to travel. Irina Nikogosova gave an example of her company, where people already booking winter tours to different parts of Russia. Also, she assumes that the spring holidays (in the beginning of May) are going to be a “hot season” for travel industry in case if the pandemic will be over. The most favorite destinations are going to be: Georgia, Abkhazia, Ossetia, Crimea, Sochi. However, the fear of getting infected by COVID-19 and constantly changing travel restrictions make potential tourists to think twice and postpone their trip until the “next time”.

### 3.2 Questionnaire Results

The total amount of responses that were collected during the research is 101. The age group analysis shows that 99% of respondents belong to the following age-groups: 18-24, 25-35, 36-50. It can be explained by the “snowball sampling” that was used during the distribution of the questionnaire. In the same time almost 70% of people are students, which can be explained by the chosen distribution channel – Facebook pages of the Szent Istvan University, the main audience of these groups are students. Also, the online form of the survey made it easier and faster for them to get an access and fulfill the form. Another factor that was strongly influenced by the distribution channel of the questionnaire is the place of residents. According to received data, more than 80% of respondents live in Hungary. Only 5% of respondents said that they do not travel, other responses vary between “one” and “more than three times” per year.

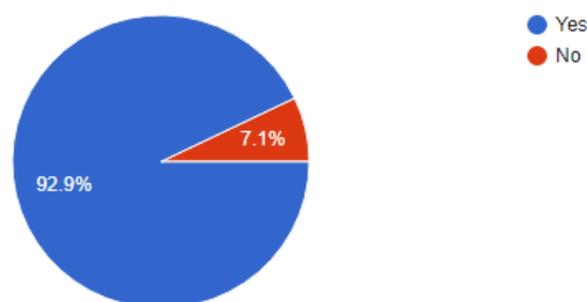
Also for current research the motivation of tourists has an important role. Since different purposes mean different restrictions that are applying on the traveler. For example, people with student or working residents permit can enter Hungary, whereas people with touristic visa cannot. Business and education purposes were chosen by 34 respondents, 95 people chose touristic goals.

In order to find the answers for the questions of the research and prove or disprove the hypotheses, it was important to divide travelers according to preferred way of traveling: Organized or Independent.

#### 3.2.1 Organized travelers

Only fourteen respondents chose the organized way of traveling as their usual one. Among them only one person said that amount of his/her trips per year did not change since COVID-19 pandemic started. However, other people indicated that they do travel less and the reasons of it are listed from the most chosen one to the list: traveling restrictions, fear of getting infected, lack of money; and proving the point of the interviewed representatives of travel companies.

**Figure 1. Do you travel less since COVID-19 pandemic started?**



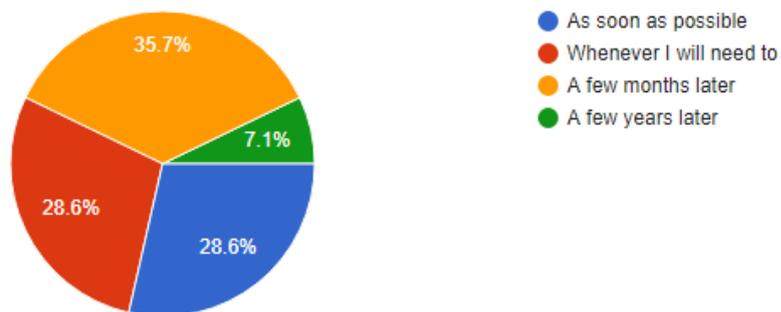
Based on my research (2020).

The Likert scale analysis showed that people, who prefer organized way of traveling check the COVID-19 related info on official sources and in mass media equally. In the same time the

overwhelming number of respondents (12 out of 14) trusts travel companies and a little less trust the experience of their relatives and friends.

The respondents' opinion about their future traveling was divided into three major groups: people who is going to travel as soon as possible, who will travel whenever he/she will need to, and the ones who will travel in few months. Last option received the bigger amount of answers and it can be explained by people's fear, they would like to make sure that traveling is safe.

**Figure 2. Imagine that the Pandemic officially will be over in 2021, when are you ready to travel again?**

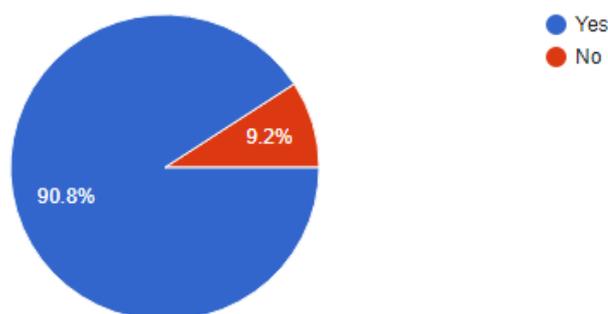


Based on my research (2020).

### 3.2.2 Independent travelers

Most of the respondents, 86%, prefer independent way of traveling and 90% of people said that they are traveling less since COVID-19 pandemic started. The situations here is very similar to the situation of organized travelers: the leading reason is the traveling restrictions, then the fear of getting infected, and then the lack of money. One person mentioned, that he/she is afraid to infect somebody during the traveling.

**Figure 3. Do you travel less since COVID-19 pandemic started?**



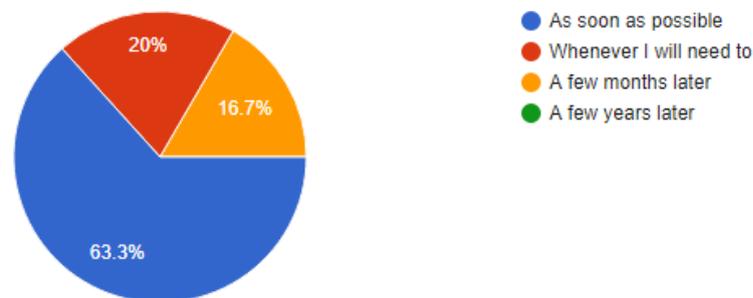
Based on my research (2020).

The Likert scale analysis showed that the main sources of information for 70 out of 87 independent travelers are the official data providers, governmental and global organizations' websites. Less people trust mass media. More than half of respondents trust the experience of their friends and relatives, and in question of social media figures people's opinion was divided in halves: one half trust Internet bloggers opinions and experiences, another half not.

In the future, when the situation with the pandemic will improve and the travel restrictions will be removed, more than 50% of respondents are ready to travel as soon as possible, however

a lot of people still need a time for recovery: material and mentally, and to evaluate the situation after the COVID-19 pandemic.

**Figure 4. Imagine that the Pandemic officially will be over in 2021, when are you ready to travel again?**



Based on my research (2020).

#### 4. Conclusion

The data analysis of 101 completed questionnaires and two interviews with the professionals in tourism sphere, along with the review of official sources of information, government and statistic data analysis made possible to answer the questions and also prove the hypotheses of current research.

The most obvious hypothesis says that people travel less after the COVID-19 pandemic started. During the research there were found few reasons of it: boarders restrictions, fear of getting infected and lack of money. According to the questionnaire and interviews all this reasons can influence people's decision about traveling.

Another hypothesis says that organized travelers trust travel agencies and do not follow the updates about current situation. The example with tours to Egypt proves the point, in the same time, it is not fair to say that all organized travelers ignore official sources of information. However, the percentage expression shows that more of independent travelers checking the trustworthy data.

According to the last hypothesis, independent travelers trust the opinion of Internet bloggers during the COVID-19 pandemic, however, the questionnaire showed the 50/50 chance of such a possibility, so I cannot count it as a proof, and I would say that this question need more deep research.

Tourism services in the future will reflect the changes occurred or expected in the behavior of consumers during the last year. These changes will unavoidably affect both demand and supply. That is why the current results might be useful for a number of specialists within the tourism industry and related sectors as well. The tour operator companies can correct the work with their target group based on the changes during the COVID-19 pandemic, and offer new destinations or type of tourism. Travel agencies can improve the marketing and customer service. The service providers, such as transportation, accommodation, catering companies, can understand what kind of demand and how high it is going to be in the near future. Government and destination management organizations (DMO's) of different level can improve the destination.

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# Examination of corporate competitiveness in relation to Unix Auto Ltd

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## **Abstract**

*The issue of competitiveness is an extremely important factor for companies. How to be more profitable than your competitors, how to get more advantageous market position, are all important questions. Adapting to market changes often causes serious challenges. Unix Auto Ltd. is currently the market leader in the Hungarian car spare parts market. The competitive advantage of Unix Auto is due to its many strengths and strives to develop, grow and expand its customer base by taking advantage of its opportunities. In the course of my research I present the current market situation, strengths and weaknesses of the company. With the help of a SWOT analysis, I studied that how the company can take advantage of its market advantages, how it could further develop, improve its market position and formulated proposals for the company's competitiveness.*

**Keywords:** competitiveness, profitability, market challenges, development

**JEL Classification:** O10, O12, O20

## **1. Introduction and literature review**

Every company is interested in being a successful, profitable organization and gaining a continuous competitive advantage in the market. Be better and faster than your competitors, be in a better position. We can hardly name a business that has no potential competitors in the markets. Targeted investments are needed in an area that actually result in a particular company having a distinctive ability and thus being able to meet needs in a different or novel form. Every company is interested in gaining and maintaining a competitive advantage, because that is what ensures advantageous market positions on a lasting basis. Competitive advantage is the sum of the organizational capabilities that can be used to meet consumer needs at a much higher level than before. Violation of market norms influences business decisions and corporate efficiency. (Reszegi & Wimmer, 2010)

Changes in the global economy have had a significant impact on the business and structure of the business sector in Hungary. Many foreign-owned companies relocated their operations to Hungary, which divided the Hungarian business structure into two large parts, a foreign and a domestic-owned sector, which of course had a significant impact on the Hungarian and regional car parts markets. The majority of Hungarian-owned enterprises are either suppliers of foreign-owned subsidiaries or players in local markets, but have become competitive players through their business activities. Within the national economy, yet in a global economic context, the two groups of companies need to find the right answers to the new economic and environmental

challenges in order to increase their competitiveness, so creating, maintaining and increasing competitiveness has become a fundamental goal for all businesses. The competitiveness of companies in a given business line in a region, including, of course, the automotive spare parts market, is worth examining and analyzing not only at the macro but also at the micro level. In addition to the obvious effects related to the sector and the size of the company, the competitiveness of each company can be affected by different factors, depending on the markets of the company, its business expectations, technological development and intensive innovation activities. at the company. This is no different for companies affecting the Hungarian and regional automotive spare parts market. Factors that can be observed at the micro level can affect a company's competitiveness in several areas. They can have an impact on the cost side through tax burdens and wage levels, on the institutional side due to defects, uncertainties related to the functioning of the country's institutional system, or due to the unpredictability of contractual relationships in the market. On the third side, in connection with the infrastructural development of the given country or area, where the examined company or group of companies operates. Fourth, in terms of cost level and product quality, the technological level of the company's procedures, production and corporate governance methods affect the company's competitiveness. Last but not least, human resources, the level of qualification, adaptability and reliability of the employed workforce can be taken into account.

Some of these factors are over which companies can have a greater or lesser influence, so by taking into account external conditions, companies are able to improve on the factors that otherwise affect their competitiveness, even in the short term. This is the case, for example, with the choice of corporate governance methods, or in the case of human resources, when the company improves the qualification level of its employees with in-house training and courses. Other factors may be influenced by companies, but changing them is conceivable in the longer term on the one hand, and at a higher cost on the other hand. For example, the introduction of new logistics technologies, the search for domestic suppliers of the right quality and accuracy, and the high level of service development. The practical significance of the corporate competitiveness study lies in clarifying the concepts related to corporate competitiveness and presenting the economic and competitive factors that affect the competitiveness of companies. The theoretical significance of the topic is that in our ever-changing economic life, the automotive spare parts market has undergone radical changes in recent years, so our business knowledge is incomplete due to the reorganization, thus providing new research results. One of the main aims of the research is to clarify the most important correlations with a theoretical approach to competitiveness, and another main aim of the study is to rank the most important economic and competitive factors that appear in business performance and affect the competitiveness of companies.

### ***1.1 Competitiveness***

Competitiveness or becoming more developed is not an impossible task for any business, it is only necessary to be able to make the right decisions and to ensure the conditions that can promote competitive operation. Becoming more competitive is a fundamental goal for all businesses and business organizations today, as being competitive creates the opportunity to be much more successful and productive in the globalized markets of the future.

The basis for the development of competitiveness research is macroeconomics and international economic theories. Their study focuses primarily on the factors influencing the development of international trade. Their explanatory theories focus on comparative advantages and demand and supply side factors.” (Gyuris, 2007) One of the representatives of the classical economic approach is Adam Smith, who researched the ways of enriching nations and formulated the

principle of absolute benefits. "An absolute advantage in international trade is when a country has an advantage over another country in terms of labor productivity and cost levels in the production of certain products, it has higher productivity or lower cost levels." (Szentes, 1999)

Corporate competitiveness is the ability of a company to offer products and services to consumers on a lasting basis, while complying with social responsibility standards, which they are more willing to pay for than the products (services) of competitors on terms that are profitable for the company. The condition for this competitiveness is that the company should be able to perceive and adapt to changes in the environment and within the company by meeting market competition criteria that are permanently more favorable than those of its competitors (Chikán et al. 2006b). With competitiveness we can compare the ability of enterprises, groups of enterprises to sell products or services in a given market. The competitiveness of companies is the ability of firms operating in a market economy to serve solvent demand with an increasingly profitable supply. (Palota&Virág, 2016) In today's accelerated and global world it is essential that the companies are will be aware of the crucial importance of human resources, whose the proper selection and training is the essential element in order to maintain and develop the economic competitiveness.

The competitiveness of firms is nothing more than the result of being able to develop and maintain special competitive advantages that are different from others. The basic question of competitiveness management is how the company chooses the race track on which it wants to compete. This decision is made by examining two main groups of factors. One is what the company's capabilities and resources make possible. The other factor is the value system, philosophy and approach of the company's management.

The key factor is for the company to create more value for its customers than its competitors, which really matters how efficiently and innovatively it utilizes its resources.

Nowadays, the human field is playing an increasingly important role in maintaining competitiveness. These responsibilities may include knowledge management, the establishment and operation of corporate universities, building an organizational culture, and strengthening social capital within the company. Through its activities, it creates value and improves the company's competitiveness.

The human function as a whole must be emphasized, it must be part of the strategy-making and implementation processes. (Fekete, 2006) The field of HR requires high-quality professional work, which relies on a proper theoretical foundation and practical experience at the same time. The impact of this work on company results can be measured, the most important of these tasks is value creation and increasing the company's intelligence capital. It is important to provoke debate in the greatest possible way, thus contributing to the improvement of competitiveness, and to develop practices that can help a company become more competitive thanks to its employees. (Csath, 2010)

Today, we are witnessing global changes that are forcing companies to force change, demanding change from them. All this has a significant impact on human resource development. Improving communication, analytical and decision-making skills will become of great importance. To meet the challenge of companies, consciously structured training programs are needed. Due to the globalization of business, there has been an increased demand for access to expertise anywhere. In order for a company to thrive in this environment, its educational programs must provide an opportunity for its employees to learn materials even on the go that are relevant to their position and available on demand.

The global economy requires well-trained staff, since the tasks are increasingly become more complex, therefore employees need more effective and well-defined education. As companies

adapt to changes in the environment, they create training systems to help their employees in the process of adaptation. The purpose of the training is for the individual to meet the current or future requirements of the organization and to be able to do their job effectively. The quality means for Unix Auto to work from beginning without mistake. The process quality and process orientation reduce the costs, increase the profitability and advance the procedures in order to meet the rising requirements. All these factors are base of the quality strategy.

For this reason, the company consequently applies the manner of the preceding quality assurance, learns from the mistakes and is able to overcome the reasons of the difficulties as well as hand over its experience to all production areas for the purpose of preventing.

Moreover, in the case of the all fields, the corporation provides the full support for the customers and strives for perfection, therefore it is obligatory for all that to reach the best possible quality.

## ***1.2 Human resource management***

Human resources play the biggest role in the operation of an economic organization. Due to the special peculiarities and characteristics of the labor force, it cannot be compared to any other production resource. Human resources also play an extremely important role because the efficient use or operation of other resources would be impossible without the involvement of human factors. Employees should be seen as investments in human capital that can be achieved through continuous training and development, efficiency gains at the organizational level. Effective strategic thinking emphasizes the need to secure, manage, and motivate human resources. Basically, the role of HR is also to ensure continuous internal development and improvement. (Poór, 2016)

The quality, efficient use and development of this resource in knowledge-based organizations is of particular importance, as it is the only way for them to make full use of their technological capabilities and gain a competitive advantage in the market. (Gyökér, 2004) Companies strive for efficiency in a goal-oriented way. It seeks to achieve this goal with the consent of the people, so taking into account the needs and goals of human capital is an important task. Human resources are the only resources that can be renewed. It is not part of equity, it cannot be sold, but its capacity and competencies significantly affect the value of the company. (Gyökér, 2004)

Labor demand, market supply and demand are the cornerstones of human resource management processes such as selection and corporate training based on it. When talking about hiring new staff, the first step is for an organization to decide whether it wants to address the need for manpower through redeployment within the company or whether it wants to hire a new employee outside the company. This is one of the key issues in selection that is strategically crucial.

The direction will be what management formulates in its long-term plans for the employment of the workforce. It will adapt to the corporate culture and adapt to market conditions and risks. The selection, as a functional activity of HRM, reflects the human strategy and policy of the management. The first step in the selection process is recruitment, which allows the selection process itself to begin.

Recruitment and selection among human resource management activities is a critical point because the right amount and composition of the workforce is able to implement the strategies and plans developed by companies. The choice is absolutely in the hands of the humanities department. The goal of the selection process is to find the most suitable candidate for the job that best fits the needs of the company. This process is an extremely difficult task for the

selection staff, as they have a short time to get to know, evaluate the candidate and make a decision that will be appropriate in all respects for the future of the company. Teamwork is one of the most important determinants of competitiveness. (Lencioni, 2009)

### *1.2.1 Objectives of human resource management*

One of the core long-term goals of organizations is to ensure survival and growth. Companies strive for efficiency in a goal-oriented manner. The goal of human resource management is to ensure organizational efficiency. It seeks to achieve this goal with the consent of the people, so taking into account the needs and goals of human capital is an important task. (Farkas et al. 2003)

The content of human resource goals may, of course, vary from organization to organization, but generally includes the following principles:

- quality product
- high performance
- controlled labor costs
- competitive wages
- low levels of fluctuation and absence
- Adequate working conditions that ensure employee job satisfaction and the opportunity for self-assessment
- employing an adequate number of employees with the desired expertise and experience
- compliance with laws and regulations, ensuring working conditions and workers' rights

The goals of HR move on a wide scale, working in harmony with each other to serve a common goal. They promote the long-term success and competitiveness of the organization. To do this, it's important to prioritize the following goals:

- provide well-trained, well-motivated employees for the organization
- apply the skills and abilities of the workforce effectively
- to ensure the satisfaction and self-realization of employees as much as possible
- communicate personnel policies and policies to the employee
- to help maintain ethical principles and practical behavior
- manage change in a way that is mutually beneficial to individuals, groups, the company and the wider community
- maintain and improve the quality of work in a way that makes it desirable to have an employee within the organization. (Hajós -Berde, 2008)

### *1.2.2 Tasks and functions of human resource management*

Human resource management (HRM) is a complex, multi-tasking activity. The following table gives a transparent picture of the individual tasks and tasks.

**Table 1: Tasks of HRM**

	<b>Human resources supply</b>	<b>Salary and incentives</b>	<b>Evaluation</b>	<b>Development</b>	<b>Career planning</b>
<b>S t r a t e g i c</b>	<p>Determining the characteristics of human resources required for the long-term operation of the business.</p> <p>Developing organizations that reflect the needs of the future.</p>	<p>Long - term trends in benefits.</p> <p>Incentive principles arising from the mission.</p>	<p>Capturing the long-term interests of the company.</p> <p>Expected future dimensions and aspects of the evaluation.</p>	<p>Exploring future human resources requirements.</p> <p>Development of activity systems that can adapt to the enterprise.</p>	<p>Principles of a long-term relationship between organizational and individual goals in the business.</p>
<b>T a c t i c a l</b>	<p>Defining long-term selection criteria.</p> <p>Marketing of recordings.</p>	<p>The cash income of an individual for several years design. Planning fringe benefits.</p>	<p>Development of evaluation systems.</p> <p>Exploring the personal possibilities of each employee.</p>	<p>The organization-development program.</p> <p>Management system development program.</p> <p>Individual development program.</p>	<p>Identification of theoretical possibilities. Career planning consultancy.</p> <p>Harmonization of the relationship between the organization and the individual.</p>
<b>O p e r a t i v e</b>	<p>Implement a staffing plan. Operation of control-command systems</p>	<p>Implementation of wage and income plans.</p> <p>Operation of the non - wage benefit system.</p>	<p>Operation of the evaluation system.</p> <p>Keeping in touch with pay and development.</p>	<p>Education, training, operational organization tasks.</p>	<p>Assigning an individual to a job.</p> <p>Determining the next stage of your career.</p>

Source: Chikán, 2017

Based on Table 1, we can see that the tasks are also strategic, tactical and operational. Main task groups are human resource supply, pay and incentives, evaluation, development, career

planning. It gives a clear, clear picture of the tasks to be performed. Each group organizes tasks to make implementation easier and more efficient. The number of people needed to run the organization must be planned, jobs created, the workforce suitable for the job must be found, employees must be properly motivated, achievements must be evaluated, further training opportunities must be created, and opportunities for safe work must be provided.

### *1.2.3 The importance of human resource management in corporate life*

The role of human resources in the economy has significantly increased in the last decade as a result of technological and social developments. The importance of strategic thinking is emphasized by the provision, management and motivation of human resources. The quality, efficient use and development of this resource in innovative, knowledge-based organizations is of particular importance. All of this is done to enable companies to leverage their technological capabilities and gain a competitive advantage in the marketplace. The highest performance can be expected when the goals of the organization and the individual are in harmony. The efficient use of human resources is facilitated by the personnel functions used in management, while taking into account individual and organizational goals.

One of the most sensitive areas for corporate governance is human resource management. One of the most important characteristics of human resources is that they have an independent, free will with which they can regulate their actions and, consequently, their performance. In addition, the company must have a clear view of the following aspects. They have a certain capacity and supply of human resources, they are acquired through the market, and their price is influenced by supply and demand conditions.

The performance of human resources is maintained in the long run, and even through appropriate development programs and learning, their performance can be increased. The only resource that can be renewed. It does not form part of equity, it cannot be sold, but its capacity and competencies significantly affect the value of the company. Nurturing human capital, conscious development is a business advantage. (Gyökér, 2004) Developing the right motivation for human resources is a key part of the strategy. The organizational structure and system of the company is closely related to the human resource management strategy. As the developed strategy will be implemented in the context of organizational culture, it is important to clarify what the company's values, traditions and customs are. (Chikán, 2017)

## **2. Data and Methods**

Unix Auto Ltd. is an outstanding player in the Hungarian car parts market. The company has a history of several years, during which time it has developed and expanded a lot. He grew really big. The company, which has been the market leader since 2009, has a market share of 40%, making it one of the most dominant players in auto parts sales today. It has national coverage, operates 102 branches in Hungary, its most important partners and customers are car repair shops, they account for a very significant share of the customer base. For the time being, sales to end users are still a few percent, but they are showing an ever-increasing trend. The target group of the company is specific in terms of sales, on which a well-designed sales strategy is built. In addition to maintaining its market-leading position, its main goal is to maintain and develop premium services to partners.

Its main goal is to respond quickly to new needs and to see, think and expand its product range through the eyes of the customer. The company has a wide product portfolio, which puts it at an advantage in the market competition. It is constantly expanding its offering, one of the main

components of which is the success of the development of its own branded car parts range, which has been introduced for several years and is essential for the long-term development of the company in terms of profitability. Today, due to the size of the organization, the costs reach a high level, hence the organization determines its pricing policy accordingly.

Thus, the level of sales prices is set higher than that of the competitors, but on the other hand it tries to compensate for this with other means, the impeccable operation of the service. Orders compiled by partners are picked up through a branch network, and the ordered products are delivered to their customers within 1 hour.

This gives you a unique advantage over your competitors. In the field of logistics, especially important projects have been developed in recent years, and the development of logistics as an activity and the logistics center is constantly given priority in parallel with the growth of market demands. In addition, the warehouse center is being automated and new branches are being opened in order to meet the needs of its customers at the highest level. His future goals are also the development of IT tools and machines and the introduction and promotion of the use of cost optimization and corporate governance software.

It is in an advantageous market position compared to its competitors, but it also has weaknesses that need to be developed or, on the other hand, compensated for in other ways. Such are the purchase prices. With the expansion of the global market, in many cases it is not able to develop a profitable pricing strategy vis-à-vis its competitors, as harmonized suppliers' pricing policies typically lead to uniform prices in Central and Eastern European markets for specific parts, but this has to be addressed.

As a result, in many cases it works at higher selling prices than its competitors, which it seeks to offset by maintaining a high level of service. In addition, a former disadvantage of the company is that the turnover among product delivery employees is high, which makes it difficult to maintain the level of premium service mentioned above, as it is a great challenge to maintain a stable, permanent team. Recruiting new employees is ongoing, and training them adds significant extra time and cost to the company.

The company's strong market presence is also influenced by external factors. In this accelerated world, the expansion of global giants in Central and Eastern Europe poses a serious challenge to the emergence of the region's markets, including the Hungarian automotive spare parts market. Unix Auto Ltd. as a company playing an important role in the Hungarian and regional markets, faces serious challenges every day, as it poses a constant threat to maintaining the company's position by taking advantage of the market position and advantages of these multinational companies. However, these external factors have led to wage increases, which at the same time offer new opportunities to build a more stable employee background and increase loyalty. SWOT analysis as an analysis method for the competitiveness of a company.

**Table 2: SWOT analysis**

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>- development of logistics</li> <li>- national coverage</li> <li>- wide product range</li> <li>- high quality of services</li> <li>- own branded product portfolio</li> <li>- advanced software support</li> </ul>	<ul style="list-style-type: none"> <li>- higher sales prices compared to competitors</li> <li>- significant operating costs</li> <li>- high fluctuation</li> </ul>
<b>Opportunities</b>	<b>Threats</b>

<ul style="list-style-type: none"> <li>- opening of new branches</li> <li>- expansion of logistics center</li> <li>- automation of warehouse process</li> <li>- development of private brand</li> </ul>	<ul style="list-style-type: none"> <li>- aggressive market expansions caused by global companies</li> <li>- retaining a skilled, competitive workforce</li> </ul>
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Source: Chikán, 2017

### 3. Results and Discussion

We can say that Unix Auto Ltd. is currently a very significant market player in terms of the trade of car parts, a strong company with a strong market position and it stands out from its competitors. Market competition is strong, there are several competitors in the market, of which global market players such as Intercars Hungária Ltd. or Autonet Hungary Ltd. are a constant challenge for the company. The company owes its 40% market share to its strengths, but in order to maintain this in the future, it must definitely focus on a wide range of products and maintain a high standard of services. The firm has established its own branded product portfolio, thus offering a high-quality alternative to higher priced products, after which realized profits can be used to improve the company's competitiveness. The goal of its constantly expanding product range is to create a complete portfolio that fully covers the emerging customer needs and requirements, but at the same time offers a high-quality product to its customers at an affordable price.

Although it represents a relatively higher price level in itself to offset its costs, it has Full Nationwide coverage that can compensate for this with premium services, allowing it to easily reach everyone and the opportunity to open even more new stores because of the market situation and consumer needs allow this.

High operating costs such as weakness can be improved through strengths and opportunities. During strategic negotiations, it is possible to conclude agreements that can reduce purchase prices and improve conditions. A strong strategic team is behind the processes, which is able to improve the existing logistics system, thus strengthening the company's market position. It can be continuously strengthened through the development of new software and the development of new logistics warehouse processes.

The company's market position is strong, with a number of strengths that it can use to reduce weaknesses and avoid threats. We can see that there are many opportunities that you have already recognized and are trying to build on and rely on.

### 4. Conclusion

Factors influencing the competitiveness of a company can be both internal and external factors. As a competitive company, it provides better service than its competitors, meets market needs, is forward-looking and able to develop. The firm is aware of its possibilities and builds on them to plan future developments.

Its competitiveness is affected by the possibilities of selecting and training human resources within the company, namely what kind of professionals the company works with, as this lays the foundation for the solid operation of the organization. In addition, an impeccable logistics background, the development of IT and software systems, and strategic agreements with suppliers all contribute to the company's competitiveness. Strategic relationships with suppliers

do not directly but indirectly affect a company's market position. The more successful the agreements are, the more costs the company can save, the profit increases, which can be returned to new investments and developments. To do this, it is important to select good professionals, develop communication skills, master negotiation techniques and respond in a timely manner to market changes.

My suggestions include organizing communication trainings and developing negotiation skills. If you have more money left in the company, you can invest it in new things. Strengthening cooperation and cohesion in the company has a long-term effect on decision-making, more efficient work, which thus contributes to maintaining and increasing the company's competitiveness.

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## Which risk management method should you choose?

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### **Abstract**

*The success of a food business depends on many factors, such as the market price, the political situation, the different natural environments and the economic effects in which one has to face some risk. Risks must be coexisted and minimized as far as possible. There is a cost to avoiding or minimizing risk, and the decision maker must consider the degree of affordability of the costs to reduce the risks.*

*I consider the research of risk factors to be especially important for Hungarian food production companies, where I present the cost, sales and income ratios of food production companies in the light of different types of risks, as the aim of the companies is to achieve the highest possible income. From a methodological point of view, I summarize the risk concepts used in the domestic and international literature, as well as the main methods of risk in the food industry.*

*Regardless of how the risk is analyzed, the most important condition is that the cost of the risk analysis does not exceed the magnitude of the risk. Taking risk is an integral part of a company as it is a driver of innovation and development.*

**Keywords:** risk management, food industry, risk methods, economy

### **JEL Classification:**

#### **1. Introduction**

Today, risks have become an integral part of society and the economy. When examining processes in any area of life, we make a primarily subjective decision when taking a given risk, but there are quantitative tools for estimating the probability of a risk occurring that increase the value of qualitative decision-making due to the available data.

I consider the research of risk factors to be especially important for Hungarian food production companies, where I present the cost, sales and income relations of food production companies in the light of different types of risks, as the goal of companies is to achieve the highest possible income in the long run (Gere, 2000).

In the course of my research, I considered it important to examine the question of how company managers judge the importance of certain risk factors influencing their activities and the suitability of tools and methods to manage or reduce them, as they greatly influence producers' risk management strategy. By writing my study, my further goal was to analyze the main activities of food companies and thus the technological factors influencing quality production, and with this knowledge I help the company to improve their production efficiency, profitability and reduce the risks in production.

## 2. Data and Methods

The general goal of risk methods and analyzes in all cases is to identify the risks endangering the achievement of the company's goals and to evaluate the measures. In the risk analysis, the probability of occurrence and the possible impact of each risk is estimated, listing the factors influencing them. There are basically two methodologies used for this. Qualitative, which is widely applicable in the case of non-quantifiable risks, but also contains less specific, subjective elements. Quantitative analysis of some quantifiable risks has a mathematical background, individual risks can be modeled using variables, thus leading to more accurate risk values that are closer to reality. The analytical methods used may also consist of a combined application of qualitative and quantitative elements, depending on the reliability, quantity, and quality of the information available (Colacito et al., 2018).

Bácskai et al. (1976), there are several methods for determining risk, which can be divided into two major groups: a priori conclusions, empirical approaches. A priori approaches are primarily based on theory and express the necessary impact of specific decisions. They do not determine risk based on past events and experiences, but in a logical way. The empirical method is much more common, according to this approach, the course of past events, the generalization of previous experiences, so it projects the expected risk on the basis of preventive information.

The two most important factors in determining the degree of risk are the probability of possible outcomes and the intensity of the effects at each outcome (Ahl et al., 1993). Based on these, the risk can be described as a function of two factors as follows:

$$\text{Risk} = P(\text{damage}) \cdot n(\text{damage}),$$

where the Risk variable is the risk vector, P (damage) is the probability of damage occurring, n is the magnitude of the damage that has occurred. This formula is used for simple risks.

The purpose of event history analysis is to determine the risk of occurrence of the studied event as a function of time and explanatory variables. The advantage of this method is that it can handle so-called "truncated" observations where the exact occurrence of the event under study cannot be observed (Vermut and Moors, 2005).

In the logistic regression model, the logarithm of the probability ratio of favorable and unfavorable occurrence is estimated using risk factors (explanatory variables). We use the logarithmic transformation because we want to achieve that the estimated probabilities remain in the range (0,1) and do not increase or decrease too rapidly at the edges of the range. The advantage of using this method is that there is no constraint on the distribution of explanatory variables. Its disadvantage is that the dependent variable is categorized, at least 5-10 events per variable must be included in the sample, and individuals must be selected independently in the sample (Parr, 2001).

The most common method for assessing risks is the risk matrix, which is used to determine the significance and priority of risks. A matrix is a bivariate weighting procedure in which one variable is the degree of effect and the other is the probability of risk occurring. Risk values are most often expressed in text (low, medium, high). The use of a risk matrix reflects a practice-oriented approach to analysis, but has the disadvantage that it takes into account only two factors. Knowing the obtained risk values, the materiality level of each risk can be determined, which serves as a basis for identifying the risks of each process and activity, and for ranking the processes in terms of risk (Oláh et al., 2019).

The most useful multivariate methods for risk analysis are factor analysis and cluster analysis.

The essence of cluster analysis is to group the individuals of a given population according to several classifying variables. When creating groups, we aim to create clusters whose elements are as closely related to each other as possible and relatively different from the elements of other clusters. The analysis is based on the selection of distance measures and the decision function. The method is suitable for forming risk groups based on risk factors and can be used to explore the characteristics of different risk groups. The main disadvantage of cluster analysis is that for too many variables it is difficult to review the model, it is really effective when the outcome variable is a function of few other variables and does not produce a functional relationship between the explanatory and outcome variable (Meuwissen et al., 2001).

One of the main goals and advantages of using factor analysis is the so-called data reduction, i.e. reducing the number of variables. However, it is excellent for measuring phenomena that cannot be measured at all in reality, such as risk measurement. The main disadvantage of the method is that the mathematical background of the method must be known in order to evaluate the results. Cluster analysis and factor analysis can also be used in the analysis of qualitative data, which is also used in the evaluation of questionnaires (Walter and Berlinger, 1999).

Bayesian models represent a modern position in the debate over the conceptual difference between risk and uncertainty. According to the modern position, they are able to make reliable probability estimates in all situations, and on the other hand, all probability estimates are subjective in nature. The expected usefulness of an action can be defined as the weighted average of the benefits that the consequences of the actions in question have in the event of different natural conditions occurring. Weights are given by the probabilities of the occurrence of the conditions (Hirshleifer and Riley, 1998).

**Table 1: Advantages and disadvantages of the examined risk methods.**

<b>Methods</b>	<b>Advantage</b>	<b>Disadvantage</b>
<b>Qualitative methods</b>	It also contains subjective elements.	Risks cannot be quantified.
<b>Quantitative methods</b>	It has a mathematical background, is modelable, leads to more accurate risk values.	It contains no subjective element at all.
<b>Apriori approaches</b>	It does not take into account logical and mathematical calculations.	Risk is not determined based on past events and experience
<b>Empirical approaches</b>	It predicts the expected risk based on preventive information.	It does not take into account logical and mathematical calculations at all.
<b>Event history analysis</b>	Can handle “truncated” observations.	The target variable is the time factor.
<b>Logistic regression model</b>	There is no constraint on the distribution of explanatory variables.	At least 5-10 events per variable should be included in the sample.
<b>Risk matrix</b>	It reflects a practice-oriented approach to analysis.	It takes into account only two factors (degree of impact, probability of occurrence).
<b>Cluster analysis</b>	We can explore the characteristics of different risk groups.	Too many variables make it difficult to review the model.

<b>Factor analysis</b>	It is excellent for measuring phenomena that cannot be measured at all in reality.	To evaluate the results, the mathematical background of the method must be known.
<b>Bayesian models</b>	They are able to make reliable probability estimates in all situations.	All probability estimates are subjective in nature.

Source: Own editing, 2020.

No methodology can completely filter out the subjective elements of the analysis, but if the analytical aspects as well as the evaluation are based on consensus, then disputes can be avoided.

## 1. Results and Discussion

### *Risk management process in food industry*

In this chapter, I describe the concept, development and parts of the process of risk management, which can be well applied in all industries, including the food industry, to manage the risks that arise in everyday activities. In the risk management phase, the range of tools suitable for risk management is determined, the individual tools are evaluated, the most suitable ones are selected, and then they are introduced (Stolboy and Skckepeleva, 2020).

The essence of corporate risk management is that the knowledge and control of risks is carried out in accordance with the expectations of company managers and stakeholders. The goal is to reduce the incidence of risks as well as to avoid a given risk, thereby minimizing the potential effects of risks in order to optimize business decisions and keep returns to a reasonable level (Hornai, 2001).

Risk, risk assessment, analysis and management are now commonly used concepts in both business and the public sector, but the overall picture in terms of interpretation of the terms is varied. The definition of risk differs according to each theory (Nádasdi, 2016). Risk concepts used in the public sector are closest to the so-called economic approach, but risk is generally viewed in a negative sense.

Risk is the possibility of an event occurring that negatively affects the achievement of goals. Risk is the positive and / or negative effect of uncertainty on the achievement of organizational goals. The various definitions of risk contain general, common elements: risk is identified as a possible, undesirable event (omission, error, deficiency, irregularity, damage, loss), the effect of which in some way and to the extent jeopardizes the achievement of corporate goals; the operation, activities, performance of an organization, or the execution of a project (Fong-Woon and Muhammad, 2017).

According to Moschini and Hennessy (2001), risk management is not needed to increase profits in the future, but rather to allow companies to turn profits made under just favorable conditions into less favorable ones, thus ensuring a sense of security for those who avoid risk. Attention is also drawn to the fact that production and risk management decisions are closely interlinked, as most production decisions have risk implications.

The success of a food business is mainly characterized by income. The simplest way to measure the risk of profitability is by the standard deviation of income, because the larger the standard deviation, the more risky the business can be considered.

The European Union has also recognized the importance of risk management in the food industry and has made serious efforts to explore the possibilities of a risk management system at EU level (European Commission, 2001). In addition to the analysis of economic data, it is

important to get to know the subjective opinion of manufacturing companies, as this can be used to develop more efficient and acceptable procedures and processes for manufacturers (Oláh et al., 2017).

According to Walker (2001), the goal of risk management is to minimize losses caused by losses by keeping risk management costs low for companies. He believes that the right risk management tools can give the company a significant competitive advantage as it reveals the

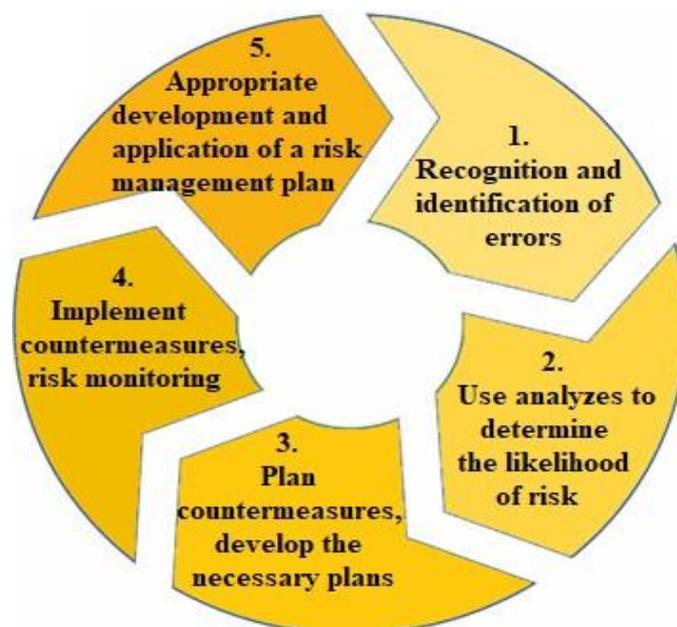
real benefits and costs of the company's activities. It is important for employees and the owners and managers of the company to know the potential risks affecting the company, to identify, identify and then analyze them so that they can manage the risks from different sources immediately (Megyeri, 2017).

Holmes (2002) explains that the essence of risk management is that companies thoroughly develop and adhere to procedures enabling financial losses to be identified, controlled, and reduced. Risk management includes all activities in which the probability of a hazard occurring is reduced to an acceptable level and harm can be avoided or mitigated (Chong, 2004). Banks (2004) also points out that risk management decisions depend on many factors at once, the most important of which are the expectations of the owners, the business philosophy of the management, the cost and profit implications of different risk management strategies, and the company's financial resources. It also considers it important to compare the costs of using these analytical tools with the benefits.

According to Chapman (2006), risk management is nothing more than controlling risks to the greatest extent possible, thus helping businesses to make the most of their opportunities.

With regard to all the described risk management procedures, it can be said that although the examinations, strategies and tools used in risk management can be classified in several ways, the different classification methods more or less overlap. The main goal of each is for the company to prevent the hazards or reduce the consequences of the hazards that have occurred (Oláh et al., 2019).

**Figure 1: The risk management process**



Source: Own editing, 2020.

If an entrepreneur wants to increase their chances of being profitable, they need to look at how to reduce their risks. This process designed to reduce risk is called risk management. This management has five main steps (Abhishek, 2013):

- identification and naming of risks,
- assessment of the named risks, estimation of their probability,
- managing the named risks in some way,
- implementing countermeasures, monitoring, monitoring the risk,
- maintaining control, ie checking that the treatment methods used for each risk are appropriate.

Based on Figure 1, it can be said that the first and most important task of risk management is to identify all possible errors. The identification of risks requires caution and thoroughness so that a risk that poses a serious hazard does not escape attention. It is impossible to account for all the risks that arise, so it is worthwhile to make a list that focuses on the risk factors that can have a significant impact on achieving your company's goals. In such cases, it is also important to think about and record which events may occur, how and why, and what impact they may have on the organization.

Together, the first two steps are also called risk analysis, the main purpose of which is to identify the risks and to explore the magnitudes and probabilities of their occurrence. The higher the probability of occurrence and the greater the extent of the damage, the more the firm is forced to reduce and manage that risk in some way (Williams and Schroder, 2000).

Once the risk management plan has been approved by the decision makers and implemented, its implementation needs to be monitored on an ongoing basis to identify inappropriate assets and find a more appropriate tool for the task, or simply make some changes to established procedures if necessary.

Risk management needs to be constantly monitored as circumstances are constantly changing. Not only is technology evolving, but new methods are emerging, new products and techniques are appearing on the market, and so is the economic climate. State subsidies may appear and cease to have a significant effect on the price of risk management tools (Samuelson and Nordhaus, 2005).

It can be said that risk management contributes significantly to increasing the performance, value and competitiveness of enterprises in the context of dynamic changes in the external and internal environment

### ***Which risk management method should you choose?***

We need to decide how to deal with a risk factor. From the above, it is clear that there is a wealth of tools to manage a particular risk. However, which solution or combination of solutions the producer chooses in the end depends on several factors (Kunreuther, 2002).

The main problem is that the company usually only guesses how much risk a given factor poses (probability x damage size) but does not know exactly. Furthermore, risk management decisions also depend significantly on the size of a company's reserves, as the larger a company's reserves, the more it takes risks. A key issue in risk assessment is the level of risk-taking of the company, i.e., the level of risk the organization is prepared to accept before considering it necessary to take action. The decision on measures depends on the extent to which the

organization accepts the risk.

The other concern is that all risk management tools (external and internal) come at a price and have some impact. Obviously, when applying these, it is necessary to consider how much it will cost and what effect the use of the instrument will have on the given risk. In some cases,

even if a risk management tool eliminates a serious risk altogether, it is not worth introducing because of the high cost.

Another important aspect is the entrepreneur's attitude to risk-taking. There are food companies that dare to take on more risk than their competitors, so each company will have a different price it will be willing to pay for a risk management tool that reduces risk to a certain extent and probability.

The choice between risk management tools must therefore take into account the probability of the risk occurring, the amount of damage it causes, the size of the company's reserves, the risk management tools available, the impact that can be achieved with them, how much they cost and the company's your risk-taking attitudes - what you dare to take and what you don't.

## **Conclusion**

When talking about the cost of risk management tools and the effects they cause, we should not forget that while some risk management tools reduce the probability and magnitude of a particular risk, they may increase the likelihood of other risks.

A typical example of this is diversification, which is an important element of investment risk management. While one factor reduces price risk, another factor increases technology and cost risks, so the introduction of either technology will not be developed to such an extent that the production indicators of the given sector are adequate, as they also have some level of risk.

In my research, I spoke about the risk management process, which can be well applied in all industries, including the food industry, to manage the risks that arise in everyday activities. With regard to all the described risk management procedures, it can be said that although the examinations, strategies and tools used in risk management can be classified in several ways, the different classification methods more or less overlap. The main goal of each is for the company to prevent the hazards or reduce the consequences of the hazards that have occurred. I found that the main steps in risk management are: identifying, assessing, managing risks, implementing countermeasures, and maintaining control.

It can be said that risk management contributes significantly to increasing the performance, value and competitiveness of enterprises in the context of dynamic changes in the external and internal environment.

In the risk analysis, the probability of occurrence and the possible impact of each risk is estimated, listing the factors influencing them. I illustrated the advantages and disadvantages of the following methods: qualitative, quantitative methods, a priori approaches, empirical studies, logistic regression model, risk matrix, cluster analysis, factor analysis, Bayesian models. My finding is that no methodology can completely filter out the subjective elements of analysis, but if the analytical aspects as well as the evaluation are based on consensus, then disputes can be avoided.

The choice between risk management tools should take into account the probability of the risk occurring, the amount of damage it causes, the size of the company's reserves, what risk management tools are available, their impact, how much risk-taking attitudes.

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# Impact of Covid-19 on Global Supply Chain Management

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## **Abstract**

*COVID-19 was discovered in Wuhan, China, spread all over the world in a short time and was declared as a pandemic (global epidemic) by the World Health Organization (WHO) on March 11, 2020. As a result, border restrictions have been imposed in many countries under COVID-19 measures, and a large part of the global population has been subjected to quarantine. In addition to the effect of the virus on human health, production activities have been stopped in many factories and workplaces have been closed. As a result of all these; consumer spending, investments and international trade were adversely affected. Another important reason for the global impact of the pandemic is that China, the starting point of the epidemic, is the primary producer of high value-added products in many sectors, is a leading buyer of global commodities and industrial products and has a large consumer market.*

*Due to the Covid-19 pandemic, significant disruptions have occurred in global supply chains and the importance of global supply chain management has been proven once again. Supply-side distortions occurred due to the inability to meet the raw material needs, products not being delivered on time, and employees not being able to go to their jobs. Due to the lack of supply, consumer preferences have changed, and demand-side distortions have also occurred. Although the probability of pandemics is low, their global impact is enormous, and the risk they pose should be evaluated in terms of global supply chain management. In this context, the aim of the study is to reveal the negative impact of the pandemic on global supply chains and to provide suggestions on how to minimize this negative impact.*

**Key Words:** *Global Supply Chains, Pandemic, Risk Management*

**JEL Classification:** *F60, I10, Q56*

## **1. Introduction**

Companies need to act together with many different units such as suppliers, distributors, retailers, logistics companies in order to maintain their activities. The concept of supply chain management has been introduced with the realization of the correct management of this process provides competitive advantages to the companies. Supply chain management is a management strategy that aims to optimize the flow of materials, information and money to reduce costs and provide maximum value to the consumer (Perkins & Wailgum, 2017).

Supply chain management with many different strategies tries to reduce the costs of companies, increase their profitability and customer satisfaction in high competition conditions. Strategies such as outsourcing, globalization of the supply chain, minimum number of suppliers, high integration, minimum inventory, minimum product waiting time and just-in-time delivery contribute to companies achieving their goals while at the same time causing great fragility (CISION, 2020).

The strategies created by the supply chains bring many risks. There are different classifications in defining the risks. According to Christopher, M. and Peck H. there are 5 different risk categories; environmental, economic, geopolitical, technological and social (Christopher & Peck, Building the resilient supply chain, 2004). These risks have potential to create losses such as physical damage, blocking production and distribution, damaging sales, reducing company revenues, reducing market share, inflating costs and exceeding company budget limits.

Risks are evaluated according to their characteristics. Some risks are highly likely to occur and their impact on the supply chain is low, while others are unlikely to occur and have a high impact on the supply chain. Despite the low probability of occurrence, infectious diseases are the leading risk with high impact level. If it is only in a small area called as “endemic”, if the rate of spread and the number of people it reaches increases then called “epidemic” and if spreads whole world it is called “pandemic”(Physiopedia, 2020). Pandemic differs from other natural disasters in terms of many different features, reaching a longer and wider impact in many areas, especially human life. The Spanish flu, which broke out during the first world war, killed millions of people. Pandemics can affect a wider mass in scale, can spread very quickly and have an effect for a long time.

Although supply chain risk management is intended to be placed in a general framework, each risk type has its own differences. In addition, because unlikely risks are more negligible by managers, supply chains have greater weaknesses against such risks. The purpose of this study is to show the effects of the Covid-19 pandemic on the supply chain and to reveal what kind of measures should be taken in the context of risk management processes.

## **2. Literature Review**

Supply chains face hundreds of different types of risk. In order to manage these risks correctly, supply chain risk management, which is an important part of supply chain management, is needed. With the evolution of the supply chain concept, studies for supply chain risk management emerged towards the end of the 1990s, and a rapid increase in the number of studies in this direction occurred with the effect of many deteriorations in the world(Fan & Stevenson, A review of supply chain risk management: definition, theory, and research agenda, 2018).

Supply chain risk management processes are among the issues that draw the attention of researchers in studies on supply chain risk management. While some studies deal with the processes in general, some studies focused on a specific point of the processes. There have been many studies suggesting models for supply chain risk management processes. Although there are differences between the supply chain risk management processes in the studies, it has been observed that most of them follow similar steps. Risk management processes defined by Norman and Jansson Ericsson case analysis; It consists of 4 steps: defining the risk, measuring the risk, improving the risk and viewing the risk(Norrman & Jansson, 2004). Supply chain risk management processes; It evaluates in 5 steps: defining the risk, measuring and evaluating the risk, choosing the appropriate risk management method, applying risk management strategies and mitigating the risk against unexpected events(Manuj & Mentzer, 2008). Knemeyer, Zinn and Eroglu outlined the risk processes in four steps. These steps consist of defining the risk, measuring the risk, evaluating the risk management strategies and selecting the appropriate risk mitigation strategy(Knemeyer, Zinn, & Eroglu, 2009).

Ghadge, Dani, Chester and Kalawsky have defined the supply chain risk management processes under three main headings and two sub-headings under each heading(Ghadge, Dani, Chester, & Kalawsky, 2013). Risk identification; classification of risk and risk trends, risk assessment; risk modeling and sensitivity analysis, risk mitigation; strategy planning and risk mitigation. Fan and

Stevenson have defined supply chain risk management processes as; definition of risk, measurement of risk, making and implementing risk management decisions and finally monitoring the risk (Fan & Stevenson, A review of supply chain risk management: definition, theory, and research agenda, 2018). Silva and Marques have defined it as risk identification, risk assessment, risk mitigation and business continuity and risk monitoring (Silva & Marques, 2020).

### **3. Supply Chain Risk Management**

The efforts of companies in risk management were limited to applications within the company before supply chain management strategies have been developed. Although this strategy limited the risks within the company, it could not provide solutions to the risks associated with different stakeholders, which are essential for companies to continue their activities. Therefore, in recent years, the concept of supply chain risk management has emerged with the inclusion of risk management in the supply chain management by including stakeholders outside the company (Revilla & Saenz, The impact of risk management on the frequency of supply chain disruptions: A configurational approach, 2017). There are uncertainties in the use of some important terms in risk management practices in the supply chain and in academic studies. In addition, it was observed that researchers had difficulties in communicating with practitioners and in academic study processes due to the lack of a common understanding and clear definition (Ho, Zheng, Yildiz, & Talluri, 2015). First of all, it is thought that clarifying the differences between these terms will provide an important benefit for both practitioners and researchers.

When we consider the concepts of risk and uncertainty; risk is the probability of measurable loss or damage for the future. Therefore, the quantitative definition of risk; the probability of occurrence of a situation can be expressed as the negative effect or severity of the business (Colicchia & Strozzi, 2012). Uncertainty is the unmeasurable probability of a potential event that can be positive or negative if it occurs. The Supply Chain Risk Leadership Council defines supply chain risk as "the probability and outcome of events occurring at any point in the end-to-end supply chain, from raw material sources to customers' end use". Supply chain risk management is defined as "the coordination of direct activities regarding supply chain risks and controlling the end-to-end supply chain of an enterprise" (Supply Chain Risk Leadership Council, 2011). The leading reason for the emergence of risks in the supply chain is the fragility of the supply chain. Fragility refers to the high probability of loss and damage. There is a linear relationship between the concept of risk and the concept of fragility. Risks arising from the fragility of the supply chain causes disruption of the supply chain. Disruption is defined as an unplanned, undesirable and exceptional situation that disrupts the normal flow of goods and materials within a supply chain (Revilla & Saenz, The impact of risk management on the frequency of supply chain disruptions, 2017). As a result of breakdowns, there are situations that one, all or some of the chain members are not working properly.

Supply chain risk management aims to increase the durability and resilience of supply chains against deterioration. Robustness represents the ability of the system to maintain its function, or almost unchanged, when subjected to disturbances (Kwak, Seo, & Mason, 2018). Robustness in supply chain management is the extent to which the supply chain can function for various possible future scenarios. Resilience refers to the return of the system to its original state and rapid adaptation after the deterioration experienced. It shows the adaptation power of the system by getting back to its previous state or approaching after disruptions (Christopher & Peck, Building the Resilient Supply Chain, 2004). The main difference between toughness and resilience; While robustness refers to the ability of the supply chain to continue in the same way against

deterioration, resilience refers to how quickly the supply chain structure can be restored despite the deterioration.

Supply Chain Risk Management is carried out within the framework of certain processes. These processes consist of defining the risk, measuring and evaluating the risk, selecting and applying the risk management method and monitoring the risk. Details of these processes are given below.

### **1.1. Risk Identification:**

It includes the identification of future risks and the grouping of these risks. Grouping and defining risks can be made according to different classifications. In order for each organization to determine its own risk records, it is necessary to create a list of risks according to their importance level (Munyuko, 2015). Risk identification studies proceed through qualitative methods. Many methods such as brainstorming, previous risk measurements, surveys and determining potential risks, definition standards created by organizations such as ISO, worst case scenarios, business impact analysis can be used.

### **1.2. Risk Assessment and Evolution**

One of the points to be considered in studies on risk management processes is the meaning that researchers give to the terms they use. In particular, the words "assessment", "evaluation" and "analysis" are used interchangeably in studies, to encompass each other or to have different meanings from each other. In this study, "assessment" is used to measure the probability of occurrence and effects of future risks, and "evaluation" as the evaluation of the effects of this situation. Both quantitative and qualitative methods can be used in this process. Delphi technique, scenario analysis, comparative risk rating and survey methods are used as qualitative methods (Almeida, Bastos, Francisco, & Azevedo, 2016). As a quantitative method, a measurement can be performed in line with the mathematical model created. At the stage of risk assessment, an assessment is made about how acceptable the risk is.

### **1.3. Choosing and Implementing the Risk Management Method:**

Supply chain risk management is the management of the supply chain by making it more robust and more flexible in order to prevent disruptions that may occur against the fragility of the supply chain. The purpose of managing such risk is to minimize the occurrence of disruptions, reduce performance impacts, and accelerate the return of the supply chain to its normal state (Oliveira, Marins, & Salomon, 2017). Supply chain risk management has brought different understandings with it. The most important issue in supply chain risk management is how risk is managed. Risk management in the supply chain generally has three basic management strategies: passive, reactive and proactive (Grötsch, Blome, & Schleper, 2013).

There is no general consensus on these three management strategies. The three risk management approach actions are used interchangeably in different studies. Proactive approach to supply chain risk management; while aiming to reduce both the likelihood of risk occurrence and the impact of supply chain risk, the reactive approach aims only to reduce the impact of the risk. Passive approach, on the other hand, is the strategy that aims to manage the processes as the risk occurs.

### **1.4. Monitoring the Risk:**

To determine the effects of risks and the effectiveness of the measures taken. This stage requires tracing the past, present and tomorrow. After a firm has established a Supply chain risk management program that includes processes for identifying and treating risks, it should implement a monitoring program and evaluate plans, processes and capabilities through periodic reviews,

testing, post-incident reports, and other approaches. It should check the appropriateness and effectiveness of the program, establish, implement and maintain monitoring and corrective action processes when necessary. Testing, evaluating, and adjusting supply chain risk management programs helps establish a balance in organizations' ability to respond to outcomes and events and focus resources appropriately to address the most likely and effective risks.

The COVID-19 virus, which emerged in Wuhan in December 2019, brought along the question of supply chain risk management processes. It has been observed that supply chain risk management processes are insufficient at certain points.

**4. Impact of Covid-19 on Global Supply Chains**

Pandemic is in the risk group with low probability of occurrence and high impact level. Due to the great effect it will create countries such as Australia, America, Britain, Canada, Turkey, Germany, have prepared action plans against the pandemic. However, although many countries have action plans, the process could not be prevented. The main reason for this situation is that it is not possible to predict when pandemics will emerge, how severe they will have an effect and how quickly they will spread.

During the pandemic that affects each industry differently, the companies most affected by their supply chains have undoubtedly been the ones that are most dependent on factories in China in terms of supply of parts or materials. In this context, in order to better analyze the current global situation, the most exporting countries for the years 2016-2018 are shown in Table 1.

**Table 1: Top Export Countries, Billion \$ 2016-2018**

	2016	2017	2018
China	2.097	2.263	2.494
USA	1.450	1.545	1.665
Germany	1.337	1.446	1.562
Japan	644	698	738
Hong Kong	516	549	569
South Korea	495	573	604
France	488	523	568
The Netherlands	468	527	555
Italy	461	507	569
England	411	441	490

Source: (Statista, 2020)

As it is seen on the table that China was the country with the highest export volume between 2016 and 2018. USA, Germany and South Korea follow China. As can be understood from here, China, the starting point of the epidemic, has a very important place in global trade. In Table 2, the countries to which China exports and imports the most in 2018 are given, and this table is important for understanding the countries where the effects of the epidemic will be felt the most.

**Table 2: China’s Export and Import Partners**

Partner Name	Trade Balance (US\$)	Export (US\$)	Import (US\$)
Hong Kong, China	294,399,116.97	302,960,30...	8,561,183.78
Japan	-33,166,686.86	147,235,09...	180,401,78...
Korea, Rep.	-95,537,702.32	109,028,74...	204,566,45...
Thailand	-1,944,414.26	42,974,255....	44,918,670....
Vietnam	19,928,438.82	84,015,798....	64,087,359....
Malaysia	-17,473,542.07	45,848,411.86	63,321,953....
Other Asia, nes	-128,690,075.26	48,656,884....	177,346,96....
Indonesia	9,091,660.14	43,246,345....	34,154,685....
Singapore	16,179,525.51	49,817,841....	33,638,315....
Australia	-57,535,880.26	47,547,551....	105,083,43...

Source: (WITS, 2020)

Looking at Table 2, in 2018, South Korea, Japan and the USA appear as China's largest export and import partners. As you can see, many European and Asian countries are among the biggest trade partners of China. The virus epidemic, which first shook China and then more than 200 countries around the world, undoubtedly causes problems for the country’s most seen in Table 2.

**Figure 1: China’s Top 10 Export**



Source:(Workman, 2020)

Figure 1 shows China’s top exports 8 product groups in 2019. As can be seen, electrical and electronic devices are the leading products that China exports the most. It is followed by nuclear

reactors, boilers and machinery. Plastics and their components, some transportation vehicles, clothing and organic chemicals are other products that China exports the most. As China is an important manufacturer for the whole world and spreads its production to different sectors, it has become an inevitable point that many countries suffer from difficulties and disruptions in global supply chains as a result of the factories shut down in China and disrupted production. In this context, it is beneficial to look at the impact of the pandemic on the supply chain on the basis of sectors covering these products. In a study, a Coronavirus Impact Index was created, taking into account the dimensions of personnel, operations, supply chain and income in order to reveal the impact of the global epidemic in some important sectors, and this index is given in Table 3.

Looking at Table 3, it is clear that travel and transportation, manufacturing and retail sectors are the sectors exposed to the most severe impact during the pandemic. Looking at the travel, transportation and manufacturing sectors, it is seen that these sectors are severely affected by the pandemic process. The retail industry is another sector severely affected by the process, especially in terms of personnel and supply chain factors. Other sectors that experience significant difficulties in terms of supply chain are energy, high technology and telecommunication sectors. In terms of the travel and transportation sector, it is observed that countries closing their borders, travel restrictions and quarantine practices have negative reflections in the sector. At the same time, the cessation of tourism activities is another important factor. In this context, it is also important to examine the aviation and defense industry.

**Table 3: Covid-19 Impact on Sectors**

Categories affected by COVID-19	Banking, Financial Services & Insurance	Energy & Resources	Healthcare & Life Sciences	High Tech & Telecommunications	Media & Entertainment	Public Sector	Retail	Manufacturing	Universities & Colleges	Non-profits	Travel & Transportation
Personnel	●	●	●	●	●	●	●	●	●	●	●
Operations	●	●	●	●	●	●	●	●	●	●	●
Supply Chain	○	●	●	●	●	○	●	●	○	○	●
Revenue	●	●	●	●	●	●	●	●	●	●	●
<b>Overall Avasant Assessment</b>	●	●	●	●	●	●	●	●	●	●	●

○ Minor Impact   ● Moderate   ● Significant   ● Major   ● Severe

Source:(Avasant, 2020)

Aviation and defense industry sector supply chain, which is very orderly and carefully organized, has an equally complex structure. Each link of the industry's supply chain is of key importance. During the global epidemic period, many facilities in the sector decided to temporarily stop or reduce their activities such as production, assembly and transportation due to the restrictive practices introduced by governments. With the bans and restrictions on transportation, European air traffic declined significantly, while some markets contracted around 90 percent compared to last year. According to data from Eurocontrol shows a contraction of 58 percent in France, 57 percent in Spain, 50 percent in Germany, 48 percent in the Netherlands, 37 percent in Britain and 42

percent in Turkey(Eurocontrol, 2020). According to the statement of the International Air Transport Association, it is estimated that the industry needs nearly \$ 200 billion of emergency aid on a global scale(IATA, 2020). In addition, Boeing, one of the leading aircraft manufacturers, stated that the epidemic affected the demand for air transportation, production continuity and supply chain, and stated that they will reduce commercial aircraft production and reduce the number of employees by 10 percent.

When we look at the high technology and communication sector, it is seen that during the pandemic although their supply chains were negatively affected, some companies increased their revenues. Software companies such as "ZOOM" and "MicrosoftOffice365" that can switch to remote working application and find the opportunity to collaborate are experiencing an increase in demand during the pandemic period. On the other hand, companies such as Apple and Microsoft that produce smartphones and components are faced with a decrease in demand and supply chain problems due to the closure of factories in China and a decrease in the number of employees.

##### **5. Recommendations on Supply Chain Risk Management During a Pandemic**

Many companies need robust and resilient supply chain risk management to respond to large-scale risks. One of the conclusions that can be drawn after the COVID-19 pandemic, which is still in effect, is that most companies do not take any measures against the risks with low probability and high impact and follow a reactive or passive strategy. Unless companies are prepared for disasters in advance, such situations will inevitably cause a halt or disruption of business activities. The longer a firm's operations remain closed, the less likely it is to reopen, and those that reopened become bankrupt in a short time. This situation shows how important supply chain risk management is. Therefore, supply chain managers need to develop new measures in complex, ever-changing and high-risk supply chains. In this part of the study, recommendations are made for supply chain risk management processes specific to the pandemic, using industry reports and pandemic plans of the countries(Cerullo, 2004).

- Unlike all other supply chain risks, the pandemic is one of the risks followed by the World Health Organization. The World Health Organization classifies pandemic risk levels in six stages. In this context, a structure that takes into account the six stages of the WHO should be established for the supply chain risk management.
- Instead of evaluating risks by generalizing, focused scenarios should be applied on supply chain risk management. A path must be followed as to what to do for different scenarios. For example; In general, instead of pandemic risk, it should be considered as supply-side pandemic, demand-side pandemic.
- In a period where global competition is intensifying and supply chains are becoming longer and more complex, supply chains are exposed to many risks. Supply chain risk management should be evaluated at the design stage, not during supply chain applications.
- Regardless their potential significance, low chance risks are neglected by managers. In the supply chain risk management, qualitative methods should be supported by quantitative methods in an absolute manner, and the definition and grouping of the risk should be transformed into a data-based structure.
- The COVID-19 process further increases the importance of information in supply chain management. The need for real-time information in supply chain risk management

processes has become more important than ever. Firms need data in order to make better decisions in supply chain risk management. Therefore, they should benefit from computing technologies that enable them to collect, transfer and analyze data.

- Pandemic can occur anywhere in the world. The low probability of occurrence should not cause this risk to be ignored in supply chains. Therefore, it should be a priority to develop well thought-out strategies to proactively plan supply chain risk management. Risk analysis and management should set a risk management strategy to focus on determining appropriate levels of risk prevention, mitigation and contingency planning.
- Access to information is equally important to all suppliers. Therefore, a supply chain management should be implemented that will improve the understanding of transparency, cooperation, joint action and profit sharing among stakeholders.
- Strategies developed in the mitigation process need to be managed with a more real-time proactive structure rather than reactive. If we evaluate the pandemic in particular, each information requires a new action and not sticking to a plan. For example, if the pandemic was only in the Far East, a different strategy would have to be applied, but if it spreads all over the world, it requires a different strategy.
- Supply chain risk management processes should be included in the digital transformation of supply chain management, which is called by different names such as smart supply chain and supply chain 4.0. Smart supply chain strategy should be implemented. A structure where the whole chain of companies is integrated with each other will increase the flow of information as well as contribute to the early prevention of risks.
- The importance of supply chain management is increasing against major risks. Events such as pandemics, earthquakes, floods etc. that affect high levels of human groups make it even more necessary to manage the supply chain correctly. It should be determined how to strengthen the health, food and energy supply chains, which directly concern human health and living standards, in the event of a pandemic. Business continuity and supply chain risk management plans should be coordinated and established an integrated manner with national pandemic preparedness.
- Stock consumption habits specific to disasters should be observed and a dynamic stock management plan should be developed within the framework of the consumption data and the most effective production plan should be created within this framework.
- Only the data we have may not be sufficient to predict risks. The contagion effect of pandemic cannot be determined. There is always the possibility to be seen in 2-3 phases and to undergo rapid modification. In such cases, different from other risks, international organizations, especially WHO, should be followed and actions should be taken accordingly.

## **6. Conclusion**

In the business world where competition is increasing, companies develop strategies to offer maximum value to the customer and to reduce their costs as much as possible. Although these strategies contribute to the goals of companies, they also bring risks. It is very difficult to manage these risks by a single company. Therefore, supply chain risk management has been developed in

order to manage risks in a wider scope. The supply chain is exposed to various risks. Hundreds of different types of risks such as natural disasters, hurricanes, pandemics, war, fire and flood need to be identified and managed by supply chains. The COVID-19 virus, which the whole world lives, is just one of these risks. Although the pandemic expectation is known by both states and companies, the low probability of realization has created difficulties in terms of evaluating these risks. Many companies around the world could not manage their supply chains in the face of the pandemic and faced significant disruptions. There were difficulties in meeting the needs, especially health and food supplies. This has shown that supply chains are not prepared for the pandemic and cannot manage this risk.

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# Blockchain As An E-Voting Tool

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## Abstract

*Blockchain as a distributed system that confirms security and reliability have started a new era of a solid and consensus system. Blockchain's focus on cryptocurrency is encouraging many other processes to follow the same reliable approach of security. Almost all procedures and operations are now invited to be electronically performed in the digital Ethereum network that has been presented. Moreover, this study proposed the use of an Ethereum network on a blockchain platform in the study when it was moved to a blockchain network to confirm transparency. An E-voting system sample has been tested as a smart contract for the Ethereum network using wallets and solidity language. In the voting test, the Ethereum blockchain will be able to collect records in which voters can use their Ethereum wallets or android devices to submit their votes in a consensus node. The researchers studied the voting system taking Jordan as a case study. This study recommended the adaptation of e-voting to support transparency and voters' trust to reduce corruption and unreliability in the voting processes. Moreover, the use of this system will allow a voter to vote from home in the time of the pandemic.*

**Keywords:** E-voting, voting system, Blockchain, Ethereum, Jordan

**JEL Classification:** 3-5 JEL codes, Times New Roman 11pt, Italic, Block-aligned, separated by commas

## 1. Introduction

Blockchain technology revolutionized financial transactions with the beginning of its practical appearance in 2009 (Nakamoto 2008). The success of using blockchain technology in the financial field led to the expansion of the use of applications that rely on this technology to other areas and fields due to the high transparency provided by this technology.

The use of this technology practically began in 2009 with the emergence of the currency (Bitcoin), which is an electronic currency that is traded between users directly over the network immediately and without the need for any central intermediary authority (government or banks) to complete financial transactions. The process passes through a process of encryption and verification from Other users on the network before storing it in the electronic ledger; because of these advantages provided by this technology, its uses expand significantly in various fields such as storing medical information, registering lands, issuing certificates, etc. (Wood 2014).

In 2015, another currency based on blockchain technology appeared, Ethereum (Ether), which is another electronic currency that works in the same way as Bitcoin, in addition to providing the possibility of producing applications that enable users to keep information in an orderly and verified by smart contracts, as will explain later in this paper (Clack et al. 2016).

The information stored by blockchain technology cannot be tampered with or modified illegally, which raises the level of transparency and security for users of this technology, and this feature has made this technology suitable for to be used in areas requiring a high level of transparency and security such as electronic voting. Many researchers have discussed the possibility of using technology to conduct the electronic voting process, and the most significant concern during this process has always been security and transparency. However, the number of studies dealing with reliable techniques and applications such as applications that rely on blockchain technology is still minimal. Several studies highlight successful examples of conducting electronic voting. However, in small or unofficial voting, such as conducting opinion polls or questionnaires on the Internet, the use of these technologies is still very limited and risky for governments and large companies to conduct the electronic voting process primarily and officially.

As we mentioned earlier, using these technologies is still limited to conducting polls, polling, and even taking people's opinions about laws. On the other hand, most governments worldwide still use traditional voting methods using papers and ballot boxes. However, with the advancement of technology and the increase in population numbers, traditional voting continues to raise questions about the reliability of people in charge of the traditional voting system, the transparency of the process, the guarantee that the results have not tampered, and finally the cost of holding these elections frequently.

## **2. Jordan**

Almost all traditional governmental services, in many countries, are being transformed to become electronically performed (Rumman et al. 2018). Some governments have invested in adapting technologies to implement e-voting in their voting systems. Many studies conducted researches on the e-voting systems in developed countries. As a developing country, Jordan still uses the 'paper-based' voting system, and it has been used for decades. However, the traditional parliamentary voting system encounters many problems. Every 4 years, the Jordanian parliament and municipal elections and many committees, governmental boards, and professional unions are being elected. The influence of political money and politicians' influence on the communities and people are challenging issues in Jordan's case. Moreover, the lack of trust in the Jordanian government decisions and the unreliability of the parliament elections' performance. Accordingly, there should be several significant researches to study those challenges in which, an electronic voting system is performed to manage and control the entire election processes. A research paper tested the process of electronic voting at a university in Jordan, considering Jordanian universities as mirrors of the actual community. Abu-Shanab et al. (2010) have conducted this research during the student union elections. He tested the e-voting system on 302 Jordanian. The results were tested based on the TAM model and stated that students accepted the e-voting system and trusted the processes. It reduces errors and improves the convenience and integrity of the election processes. Aljarrah et al. (2016) proposed an actual e-voting system based on the TAM model and studied the Jordanian voters' readiness. In this study, a proposed solution and framework are offered to improve and solve the traditional voting system challenges and problems. In pandemics and social distancing, governments should be smart to quickly adapt these processes and techniques to save time, costs, building voters' trust, and stop political money. These solutions will extract a reliable and correct result, which will reduce corruption and politicians' bad influence on voters. The researchers have clearly searched and studied the laws and by-laws of Jordan. It was clear that this process is not mentioned in any article of the regulations. The Jordanian Independent Elections Committee has

also stated that e-voting is not official in the present regulations. To sum up, this research recommended the change of the law and by-laws to allow the use of this trend, especially when technology has become the only safe interaction in the world of pandemics.

### **3. Related Work**

Concerning our most crucial inspiration in this mission is to grant an impenetrable and dependable e-voting scheme conceivable using blockchain. Since the user has a pc, he can be capable of voting, or even by a mobile phone, every single regulatory desire can be made by way of people and individuals; even the slightest people's conclusion will be more open and extra available by lawmakers and managers. This will inevitably lead humankind to the real direct majority rule government (Çabuk et al. 2017). It is integral to be controlled without problems precisely in little towns, and certainly in more significant cities discovered in degenerate nations. As a count number of truths, it will be less in price, assuming a significant quantity of areas will be covered in this election when considering so many cities (European Commission 2014).

Moreover, the voters who could be on vacation outside their country can easily share in e-voting. The thought of e-voting is if truth be told, more professional than blockchain. So, all regarded cases so the far-off utilized skill of centralized computation and capability models. Estonia is a terrific case when someone considers that Estonia's government is one of the principals to actualize a completely online e-voting arrangement (Hao et al. 2016). The notion of e-voting was started to be debated within the state in 2001. In which authoritatively begun with the aid of the countrywide professionals within the summertime of 2003 (Braun 2004). Their method is nevertheless in utilize, with numerous advancements and changes in the unique plot. As detailed, it is as of now fantastically reliable. They utilize smart superior ID cards, and non-public card s have been made thru the government peruses (Alketbi et al. 2018). Those who will participate in the elections and have a pc with a web connection can without problems vote.

Individuals can also make requests and points for acts and laws at the parliament's web page (<http://rahvaalgatus.ee>). Requests cautiously marked by using a wise Identity card by way of anyone's wishes backing the proposition. In case requests finished a certain number of persons, they will be examined in the parliament. That is any other remarkable case acting how using technological know-how can reinforce the popular authorities. That is another excellent case appearing how using technology can reinforce the popular government. Even though being admitted being fruitful and coming to about 30% penetration rate amid later decisions, the Estonian demonstration has, in some parts, not acceptable. The most essential arrangement, by its nature, has a one-point-of-no success in which attempts of people who are not authorized can get access to data in the system. The adaptability of this machine is another address. As long as Estonia encompasses a commonly small population, it is challenging to gauge in the match that this framework could work smoothly in, say, China. The steady usage for the Identity card and the peruser gadget is not always pleasant, as well refers to the additional fetched of, conveying, and carrying and producing voters. In case, Disseminated Denial of Benefit (DDoS) assaults can damage the laptop program, servers, or databases utilized. The chairmen of such a framework can also act badly and take, in case he cannot control, a few vital data amid the election.

Other likely advertisements or format sheets located on the Web the factor to point to that issue such as [https://followmyvote.com/.](https://followmyvote.com/), Human beings who will vote are mentioning whom they vote to namelessly and to remember any unknown votes by observing the scientific formula. At the same time, they recognize there can be mysterious false votes, and they too comprehend that not

each person in the selection announced whom they vote. That is why they put an edge to rate the results. In any case, it does not now appear a proper easy conclusion. Although to be an excellent endeavor, it is proper now a long way from being a to a sturdy arrangement.

One of the few countries that use the e-balloting drift is Switzerland. Switzerland is regarded for its large popular government; everyone who is 18 years old can take a dynamic or inactive phase to decide which one may also be held in numerous different points for many various choices. They have moreover started a legitimate work on a voting framework called inaccessible voting (McCorry et al. 2017). <http://www.strawpoll.me/is>, an internet surveying illustration that can be used. Instead of an e-voting system may also be a well-regarded and free service. It is a straightforward website that lets all people create questions and replying to others' surveys with votes. It appears how capable can e-voting be that all and everybody can effortlessly receive to the elections and employ their votes and declares their choice. Individuals can share non-public hyperlinks to anyone already carried out the survey (if they understand the connection), and those who have the connection can vote, and one software program can be used.

<http://www.strawpoll.me/> trusts folks around that they will no more violate the election approach decision whereas profiting ease to get right of entry to and utilizing highlights of e-voting. Subsequently, it cannot be utilized in actual cases, such as deciding on the department's head. To be protected here, in terms of actual voters, replica votes, and non-rejection of votes is relatively weak at <https://electionrunner.com/>, another illustration of e-voting action is actualized added a versatile application and an internet page which folks make and share the elections with different clients. Individuals can signify who will vote and how lengthy it will be remaining, and after that, they put up this election to be sure of it via those who are checking the election system. However, one nevertheless desires to accept as accurate with the central experts who run the elections Inc. Nevertheless, It is one step absent in having a 100% easy and expert e-voting stage. A desirable complete search for paper offers a strong systematic theoretical blockchain-based on e-voting computers (Takabatake et al. 2016).

The writers additionally considered the counteract for voters can now not be observed, and the voting secrecy through the utilization of a center section between the voter (wallet) and the candidate (wallets) as nicely as the utilize of two-coin sorts for these in-between coins (vote) exchanges. Here, money (votes) dispatched with the aid of the voters' implies are accumulated thru the midway unit and modified to another currency's wallet. At that point, the intermediate unit sends the new money to their proper destinations (candidates). Despite the reality that it could be a fantastically enlightening source, it does not consist of documents regarding placing the layout into action, aside from using Bitcoin and Zero coin as the economic forms or giving a massive speak about.

At the time of composing, few scholarly works are covering the Ethereum blockchain as an e-voting arrangement. In (McCorry et al. 2017), Our essential objective is to center on performance works and assemble our association on a little scale to create our online college elections: office chairs, university minister, or student's committee election. It will be done so that everyone can be tested, maintain the decision dealt with, and college students handle will be entirely online so that everybody may go to vote without problems in university's decisions. Our indispensable commitment to the concept of the online decision in becoming a member of them with the Ethereum blockchain stage.

A conference was made through writers who have proposed a complete and an impervious protocol to using the Ethereum blockchain. Their conference with complex numerical operations in

this way, which needs tremendous computational control, seems it is not always the Web of Things (IoT). We constructed Ethereum shrewd contracts that allow us to test over the variety of voters at the end of the election. Our contract has capacities to give the time and length of the election, such as one hundred twenty minutes or three thousand minutes. Also, to comprise any Ethereum account to the elections. By using the accounts' hash values, people's personalities cannot be revealed. Individual confirmation is viewed as a distinct sub-problem and cleared out of this consideration's scope, as correctly as felony directions. Confirmation is considered a different -problem and cleared out of the scope of this consideration and legal directions.

#### **4. Implementation and Discussion**

In this research, the researchers favored the Ethereum environment as a development scheme and the blockchain network. This was due to some considerations related to the following. Bitcoin is only meant to prove the accuracy of coinage transactions or, in other words, the validity. Moreover, the Ethereum network presents a broader domain of used cases, accompanied by the SC ability. Several applications that usually need a web server without it being utilized in utilizing a server. As a result, it is quite challenging to handle or ruin the deliberated software source codes.

The whole processes which are related to the Ethereum network are supposed to be in actual time. Blocks, in this case, should be written in the eventual chain in reciprocity for some Ethers. These are offered as an award to the person who performs these validation processes and writing, exorbitant in the scopes of power and computation time. The authors have determined their (intelligent) Smart Contracts (SC). A durability programming environment should be available to write these contracts, which is python. Every 14 seconds, SC is carried out via the Ethereum network peers in which they are also should be validated by a minimum of two other users to be operated. Subsequently, contract functions can be performed and put into effect, and then contracts can be distributed between different members of the group (candidates).

To be able to engage fully online elections, there is a necessity to solve the following troubles. There is an exigency for transparency, the process of authentication, and demonstrability in the voting framework. There is an obligation to guarantee the individuals who are attending the elections. By using this technology, actual people (voters) can use the right credentials that were recognized in the electronic platform. Likewise, governments require the election frameworks are almost 100% translucent as coveted. Thus, there is a need to collect and examine timestamped also signed data of the elections.

These concerns can be cleared up by a peer to peer blockchain approach. The researchers can determine the needed SC self-executable among the blockchain quickly. It is just like deploying software. They precisely describe the nature of data models, the scope of rules, objects, and consequently, contracts could be put into effect and executed. In the time following SC are commenced, they could not be outcasted from the blockchain, and individuals can check whether the outcomes of SC implementation are correct or not. Within the Ethereum network, there will be no necessity for a primary power to present the evidence-of-effort. Each of the peers can compute the contracts' outcome with no intervention as the Ethereum network is fit to offer the abstract concept of self-tallying (McCorry et al. 2017).

Within any proportion, utilization of the authentic Ethereum network for inspecting an empirical program associated with such SC's evolution is expensive (as it demands buying some Ethers) and needlessly takes up large system memory. Consequently, the networks of confidential Ethereum

are produced and made obtainable to permit the developers to examine their code without crowding the base network.

Among the provided, the code fragment in Figure 1 demonstrates the variable (Voter) description. Which is specified as a data type in the robust coding environment. The authors defined the class Voter and gathered Votes in an array. Voters possess several merits and could have additional properties based on the provided use- case schemes. The variable "hasVoted" indicates that if the voter has completed the voting process, the vote will be cast in a lively manner. In a like manner, the variable (vote) accumulates the voter choice from the available candidates, termed propositions on a wider concept (determined in the role of proposition struct). Moreover, ID is defined as the Ethereum platform wallet address related to a voter account among the Ethereum network. As an example, a voter could obtain the below values for the associated properties:

ID: 0xA50965642cdf3C173x8430A3D43EF5CE9673724

hasVoted: true

```
address public presidePerson;
struct Voter {
    bool hasVoted;
    bool eligibleToVote;
    uint8 vote;
    address conformity;
}
struct Proposal {
    uint voteCount;
}
```

**Figure 1. Code segment to expound the variables and structs.**

The address-typed variable "reside person" saves the accountable individual's wallet address, who is the prime person responsible for running the voting process. Anyhow, he/she unable to influence an in progress (or concluded) voting; he/she owns the privilege to commence the voting action and the Voter associated themes that will be allocated to actual voters. By what means this manner has executed is provided in Figure 2.

In Figure 2, the grantPrerogativeToVote function can be perceived. The contract proprietor, who was proclaimed once during the contract initialization, is kept in the presidePerson variable. The contract proprietor can uniquely carry out this function. This feature can be inspected via a direct if clause. Afterward, we grant the voting privilege to the entitled voter's (wallet) address. An illustration is provided below:

grantPrerogativeToVote(0xFA48A37b58E1a3e2F803eC264578bE  
B069aA0818);

The individual, who possesses that Ethereum address, enjoined by the presidePerson, holds the prerogative to vote in the current active contract.

```

function grantPrerogativeToVote(address theVoter) public {
    if (msg.sender != presidePerson ||
        voters[toVoter].hasVoted){
        return;
    }
    else{
        voters[toVoter].eligibleToVote = true;
    }
}

```

**Figure 2. Code segment to the function that commences voters.**

We coded the vote() function, provided in Figure 3, which could be performed by every voter, at which they need to be present at the voting process (until the finishing time). Voters only forward the proposal id, which they intend to vote, as a parameter, and their votes are consequently registered. This function primarily reveals who presently is attempting to implement that contract function. Additionally, in case the person holds the prerogative to vote and has cast his/her vote. Afterward, the person is flagged as hasVoted, and the candidate (proposal) vote count is augmented by (1) one or other value depending on the voter weight.

```

function vote(uint8 towardProposal) public {
    Voter storage sender = voters[msg.sender];
    if (sender.isVoted || towardProposal >=
        proposals.length && !sender.eligibleToVote)
        return;
    sender.hasVoted = true;
    sender.vote = towardProposal;
    proposals[towardProposal].voteCount += 1;
}

```

**Figure 3. Code segment describing the vote casting operation.**

The function of triumphProposal(), which is given in Figure 4, gives back the identity of the triumphing contestant in the triumphProposal variable. This doesn't end the voting operation itself. However, it gives back the triumphing proposal each time it is put into effect. This function examines each proposal, depends on the votes, and after that sends back the person who is the winner among the voting process within the execution time, as it doesn't stop the election.

```

function triumphantProposal() public constant returns
(uint256 _triumphantProposal) {
    uint256 triumphantVoteCount = 2;
    _winningProposal=0;
    for (uint8 pillar = 0; pillar < proposals.length;
        pillar++)

```

```

if (proposals[pillar].voteCount > triumphantVoteCount)
{
triumphantVoteCount = proposals[pillar].voteCount;
_triumphantProposal = pillar;
}
}

```

**Figure 4. Code segment that shows the voting process results.**

Table 1 demonstrates the test ballots. The time consumed with every vote for all voters is computed. Voter 1 is the one who generates the test-election and owns the privilege to vote primarily; however, other voters do not possess this privilege to vote. Thence they should be granted this voting authorization.

**Table 1. Creation of Contract and Voting Spent Times**

	<b>Contract Origination</b>	<b>Voter-1 Procedure</b>	<b>Voter-2 Procedure</b>	<b>Voter-3 Procedure</b>	<b>Voter-4 Procedure</b>
<b>Voting #One</b>	37s	32s	46s	48s	49s
<b>Voting #Two</b>	31s	31s	44s	43s	43s
<b>Voting #Three</b>	41s	38s	55s	54s	54s
<b>Voting #Four</b>	45s	36s	53s	52s	52s
<b>Voting #Five</b>	1m	31s	27s	27s	27s

It commonly appends one block generation time to their original voting time. As it could be noticed in the table, usually, voter 1 is quicker than others throughout casting their votes. All contracts can be operated asynchronously, so voter three does not have to bide others. The time difference in process observation is the block creation and travail load in the network. Nevertheless, it never overrides for one minute.

An essential issue of blockchain-based e-voting platform is to offer voters anonymity accompanied by no effect on the voting process transparency. Mainly, all the transactions (transfers, votes, etc.) are inserted to the blockchain blocks as plaintext. For that reason, a vote from wallet address X to wallet address Y could be perceived by anyone who owns access to the chain, which is, indeed, a significant abuse. Also, it is not imaginable to use such a method for substantial/critical elections. Ensuring this anonymity is another main confront in the obsolescent works. Figure 5 demonstrates the entries related to the vote process creation among the blockchain, which is publicly obtainable to any person involved in this scope.

Hao et al., within this work, offered a solution founded on the Diffie-Hellman process, which also denotes the utilization of random numbers beside public/private key pairs, hence a "two-round" referendum could perhaps be accomplished with ballot privacy(Hao et al. 2016). However, this research does not contemplate the blockchain technique; it is not straightforward to endorse for several scenarios; nevertheless, authors of (Hao et al. 2016) have executed it for an Ethereum smart-contracts enforcement in their subsequent examination.

Figure 4. Voting process entry creation

5. Conclusion

In this paper, the researchers made it successful to build a proposed blockchain e-voting platform. It was clear that using the blockchain and Ethereum network will be one of the best options to build trust in the voting system. The proposed system solved the security debates in which Integrity, privacy, and transparency were confirmed. As a distributed system, authorities cannot or will not interfere in the voting records, in which corruption and cheatings are omitted. The accessibility of voter is vast in which all devices with an internet connection can access and accomplish the voting task in a reliable and secure as well as effective way. If authorities and governments are searching for a voting system in which no internal or external political and/ or governmental interference are available, then the blockchain-based Ethereum network is the perfect solution.

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# What prevails at the Slovak Food Market II: Regional Variances in Customer Perception and Food Quality

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## **Abstract**

*When buying any goods, the customers are guided by their preferences, which are influenced by various factors. In the case of food purchases, we can observe that the emotional field of an individual becomes a battlefield where basic emotions (mainly fear – hunger) compete with higher needs (especially recognition – consent of the group). This internal fight causes the creation of myths. Our previous research has shown that the method of shopping and the value of the purchase is the same throughout the Slovak market. The aim of the paper is to continue this research and identify differences versus similarities in the concept of “quality” from the perspective of the customer based on the region and income.*

**Keywords:** customer preferences, questionnaire, Slovakia

**JEL Classification:** M31

## **1. Introduction**

Money and food are areas that most people believe they understand well. But these are also the areas where completely wrong decisions are most often made. The previous sentences are not scientific claims but describe the impression based on interviewing respondents during a preference survey. A typical consumer tends to think in certain stereotypes. A common stereotype is that there are large differences in customer preferences. It is assumed that these differences depend on such variables as place of residence (regional differences), education or income levels. In a previous study, we have proven that there are no differences between regions in shopping habits. Customers with significantly different preferences represent a minority group.

Brunso (2002) states that there are different views of the quality of food. The most frequently applied are the views of the manufacturer, the view related to the process and the customer view. In this paper, we examine the customer's view of product quality. Using a questionnaire and then statistical tests, we determine the dependence between opinions on the quality of food and the income of the respondent. We set the null hypothesis H<sub>0</sub> and the alternative hypothesis H<sub>1</sub>.

- H<sub>0</sub> There are no statistically significant differences between consumers' income and their perception of quality.
- H<sub>1</sub> There are statistically significant differences between consumers' income and their perception of quality.

## 2. Data and Methods

In March 2018, we conducted a survey of customer opinions on the quality of food. Respondents were asked what the quality of food means for them. In response, respondents could choose from five options that were developed through interviews with the expert and the lay public. The survey was conducted by an internet questionnaire. We received a total of 3,295 responses. Using a paired t-test, we verified that the obtained sample corresponds to the population on the Slovak market, by comparing the following demographic criteria:

- Respondent's residence – city versus village
- Respondent's residence – the region of residence
- Respondent's financial income
- The money spent by the respondent for the weekly purchase of food for the household

Respondents chose from five options to answer the following question: "For me, the quality of food primarily means that". Given that the questionnaire was submitted to the ordinary consumer and not only to the professional public, the respondents chose from the options that correspond to common opinions and not to the professional categorization of quality. Respondents chose from the options presented in Table 1.

**Table 1 Response options in the questionnaire to the question "For me, the quality of food primarily means that".**

Answers in questionnaire	Simplified answers used in tables and figures
I am well aware about food product contents	Contents
I am sure that the food does not contain harmful substances	No harmful substances
I know exactly who and where produced the food	Origin
I am sure what technology was used during the food production process	Technology
I prefer the taste and I don't care about the origin or contents	Taste

Source: Survey by authors

We received 3,295 responses to the questionnaire from respondents divided into five income groups. The distribution of income groups corresponds to the distribution of income among the population on the Slovak market. The largest group is the income group of EUR 501 to 800 per month. The breakdown of the obtained responses is in Table 2.

**Table 2 The empirical number of responses to the question "For me, the quality of food primarily means that".**

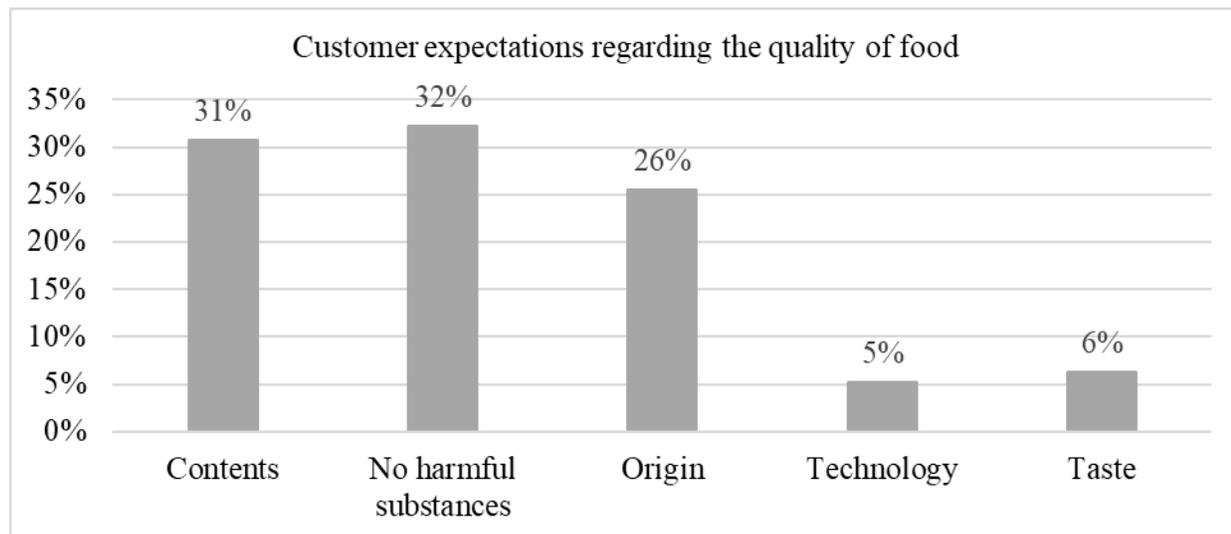
	Contents	No harmful substances	Origin	Technology	Taste	Total
<b>Total</b>	1 013	1 062	842	171	207	3 295
Income						
Less then EUR 500	240	316	236	38	71	<b>901</b>
EUR 501 – 800	349	364	292	67	66	<b>1 138</b>
EUR 801 – 1 000	227	206	170	40	40	<b>683</b>
EUR 1 001 – 2 000	179	161	126	21	25	<b>512</b>
Over EUR 2 001	18	15	18	5	5	<b>61</b>

Source: Survey by authors.

### 3. Results and Discussion

The responses of respondents show a significant difference in the preferences for individual response options to the question of quality perception. The most important for respondents is that they know the food contents or that they are sure that the food does not contain harmful substances. We consider the frequency of these responses to be the same, as the frequency difference is around 1% (31% food contents and 32% no harmful substances).

**Figure 1 Customer expectations regarding the quality of food**



Source: Survey by authors

Respondents attributed less importance to the origin of food – who and where produced the food. The 5% to 6% difference in frequency between the first group (food contents and no harmful substances) can also be interpreted as an insignificant difference in case this work is used for practical marketing purposes. The origin of food is only in the third place of importance for the respondents. This is a very important incentive for the creation of a marketing strategy, as promoting sales from a specific source is the goal for production and retail chains.

Significantly less importance was attributed by respondents to the quality of technology and taste. The technology is considered to be a quality guarantee by 5% of respondents. Similarly, 6% of respondents are only interested in taste. In the case of technology, however, there is a significant

difference in perception of the importance of quality between the lowest and the highest income groups. Only 4% of respondents from the lowest income group said they identify quality with technology. However, up to 8% of respondents from the highest income group said that they identify technology with quality. If, despite the low number of respondents in the higher income group, we consider these figures to be conclusive, we can draw several conclusions: higher-income consumers are better informed about the nature and impact of technology on the quality of food (assumption of higher education), they are financially motivated to a particular technology (e.g. technology suppliers and their employees), they are motivated in another non-financial way to prefer a particular, likely more expensive technology (such as kosher products).

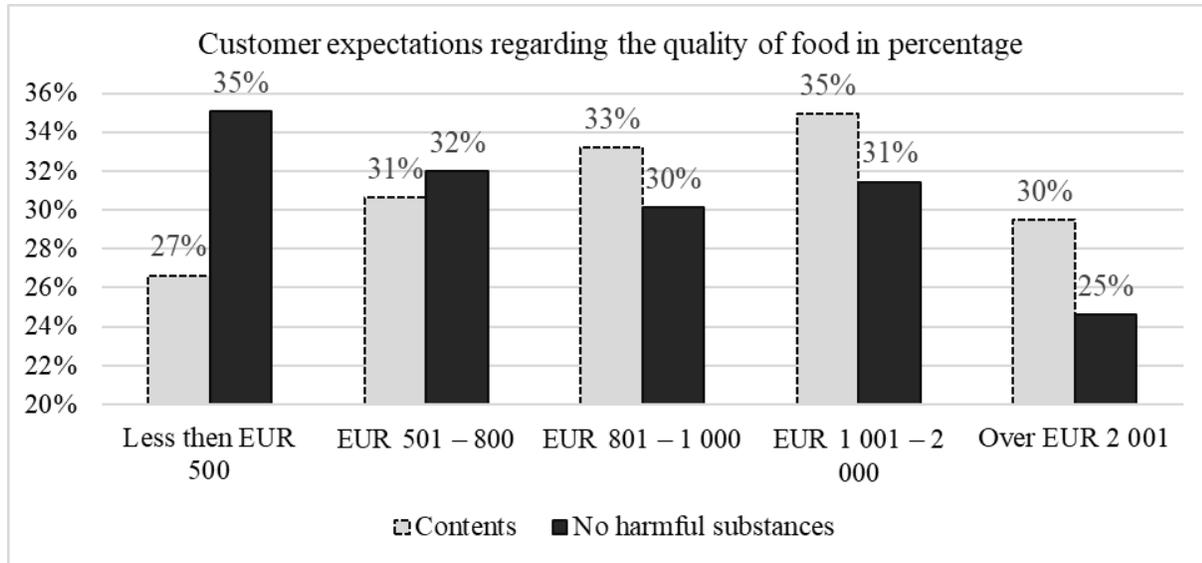
**Table 3 Customer expectations regarding the quality of food in percentage**

	Contents	No harmful substances	Origin	Technology	Taste
Total	31%	32%	26%	5%	6%
<b>Income</b>					
Less than EUR 500	27%	35%	26%	4%	8%
EUR 501 – 800	31%	32%	26%	6%	6%
EUR 801 – 1 000	33%	30%	25%	6%	6%
EUR 1 001 – 2 000	35%	31%	25%	4%	5%
Over EUR 2 001	30%	25%	30%	8%	8%

Source: Survey by authors

An indirect confirmation of the explanation of the different perception of technology between the low and high-income respondents is a comparison of the emphasis on foods without harmful substances. The low-income group of respondents considers this answer to be significantly more important than the higher-income group. Figure 2 shows that the absence of harmful substances is more important for all other income groups than for the high-income group. In addition to the reasons given above, i.e. trust in and preference of a particular technology, over-sensitivity and the credulity of lower income groups towards the negative reports on the content of harmful substances in food can also play an important role.

**Figure 2: Comparison of the preferences of the two most important expectations by income of respondents**



Source: Survey by authors

To verify hypothesis H0 and H1 we used a chi-square goodness of fit test. By performing this test, we obtained a p-value of 0.0502. The critical value is 26.296 and the test characteristic is 26.281. Since the test characteristic is lower than the critical value, there is no dependence between the values and therefore we accept the H0 hypothesis.

By the chi-square goodness of fit test, a p-value of 0.0502 has been obtained, which is at the very limit of statistically significant dependence. Thus, we can confirm that there is no dependence between the respondent's income and their perception of the quality of food. It would be appropriate to carry out a repeated survey on an extended set of respondents to confirm this conclusion.

#### 4. Conclusion

The results of our survey of respondents' opinion on quality and the subsequent analysis showed that respondents identify quality with food contents and at the same time with the absence of harmful substances. They also see less connection between quality and technology. A small proportion of respondents are not interested in quality and are motivated only by taste.

These results do not agree with the research of A. Rohr (2005), which stated that for all surveyed foods (eggs, beef, apple) consumers consider appearance as the most important. In second place, consumers indicated taste. Other criteria were identified in the following order: production, origin, quality mark, place of purchase, and the least important is price. The quality was placed approximately in the middle of significance, without defining what is considered to be quality.

Using the chi-square goodness of fit test we confirmed the hypothesis H0: There are no statistically significant differences between consumers' income and their perception of quality. This means differences in quality perception between the different income groups are not as significant as generally assumed. The only more significant difference is in the preference of technology in the group of respondents with higher income.

For further research, we propose several questions that have emerged from our research. With regard to p-value of 0.0502, we propose to repeat the research on an extended sample. We also

suggest a repeated survey of customer opinions with the same questions but with the replies placed in a different order to exclude the possibility that the order of questions or replies affects the frequency in the results. It is necessary to establish whether respondents are able to distinguish between the food contents and the absence of harmful substances. Studying the question of whether technology is really more important for higher-earning people can also produce interesting results with an overlap in the psychology of decision-making.

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# Livelihood strategies of Mongolian herder households

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## **Abstract**

*Classification of livelihood strategy and investigation of its transitions in a systemic and quantitative approach is essential for understanding rural livelihoods' dynamics, the determinants of livelihood strategy choices and mobility, and the implications for designing effective poverty alleviation and rural development strategies. The research aimed to identify Mongolian herder households' livelihood strategies and assess factors that impact their choice and livelihood outcomes in connections with wealth and poverty. Total of 350 herder households surveyed using the stratified sampling methods from four different economic regions. The Nearest Neighbor Analysis cluster method was applied to identify herder households' livelihood strategies based on their primary income sources and analyzed influencing factors. Nomadic Mongolian herder households' livelihood strategies clustered into four types: a) livestock income sources b) earns from kinship and assistant herder; c) social benefits and pension income and d) income sources dependent on natural resources. The wealthier households with many animals are grouped in cluster A, while the herder households with the few animals belong to the other three clusters. Results of the correlation analysis of financial, human, physical, natural, and social capital influence the livelihood were vary depending on the different economic regions. Location, financial capital, and physical capital were the main factors for choosing a specific livelihood strategy. There was an insignificance difference between poor and wealthy herder households in terms of physical assets ownership. To reduce rural poverty, we need to tailored sustainable development policies based on different herder households' livelihood strategies.*

**Keywords:** capitals, herder households of Mongolia, livelihood strategy, income diversification

**JEL classification:** Q01, Q12, I30, D19, D31

## **1. Introduction**

Mongolia locates Asia's heart and one of the countries that have experienced a transition economy from a centrally planned socialist system into a market-driven economy. While Mongolia has experienced the mining boom, one-third of citizens remain on the steppe, continuing their lifestyle

as nomadic herders. Mongolia's economy is dominated by the agricultural sector, providing an average of 10-13% of GDP, 6-8% of export earnings, and employing 28-30 % of the country's labor force in the last ten years. The livestock sub-sector remains dominant within the agriculture sector, accounting for 88% of agricultural output in 2019. However, the sector remains vulnerable to weather conditions, as seen from the severe dzuds of 2000-2002 and 2009-2010 (World Bank, 2012). Although livestock numbers were declined during the successive dzuds 7-8.5 million, the number has been steadily increasing since then and reached 70.9 million in 2019. Herders' livelihoods are dependent on access to a natural resource with a fragile ecosystem that is subject to degradation of over-grazed or mismanaged pastures to a certain extent, and highly vulnerable to a severe climate like the harsh, cold winters known as dzud in Mongolian (Worldbank, Worldbank.org, 2015). Herders are responsible for all production inputs, risks, and decisions.

Pasture productivity and capacity have been annually decreasing due to adverse impacts of human activities and multiple environmental issues, such as low annual precipitation and uneven distribution, and drought. Pasture land area decreased from 140 million ha to 112 million ha. 65% of Mongolia's pastureland is degraded to a particular extent, varied by ecological zones (MoFA and SDC, 2015).

In addition to an increased number of animals and overgrazing problems, rural poverty has been a concern for nearly 30 years. The rural poverty index ranges from 26.4 to 30.8 percent between 2014 to 2018 (NSO and World bank, 2020). The official government welfare grouping indicator is very poor = 0– 50 animals; poor = 51–100 animals; average = 101–500 animals; better-off = 501–1000 animals; and wealthy = 1000 animal (Leisher et al., 2012). NSO and World Bank (2020) noted that increasing livestock product demand and prices, better connectivity to markets, more wage employment opportunities, government subsidies, and transfers have contributed to improving herders' wellbeing. However, their livelihoods, highly dependent on livestock, are still extremely vulnerable to unexpected shocks, including livestock price fluctuations and natural disasters. The recent acceleration of pastoral degradation could also negatively affect the sustainability of herders' livestock activities and welfare.

For this reason, there is a need to study how to improve and sustain rural people's living conditions by overcoming shocks such as natural disasters, economic shock, livestock health shock. National and international researchers have studied interdisciplinary topics, rural poverty, natural disasters, and pastureland issues and how these affect herder households' livelihoods. These livelihood studies are based on herder households' number of animals. Nevertheless, Robin Mearns (2004) posited that income from animal husbandry is not the sole income source for the Mongolian herder households; some irregular income is accounted for. Thus, their livelihood strategies and poverty trends are not clear yet. The research objective is to identify Mongolian herder households' livelihood strategies and assess factors that impact their choice in connections with wealth and poverty. We hypothesize that herder households earn the majority of income sources from animal husbandry and an essential factor in the choice of livelihood strategy is the number of animals.

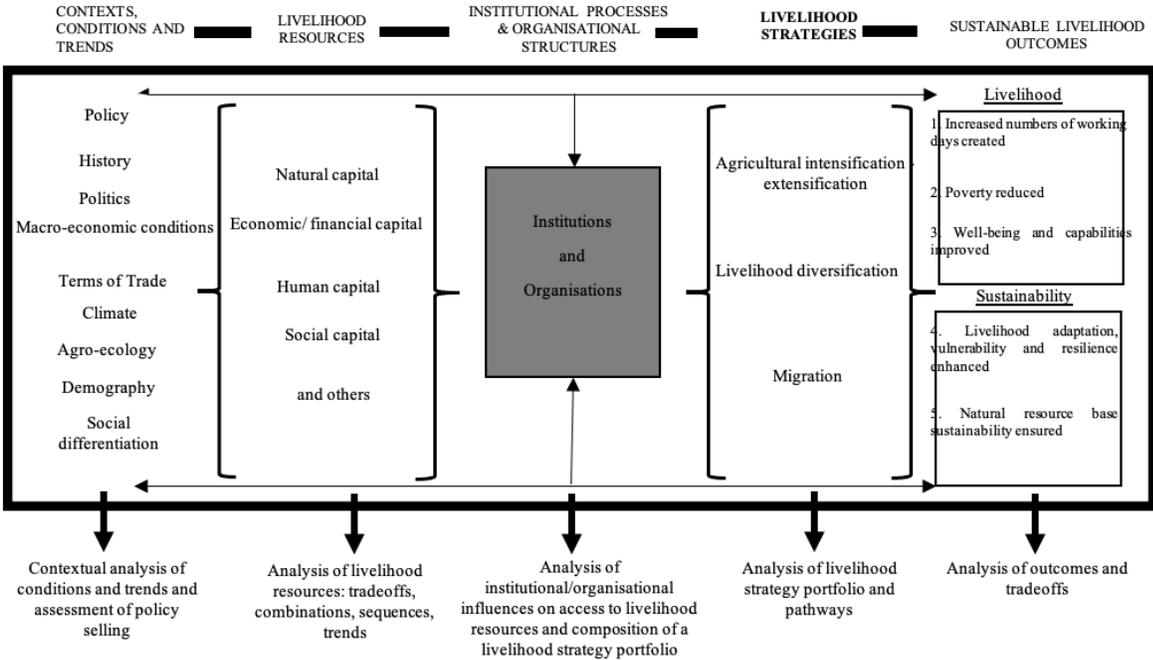
## **2. Data and Methods**

### **• 2.1 Theoretical Framework**

Department for International Development (DFID) defines livelihoods guidance sheets based on Chambers & Conway (1992) since 1998. Although DFID has not been developed since its inception, it is still used in most studies. The basic premise of the Sustainable Livelihood

Framework is a DFID framework based on the work of Chambers & Conway (1992). DFID defend terms the following: A livelihood comprises the capabilities, assets, and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resources base Figure 1.

**Figure 1: The sustainable livelihoods framework (Scoones 1998; Scoones 2015)**



Source: Scoones 1998; Scoones 2015

• **2.2 Literature review**

Classification of livelihood strategy and investigation of its transitions in a systemic and quantitative approach is essential for understanding the dynamics of rural livelihoods, the determinants of livelihood strategy choices and mobility, and the implications for designing significant poverty alleviation and rural development strategies (XiJiao, MarièvePouliot, Solomon Zena Walegn, 2017). In a joint publication, United Nations Food and Agriculture Organization (FAO) and World Bank (WB), Farming systems and poverty, small producers in developing countries around the world, supply most of their food but remain in poverty, described their livelihood strategies based on similar new qualities to improve their livelihoods. As a result, 72 farming systems were identified in six developing regions, an average agricultural population of about 40 million inhabitants. This research invented the eight broad categories of the farming system. Mongolia is classified in *Rainfed farming systems in dry or cold low potential areas, with mixed crop-livestock and pastoral systems merging into systems with very low current productivity or potential because of extreme aridity or cold categories* global farming system (Dixon & Gulliver, Aidan with Gibbon, 2001).

Like in most agriculture-based countries, socio-economic and ecological developments are inextricably linked in Mongolia. The number of animals regarded as a proper approximate measure of the wealth of herding households in Mongolia as the animal origin product is the primary income source of herder households. Although the number of animals increases, herder's income inequality has been extending. A share of herders' households with less than 200 animals is 43% in the total number of herder households, while their herd size accounts for only 12% in the total number of animals (FAO and MoFALI, 2018). A study conducted by Japan International Cooperation Agency (JICA) and the Ministry of Food and Agriculture (MoFALI) in 2006 on the income of herders with different herd sizes are reported: herders with herds of between 101-200 animals have expenditures roughly equal to income, but at a subsistence level; no funds remain. They are not worth the expenditure on long-distance moves. Furthermore, other investments, such as purchasing improved breeds, are not feasible (JICA and MoFA, 2006).

Rural households of less developed or developing countries often engage in a diverse set of income-generating activities to diversify their income base to reduce risk exposure, maintain consumption requirements in the event of shocks, and accumulate wealth. After shifting to the market economy in Mongolia, some studies were carried on the herders' livelihood. However, those available studies are multidisciplinary studies mainly focused on pasture management, overcoming natural disaster-dzud, community-based rangeland management (G. Brown Arun Agrawal, 2013), (María E. Fernández-Giménez, B. Batkhishiga, B. Batbuyan, 2012), (Robin, 2004) (Schmidt, 2006), (María E. Fernández-Giménez, 2015), (Peng et al., 2017). Robin Mearns studied Mongolia's pastoral livelihood and Poverty assessment in 2000 based on the sustainable livelihood theory. The research covers 180 households, of which 86 were rural households, and the rest were *soum* center households. This study examined the rural poverty profile in detail in terms of income structure and compared it with other households, based on a sustainable livelihoods framework. Moreover, it tried to identify the livelihood strategies, asset factors for choosing a specific strategy, output, and outcome and determine their livelihood strategies, shifting from poor to the better-off and wealthy classes. Although the livelihood survey focuses on household income and expenditure, some middle-class households fall into the extremely poor category due to excluding some irregular incomes (Robin Mearns, 2004).

- **2.3 The study area**

The study applied two-stage stratified sampling. Animal numbers and herder households at *soum* (the second administration unit of Mongolia) and the *bag* level were taken from the annual animal census-2015 of National Statistical Office Mongolia. Herder households are nomadic. The study excluded the households with livestock at 330 *soums* centers and 21 *aimag centers* (The first level of the administrative unit of Mongolia). The first stage or *soum* sampling considered every zone's representation, the number of herder households (1-499 and 500 more), and distance to *aimag centers* (1-199km and 200km more). According to these indicators, every *soum* (total 309 *soums*) has divided into stratum. One *soum* per stratum was selected: **Khangai region**-Arkhangai *aimag*-Ikhtamir, Battsengel, Tsakhir *soum*, Bayankhongor *aimag*-Bayanlig, Bayantsagaan *soum*, Khuvsgul *aimag*-Alag-Erdene, Arbulag *soum*; Uvurkhangai *aimag*-Bogd *soum*; **Central region**-Tuv *aimag*-Undurshireet, Buren, Delgerkhaan *soum*, Umnugobi *aimag*-Mandal-Ovoo *soum*; **Western region**-Zavkhan *aimag*-Erdenekhairkhan *soum*, Khovd- Chandmani *soum*; **Eastern region**-Dornod *aimag*-Tsagaan-Ovoo *soum*. As a consequence, 15 *soums* of 9 *aimags* have selected as the survey respondents.

The following formula determined the number of herder households for sampling

$$n = (Z^2 p(1 - p))/e^2 \quad (1)$$

Where:  $n$  – sample size,  $Z$  –  $Z$  table value in confidence interval (1.96),  $p$  – phenomena expectation (unit weight of herder households to a total number of households),  $e$  – accuracy expressed by relative expectation. Survey sample size (95.0%-confidence interval, 5.0%-accuracy).

Thus, a total of 350 herder households was selected. The number of survey respondent units from the chosen *soums* are done by equal distribution method (350:15=23). As a result, 23-24 households per selected *soum* were involved. Herder households were selected from 10 different livestock groups numbers: up to 10, 11-30, 31-50, 51-100, 101-200, 201-500, 501-999, 1000-1499, 1500-2000 and 2000 above at each *soum*. Finally, a total of 350 herder households were involved in surveying. One herder household represented 410 herder households on average (Figure 2).

**Figure 2. Location of the study area**



Source: Author's illustration

**Data collection and analysis:** The primary data selected from the Socio-economic Baseline Study of herder Households. Data collected with a nationwide survey between July to August in 2017 by Mongolian Marketing Consulting Group funded by Green gold and Animal health project of Swiss Development Cooperation. The Nearest Neighbor Analysis was used to classify the herder households into clusters according to their income source lifestyle, and calculations were made using the SPSS program. Nearest neighbor analysis can also be used to compute values for a continuous target. The nearest neighbors' average or median target value is used to obtain the new case's predicted value in this situation.

Formula:

a). The mean nearest neighbor distance

$$\bar{d} = \frac{\sum_{i=1}^N d_i}{N} \quad (2)$$

Where:

N is the number of points.  $d_i$  is the nearest neighbor distance for point i.

b) The expected value of the nearest neighbor distance in a random pattern

$$E(d_i) = 0.5 \sqrt{\frac{A}{N}} + (0.0514 + \frac{0.041}{\sqrt{N}}) \frac{B}{N} \quad (3)$$

Where:

A is the area, and B is the length of the perimeter of the study area.

c) The variance

$$Var(\bar{d}) = 0.070 \frac{A}{N^2} + 0.037 * B \sqrt{\frac{A}{N^5}} \quad (4)$$

d) The Z statistic

$$Z = \frac{\bar{d} - E(d_i)}{\sqrt{Var(\bar{d})}} \quad (5)$$

Also, by using correlation analysis, determined how the above five groups affect the herder households' livelihood, and when using the correlation analysis, the Pearson Correlation Coefficient was defined at a significance of 1 percent and 5 percent.

Sample correlation coefficient:

$$r_{xy} = \frac{s_{xy}}{s_x s_y} \quad (6)$$

Where:

$s_x$  and  $s_y$  are the sample standard deviations, and  $s_{xy}$  is the sample covariance.

### 3. Results and Discussion

#### • 3.1 Livelihood strategies of herder households.

Mongolian herder households' livelihood studies have been classified as poor, better-off, and wealthy based on their livestock number. In this research, Nearest Neighbour Analysis clusters have been defined on the household's livelihood strategy based on their income sources of 350 herder households representing Mongolia's four economic regions. A survey asked eight different income sources from herder households: livestock origin, wage, crop, natural resource, services, business, social welfare, and crafts income.

As the results of the analysis, the herder households livelihood strategies classified the follows:

- a) Cluster 1, herder households that earn wages and salaries,
- b) Cluster 2, herder households that are reliant on the income from livestock-related products and activities,
- c) Cluster 3, herder households that are reliant on the social welfare; pension, allowances and special care services,
- d) Cluster 4, herder households that are reliant on undermining natural resources.

**Table 1. Herder household's livelihood strategies**

		Type of Cluster							
		Cluster 1		Cluster 2		Cluster 3		Cluster 4	
		Count	Mean	Count	Mean	Count	Mean	Count	Mean
Regions/ Households	Central	2		87		3		-	
	Khangai	6		160		22		2	
	Western	-		45		-		-	
	Eastern	2		19		2		-	
	Total	10		311		27		2	
	Total (%)	2.9		88.86		7.71		0.57	
The average number of livestock per household			90		546		171		55
Annual income, mln MNT			6.3		10.9		5.7		0.8
Annual household income, thousand USD(ex.rate 2454, by 2017)			2.6		4.4		2.3		0.3

*Source: Estimated result*

The result shows that 88.9 percent of the herder households belong in cluster 2 or dependent on animal origin income cluster; a low percentage belong in cluster 4 or earn from digging natural resources; around 10 percent belong in the other 2 clusters.

The result is relatively close to the different research results on herder livelihood carried out by other researchers. For instance, The research institute of labor and social protection & Ministry of Labor and Social Protection (2018) has stated in their research that 66.8 percent get their income from livestock sources, 10.7 percent from salaries, wages, 17.2 percent from pension, benefits, and the remaining 5.3 percent get their income from other sources. Cluster 1 or the herder households that earn wages and salaries make up around 3 percent. Because these herders do not have a lot of livestock (average 90), they are not enough to fund their livelihood, so they mostly get their monthly income from herding the livestock of those who live in *soum* center. In this cluster, some monetary or other materialistic income from herding their wealthier relatives. Kinship, or also known as an assistant herder, is a new type of labor for herders. As of 2019, out of the 285.5 thousand herders, 94.7 percent of them are main herders, 15.2 thousand or 5.3 percent are assistant herders (NSO, 2018). In Mongolia, the number of wage-and share-based labor contracts have grown but not displaced clientelism or kin-based cooperation (Murphy, 2015). With the increasing number of livestock heads, there is a tendency to increase herders who are strategically thinking to become an assistant herder. As for wage distribution, many forms are being used as a combination or standalone. Moreover, many new forms of payment have been developed, such as getting a constant amount of cash for per sheep unit every month, some amount of money plus responsible

for serving firewood and moving one place to another or also help them herd their livestock and personally acquire 50 percent of the new offsprings.

As for Cluster 2, herder households generate direct income from cashmere, wool, and meat sales. Herders' income from the livestock differs between regions. Khangai region depends more on animal origin income. Khangai region differs from the other regions by their ability to create income from milk and dairy products as they have more yak and many animals. Herders own more livestock generate more income. The Mongolian government provides monetary incentives for every kilogram of wool and hides and cattle and horses' skins. In 2020, the government also provided incentives for goat cashmere, which affected livestock income. Those with few animals require income diversification, while others with a high number of livestock are mostly busy and are not dependent on other types of income sources. A study conducted by Japan International Cooperation Agency (JICA) and the Ministry of Food and Agriculture (MoFALI) in 2006 on the income of herders with different herd sizes are reported: herders with herds of between 101-200 animals have expenditures roughly equal to income, but at a subsistence level; no funds remain. They are not worth the expenditure on long-distance moves. Furthermore, other investments, such as purchasing improved breeds, are not feasible (JICA and MoFA, 2006).

Cluster 3, herder households rely on social welfare, pension, allowances, and special care services. The average number of livestock is 171 and at the subsistence level. Therefore, it is difficult to live without additional sources of income. Herders' retirement age has decreased to 50 and 55, which has increased the chance to create income from their pension (Gombodorj et al., 2019). Those on a pension or on temporary disability welfare do not have the workforce's capacity to herd many animals. Due to the Covid 19 pandemic, starting from March 2020, 100 thousand Mongolian tugriks is being distributed to those under 18, and these types of social welfare directly increase a herder households' income.

Cluster 4, herder households that are reliant on undermining natural resources. They take up less than one percent of those involved in the research and are only located in the Khangai region. Khangai region has a reach of pine nuts, fruit in the autumn, and abundant wild animals for hunting, allowing them to gather their primary income source from nature while herding a few animals.

- **3.2 Correlations Livelihood resources**

We chose factors that affect herder household's income and livelihood to determine the correlation: 13 factors from financial capital resources, five from human capital, seven from physical capital, four from natural capital, four from social capital. The results are as follows (Table 2). Correlation analysis results show that herder households' income has positive correlations with livestock insurance, savings, and livestock numbers across all regions. Education effects exist only in Eastern-Steppe regions. That might be explained that the steppe region has less availability of natural and physical resources. Housing for human and animals are essential factors in Central and Khangai regions. The Group of factors of the social capital relations to the herders' livelihood is various.

**hood of herder households (Income) and the correlation between the livelihood resources.**

Dependent variable: Household income

	Independent variables	Region			
		Central	Khangain	Western	Eastern
Number of Livestock	Pearson Correlation	.710**	.605**	.674**	.784**

		N	92	190	45	23
	Saving	Pearson Correlation	.399**	.277*	.550**	
		N	92	74	22	
	Insurance of Livestock	Pearson Correlation	.241*		.661**	.598**
		N	92		45	23
Human capital		Pearson Correlation				.416*
	Education	N				23
Physical capital	Number of housing, yurt, and barns	Pearson Correlation	.273**	.274**	.373*	
		N	92	190	45	
	Number of winter and spring housing	Pearson Correlation	.270**	.436**		
		N	92	190		
Social capital	Percentage of family members with social insurance	Pearson Correlation			.334*	
		N			45	
	Percentage of a mobile phone user	Pearson Correlation	.215*			
		N	92			

Source: Estimated results

Note: \*. Correlation is significant at the 0.05 level (2-tailed)

\*\* . Correlation is significant at the 0.01 level (2-tailed)

#### 4. Conclusion

We analyze the Mongolian herder households' income diversification with regional differences using The Nearest Neighbor Analysis method. The result shows that livestock number is important in the income diversification and choice of livelihood strategy. The research hypothesis is accepted. The higher the number of livestock, the higher the herder's reliance on their livestock-related income, as they have livelihood strategies revolving around their livestock. However, as the number of livestock decreases, a herder household's income consists mostly of social welfare income and other income sources. Financial and physical capital has a positive effect on the decision making of a herder household's livelihood strategy and income. To reduce rural poverty and enhance sustainable rural development, we need to tailored policies based on different herder households' livelihood strategies

#### • Acknowledgment

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# Foreign direct investments and foreign influences in Ghana

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## Abstract

*Foreign direct investment (FDI) forms an important aspect of an open and efficient global economic system and a major spur to development. FDI represents the major supplier of total private capital flows in developing economies with a stable contribution of \$671 billion in 2017. The objective of this paper is to discuss FDI influences in Ghana and the country's outflows to other economies. Desk research was used to gather information from existing studies on FDI for analysis to unearth the appropriate information. It was revealed that most relevant reasons that impact investors choice of investing in Ghana are the macroeconomic and political environment, the size and potential of the Ghanaian market, physical and natural reserves of the country. Ghana and other African countries have benefited from FDIs majorly in the area of telecommunication, improved manufacturing processes, institution of financial links, trading networks, improved capital formation and the quality of capital stock and training of human resources. It was also observed that Ghana's outflows centered around cash crops and natural mineral resources. Some challenges with FDI is difficulty in acquisition and registration of lands, absorption of local industries by foreign companies and increased skilled labour to meet the foreign competitiveness. It is therefore recommended that Ghana should strengthen its legal framework and regulations to protect both multinational corporations and local businesses. Ghana local industries should study the dynamism and the comprehensive nature of decision-making by international companies before they venture. Government should take the necessary steps to add value to its natural resources through advanced technologies, assembly, and high manufacturing processes before exporting. Ghana can attract more FDI into the country by training its human capital with distinct skills and competences required at the international market. Collaborations between local suppliers and multinational enterprises must be improved to enlarge technology spillovers.*

**Keywords:** Foreign Direct Investment, Inflow, Outflow, Ghana, Government

**JEL Classification:** F2, 4, E6

## 1. Introduction

Foreign direct investment (FDI) forms an important aspect of an open and efficient global economic system and a major spur to growth and development. FDI represents the major supplier of total private capital flows in developing economies with a stable contribution of \$671 billion and \$42 billion to Africa in 2017 (UNCTAD, 2018). Ghana's Foreign Direct Investment was 4.56 percent of GDP in 2018.

IMF & UNCTD define FDI as "direct investment equity flows in an economy. It is the sum of equity capital, reinvestment of earnings, and other capital. Direct investment is a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy. Ownership of 10 percent or more of the ordinary shares of voting stock is the criterion for determining the existence of a direct investment relationship". (Organization for Economic Co-operation and Development, 2008), also states that "FDI reflects the objective of establishing a lasting interest by

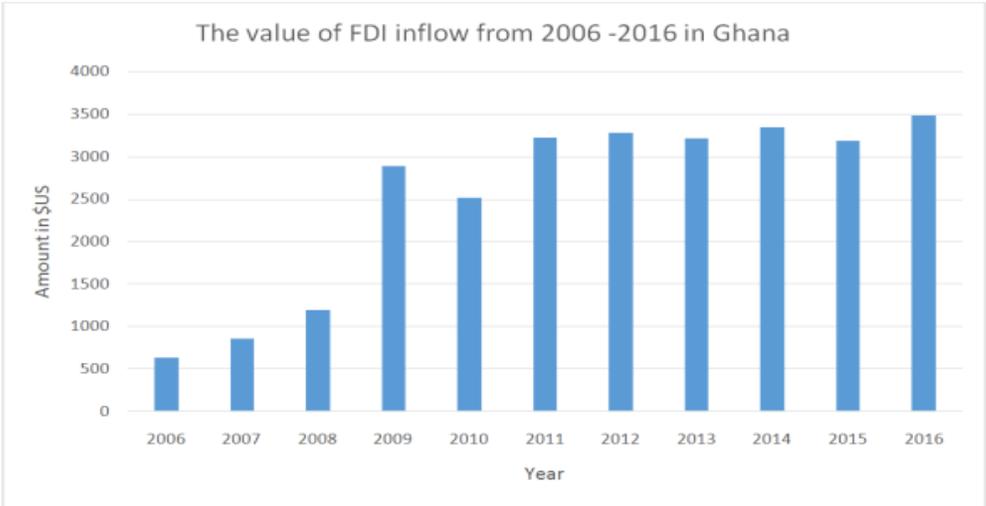
a resident enterprise in one economy (direct investor) in an enterprise (direct investment enterprise) that is resident in an economy other than that of the direct investor”

Most FDI flows come from Organization for Economic Co-operation Development (OECD) countries to emerging countries. According to (Ham and Kleiner, 2007), FDI accelerate developing countries’ entree to the global markets, ensure policy coherence for growth and influence public/private investment schemes. The OECD uses its declaration of investments to encourage non- OECD member nations to acclimatize with international framework for investments and build investment capacity (Ham and Kleiner, 2007).

According to (Abor & Harvey, 2008), Ghana had low income and savings ethos, which necessitates FDI to accelerates the import of investment goods and advance technical expertise. Economic progress of every country hinges on the possibility of creating lucrative investments and accruing capital, gaining access to FDI would enable Ghana to invest in both human and physical capital and to utilize prospects that come with it (Aryeetey *et al.*, 2008). FDI is the flow of capital and other resources from one country to the other for either short or long term. It usually involves participation in management, wander exchange of innovation and knowledge (Yeboah, 2018).

Ghana has been getting frequent foreign direct investment into its economy between 2006 and 2016, and has recently been graded among the top receiving countries of inflow of FDI in Africa (Yeboah, 2018). The graph (Figure 1) shows the progressive rise in FDI inflows into Ghana from 2006 to 2016.

**Figure 1: Is a graph of FDI into Ghana from 2006 to 2016 is shown below:**



Source: UNCTAD 2017

A constant increase of inflow of FDI in Ghana was the outcome of the introduction of a wide range of government’s investment policies, huge infrastructural development and natural resource explorations. Examples are the legitimate instrument Act 478 instituted in 1994 that minimized impediments to FDI, road and railway upgrade, and oil exploration (UNCTD, 2003). Other reasons that accounted for an increase in Ghana’s FDI is the liberalization of FDI regulatory framework, the economic balance with the decline in fiscal deficits, privatization, restructuring and streamlining of state owned enterprises (SOEs) (Boateng, 1999). Ghana is a member of Multilateral Investment Guarantee Agency, (MIGA) a unit under the World Bank, alleviating the concerns of investors by giving the assurance against non-commercial risk of investing in developing

economies. These structures put in place had created the enabling environment and boost investor confidence allowing significant increase in FDI. (Anarfo, Agoba, & Abebreseh, 2017), argued that FDI functions as a powerful source of capital, technology and transfer of expertise from the investing country to the host nation. They again indicate that FDI supports Ghana to reap the benefit of a growing market, cutting costs components and other tax measures. The purpose of this study is to discuss foreign direct investments and foreign influences in Ghana and the country's outflows to other economies by reviewing related literature.

## **2. Data and methodology**

The main objective of this study is to analyze FDI and its influences on economic, political and cultural growth in Ghana. The study achieved this through the use of secondary information. A review of related literatures was done to meet the goal of the study. Although the paper focused mainly on FDI in Ghana, mention was made of developing countries to give clarity for comparison. Using literature as a method means that information relating to the topic was analyzed by desktop to achieve the purpose of this study.

## **3. Results and Discussion**

This section discusses secondary information gathered on FDI, types, methods and benefits as well as its influences on the sectors of the economy. Ghana's FDI inflows and outflows were further analysed. Investment policies and institutional framework that facilitated FDI in Ghana were also discussed.

### ***3.1 Methods and Types of FDI***

A domestic investor can acquire voting power in a foreign business through several means some of which are:

- By purchasing voting stock in the overseas company
- Through mergers and acquisition
- Joint ventures with overseas companies
- Initiating a subsidiary of a local company in a foreign country.

Moreover, there are three main types of FDI:

With the horizontal direct investment, the investor enlarges the same type of local commercial operation to a foreign country (Atik and Vieyra, 2008). A typical example is KFC.

- A vertical investment is the type in which a firm develops different but related business activities from the investor's core business to a external country. For instance, when a manufacturing firm buys an interest in an overseas company that supplies parts or raw materials necessary for production (Chen, 2020).
- A conglomerate type of FDI is when an investor makes a foreign investment in a business that does not correlate to its current home company. This is mostly a cooperative venture between the foreign company and a local one because the investor has no prior experience in the industry (Chen, 2020).

### **3.2 Benefits FDI**

According to (OECD report, 2002), domestic policies and the global investment design is necessary to attract FDI to a greater number of developing nations and for earning the maximum benefits of FDI for development. They indicate that most FDI flows from OECD countries, enabling developing countries' access to international markets and technology, and safeguard policy consistency for development. Developing countries take advantage of overseas development assistance (ODA) to influence public/private investment projects.

FDI inflows to Ghana targets economic growth and sustainable development. It also advances capital formation and the quality of capital stock (Evans, Frank, & Rebecca, 2017). (Loungani and Razin, 2001), state that the international integration of equity markets increases the spread of best practices in corporate governance, management, accounting and legal principles and procedures. (Olayiwola & Okodua, 2013), mentioned that FDI could also act as a catalyst for growth and development by improving the prospect of amalgamation into worldwide financial capital markets and, increase employment, technological capacity-building, competencies and skills to local firms. It could also establish investment arrangements that increase the potential of host countries for economic growth.

Other benefits include transfer of expertise, improvement in manufacturing processes, institution of financial links and trading networks, and advanced telecommunication services. FDI in services could influence the host country's competitiveness by boosting the efficiency of capital and allowing the host country to attract new capital on good terms (Evans et al., 2017). Furthermore, FDI could encourage competition in the home input market. Beneficiaries of FDI get trained on operational courses which contributes to human resource development in the host country. Lastly, host countries obtain tax revenue from profits created by FDI (Loungani and Razin, 2001).

### **3.3 Foreign Direct Investments and Influences in Ghana**

#### **3.3.1 FDI Inflows**

According to (Evans et al., 2017) many countries introduced economic reforms and new legislation like granting tax subsidies, privatized state-owned businesses, fiscal policies, liberalize capital accounts and lessened their FDI restrictions in the 1990s in order to improve economic stability which would consequently enhance their share of FDI inflows. Ghana was not left out in these reforms, for example, through the Free Zones Act, 1995 and the Investment Promotion Act 1994 Ghana gave some tax incentives and investor protection policies to attract foreign investors. These in no time made Ghana one of the top recipients of FDI in sub-Saharan Africa, even globally for two consecutive years, and this helped in economic growth like capital inflows, aid and technology transfer (Yeboah, 2018; Evans, Frank and Rebecca, 2017). For instance, in 2011, Ghana became the third-largest beneficiary of foreign investments in Africa, after Nigeria and South Africa, based on UNCTAD World Investment Report (2012). According to Yeboah (2018), Ghana has a strategic edge based on its siting as a gate way for investors to enter the Economic Community of West African markets. A further advantage is Ghana's membership to certain organizations like MIGA, a unit under the World Bank, gave financing guarantee against non-commercial danger of investing in developing economies (as mentioned earlier).

The major sources of FDI into Ghana's economy comprise United Kingdom, China, USA, India, Lebanon, Germany, Korea, Italy, Switzerland, Netherlands, Canada, France, Nigeria, South Africa, and Malaysia.

(Boakye-Gyasi *et al.*, 2017), mentioned that countries like China, India, USA, and South Africa have made huge investments into Ghana's economy through trade, investment, development assistance and loans. For instance, the trade volumes between China and Ghana reached US\$ 2.1 billion in 2010 and rose to US\$ 5.4 billion in 2012, a 163% upsurge since 2010. In the case of India, between 1994 and 2013, they had invested in 602 projects totaling US\$ 637.34 million. India donated to the training of human capital in Ghana with a US\$ 125 million Pan-African E-Network Project (PAENP) to extend essential ICT infrastructure to certain rural communities, less developed areas and made health and education accessible to them (Boakye-Gyasi *et al.*, 2017). With regards to the USA, (Boakye-Gyasi *et al.*, 2017) state that USA and Ghana's mutual development trade reached US\$1.6 billion in 2012. Ghana signed a five-year Millennium Challenge Corporation (MCC) Compact in 2006 worth about US\$ 547 million to improve agricultural productivity for small-scale commercial farmers, reconstruct good roads, infrastructural development and improved financial services. South Africa's exports into Ghana rose from about US\$ 138 million in 2010 to US\$ 516 million in 2012 (Boakye-Gyasi *et al.*, 2017). Total trade between these two countries also grew by 56% between 2011 and 2013.

(Evans *et al.*, 2017) again state that Ghana's shares of FDI rose fourfold from 2005 to \$636M in 2006 which was 19.4% of gross fixed capital formation according to (World Investment Report, 2008) (WIR). Ghana's worldwide attention grew as a consequence of hosting the 2008's Africa Cup of Nations, the UNCTAD XII (United Nations Conference on Trade and Development) and WAIPA (World Association of Investments promotion Agencies) meetings. This global awareness came at a time when the country has had strong GDP growth and significant increases in FDI inflows (Evans *et al.*, 2017).

(Yakubu, Nandom, Azeez, Yakubu, & Mikhail, 2019) in their empirical study examined the important features enticing the inflow of FDI into the economic sectors of Ghana considering the agriculture, services, and manufacturing sectors. They found out that the size of the market and labour cost had impact on FDI in the agricultural sector. Also, trade openness and exchange rate had substantial bearing on FDI in the service sector. Another area of FDI has been the mining sector (Eric Osei, 2019). This could be due to Ghana's endowment with variety of minerals and mining resources, and the attractive mining sector policies (Boocock, 2002). According to the UNCTAD World Investment Report (2019), major among the latest receiving areas of the country's economy were the banking, telecommunications and the crude oil sectors. It was argued that the effectiveness of FDI in Ghana could be due to the permissive investment policy environment promoted by consecutive governments for prospective investors. Examples of such policies still in operation are Ghana Poverty Reduction Strategy and Ghana Shared Growth and Development Agenda (GSGDA). (Sakyi, Commodore, & Opoku, 2015), in their study further found an interface of FDI and exports being critical in promoting economic growth, which supported the famous Bhagwati hypothesis. Bhagwati hypothesis (1973) indicates that the long-run growth effect of FDI would be higher in nations applying export promotion strategy than those with import substitution ones. According to (Sakyi *et al.*, 2015), although exports development rate increased, it followed a sinusoidal curve till 2017 as depicted in the **table 1**.

**Table 1:** show Ghana exports development rate of GDP in four selected years.

Ghana exports development rate of GDP (%)	Year
48.8	2000
24.5	2007
43.9	2015
42.3	2017

Source: Sakyi, D., Commodore, R., & Opoku, E. E. O. (2015)

(Abor & Harvey, 2008), posited that one of the possible benefits of FDI inflows into Ghana was job creation. They further indicate that FDI has had both explicit and implicit, including quantitative and qualitative influence on employment. The effect of FDI on employment could either be positive or negative. For instance, Ghana Investment Promotion Center's 2016 first quarter report showed a total job creation of 6,599 through FDI. However, a total of 5,970 jobs were created from the 95 new investments in the first quarter of 2017 which was a decrease of 9.53% over the previous year. (GIPC, 2017), further revealed that FDI has approximately positive influence on total formal employment together with the quality and competencies of Ghanaian workforces. Information from the GIPC exposed that around 86 percent of businesses and FDI inflows registered from 1994 – 2016 amounted to US\$38.2 billion. These FDI inflows have created a cumulative total of 663,569 jobs for the period 1994 – 2016, from which 614,275 were indigenes (Eric Osei, 2019). Furthermore, FDI net inflows (% of GDP) in Ghana was 8.16 percent as of 2016. Whereas the value FDI net inflows (BoP, current US\$) was \$3.485 billion the same year (Eric sei, 2019).

In another study, (Awunyo-Vitor & Sackey, 2018), wanted to draw a connection between agricultural sector FDI and economic growth in Ghana. They did that by examining the relationship between the two variables (FDI to Ghana's Agricultural Sector and Economic Growth) from 1975 and 2017, the study discovered that FDI inflows into the agricultural sector had a positive impact on Ghana's economy. (Awunyo-Vitor & Sackey, 2018), concluded that policies that inspired economic growth could indirectly affect the amount of FDI flows into the agricultural sector.

In a bid to examine the role colonial ties played in magnetizing FDI to Ghana, Osei et al. (2020), found out that colonial ties had partial influence on modern FDI flow into the country. The research revealed that, in spite of the well-known legacies between Ghana and the colonists, most businesses from the Great Britain were influenced by cluster of opportunities in general instead of country of origin agglomeration. Nevertheless, they realized that country of origin assemblage continues to play vital role over a third of the firms analyzed (Osei et al., 2020).

On how politics influences FDI, (Feng, 2001) argued that a peaceful political environment is a catalyst for the apportionment of international investment and draws FDI. (Borba, 2020), emphasized by stating that political establishments serve as a yardstick for foreign investors to make decisions since they assist in determining conditions favorable for growth and attractive to investment. He reiterated that politically stable environment is a guidepost of assurance for safety and compliance of rule of law for foreign investors. This explains why Ghana is one of the African countries that continue to have greater proportion of FDI in the continent. Successive governments ensure political and economic stability to promote FDI and smooth running of international trade.

Political stability and this dispensation of democracy attracts FDI because it reduces risk for international investors and the host countries, hence, may have a significant positive effect on FDI inflows.

According to (Borba, 2020), culture and value schemes are emphasized by specific political actions that may promote political changes that governments cannot control. To this researcher, culture can influence the consequence of economic growth, and the level of development is determined by the level of cultural proximity between countries. The author maintains that underdeveloped nations' low attractiveness to FDI continues because of cultural distances between them and the source of investments. Culture could be an important element in the management of multinational or international conglomerates. However, this study could not site literature on the impact of culture on FDI inflows.

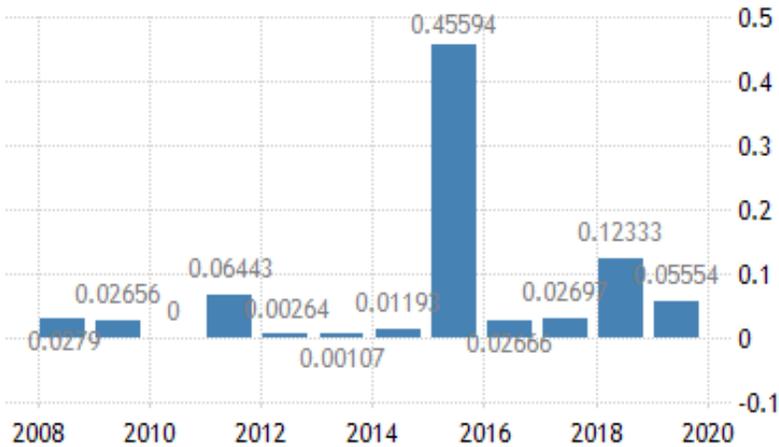
**3.4 FDI Outflows**

World Bank Data helpdesk defines FDI net outflow as the value of outward direct investment made by the residents of the reporting economy to external economies. It again covers transfers of holdings and obligations between resident and nonresident fellow businesses if the ultimate controlling parent is resident. It explained that outward direct investment could also be known as direct investment abroad, and they consist of holdings and obligations transported between resident investors and their direct investment businesses. Outward investment in the West African region has improved over the past years of which Ghana adds a great proportional share.

The main challenge confronting African leaders and multinational businesses has been Outward FDI from Africa because of their over dependence on FDI inflows. From the study of (Gladys & Evans, 2018), FDI outflow from Ghana in the late 1990s to 21st century has been fluctuating in cost and quantity, (the estimated value was not up to 1 billion dollars) even though Ghana adds a substantial proportion to the total value of outward FDI from the Western Africa. (Gladys & Evans, 2018), argued further that Ghana produces many natural deposits and cash crops for export and imports other processed commodities from other nations. Cocoa bean production from the Ivory Coast and Ghana constantly accounts for more than 50% of the world's total cocoa bean production in every cocoa year (Gladys and Evans, 2018).

According to Trading Economics, (2020), FDI, net outflows (% of GDP) World Development Indicators (WDI) in Ghana was stated at 0.12356 % in 2018. Though Ghana net FDI outflows (% of GDP) fluctuated substantially in current years, it inclined to decrease through 1999 - 2018 period ending at 0.1 % in 2018 (Knoema, 2020). The highest value over the past 28 years was 2.12 in 1999, while its lowest value was -4.28 in 1994 (indexmundi.com 15/04/2020). The graph below (Figure 3), shows the trend of outward flow from the Ghanaian economy to the rest of the world,

from 2008 to 2018. (source graph- World Bank Trading Economics.com).



### **3.5 Challenges**

According to GIPC, some of the challenges faced by African countries with regards to FDI include political and macroeconomic unpredictability, low development, weak infrastructure, poor governance, unfriendly regulatory environments, and ill-conceived investment promotion strategies. Inadequate investment inflows in some subsectors such as export trade had negatively affected employment, trade performance and overall trade deficit.

Specific challenges to Ghana identified during the review are in spite of FDI contribution to employment, there is need for more skilled labour in order to remain competitive, difficulty in business and property registration, most multinational companies employ locals with good working experience and very knowledgeable in their fields of employment, hence, invest a little in training. Local companies turned to be absorbed by the international firms for lack of capital and strong human resource. Other challenges that FDI face in Ghana include availability of credit facility for businesses with smaller foreign share ownership and large firms have the difficulty of accessing lands (Aryeetey et al., 2008).

## **4 Conclusions**

To conclude, (Aryeetey et al., 2008), state that the most relevant reasons that impact investors choice of investing in Ghana are the macroeconomic and political environment, the size and potential of the Ghanaian market size, physical and natural reserves of the country. (Boakye-Gyasi et al., 2017), specify that the economy of Ghana has grown over the past decades with investments capital from numerous countries as several foreign companies' are increasing their operations to Ghana due to political stability which Ghana has attained through development in its institutions and policy environment. Also, Ghana is one of many African nations that had documented very significant investments and the rises in these investments had added to Ghana's economic growth, development in other sectors, growing incomes and poverty alleviation. The inflow of FDI into Ghana has increased rapidly over the 25 years as the government has created a business-friendly environment to induce significant number of investors into the country. FDI soared with an estimated sum of \$3.2 billion in 2011 and got to its highest in 2012 since 1990 (Yeboah, 2018). The best objective is spurt Ghana's development and create employment opportunities in an enabling environment. This decision is well received by investors, and FDI inflows would rise to a considerable level (UNTAD 2003).

Some of the benefits of FDI are access to international markets, technology, improved capital formation, quality of capital stock, training of human capital and using overseas development assistance (ODA) to influence public/private investment projects.

Most of Ghana's outflows focus on cocoa, mineral resources and cash crops. The outflows from Africa including Ghana is quite low compared to advanced countries because of the over dependence on FDI inflows. Though Ghana net FDI outflows (% of GDP) fluctuated considerably in current years, it inclined to decrease through 1999 - 2018 period ending at 0.1 % in 2018 (Knoema, 2020). The highest value over the past 28 years was 2.12 in 1999, while its lowest value was -4.28 in 1994 (indexmundi.com 15/04/2020).

Challenges that FDI face in Ghana include availability of credit facility for businesses with smaller foreign share ownership and large firms have the difficulty of accessing lands (Aryeetey et al.,

2008). Others are difficulty in property registration, access to more skilled labour, absorption of local companies by international ones and inadequate inflows to some subsectors.

Businesses in Ghana that wish to go international should study the dynamism and the comprehensive nature of decision-making by international companies before they venture. Again, Ghana should strengthen its legal framework and improve regulations to protect both multinational corporations and local business which would promote FDI inflows and outflows. Furthermore, government should take the necessary steps to add value to its natural resources through advanced technologies, assembly and high manufacturing processes before they are exported to attract more funds to the country. Again, Ghana can attract more FDI into the country by training its human capital with distinct skills and competences instead of having lots of unskilled labourforce. Collaborations between local suppliers and multinational enterprises must be improved to enlarge technology spillovers, have sturdy export promotion position and a combined worldwide supply chain.

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# Short-term Impact of Covid-19 on the Selected Macroeconomic Indicators in Visegrad Four Countries

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## Abstract

*Since the beginning of the year, Covid-19, the novel coronavirus disease has pandemically spread across the globe. The recent outbreak of the coronavirus pandemic has made a significant impact on the global society and world economy. Coronavirus pandemic has affected also a cultural and political alliance Visegrad Four, which is composed of the Czech Republic, Hungary, Poland, and Slovakia. Despite building long-lasting relations and cooperation among the Visegrad Group, countries closed their borders, declared a state of emergency, imposed social distancing measures and strict restrictions to control the spread of the virus. Several industries, involving hotels, restaurants, tourism, retail trade and a considerable share of the manufacturing industry were shut down. These initiatives have had significant impacts on supply chains, economic activities, and foreign trade at all scales. The right balance between national interest and global collective survival, however, poses further challenges in the battle against Covid-19. During the coronavirus crisis, national economies have experienced a recession due to the Covid-19 restrictions. Countries have recorded decreases in total output and international trade. Furthermore, coronavirus has posed also challenges to the labour market as the number of unemployed people started to increase. This paper aims to evaluate and compare the short-term impact of the coronavirus outbreak on the economic performance of the Visegrad Group countries. We mainly focused on the economic growth rate, international trade, and the unemployment rate in the selected group of countries.*

**Keywords:** Covid-19, GDP Growth, Unemployment, International Trade, Visegrad Four

**JEL Classification:** E00, E23, E24, F40

## 1. Introduction

The Covid-19 pandemic has been widely monitored and discussed topic among governments, researchers, and public. Over the past years different disintegration factors such as rising military conflicts, sanctions, trade wars and the spread of various diseases have continuously affected the world economy. The global spread of Covid-19 disease has been one of the biggest new threats that the global economy is currently facing.

At the end of the year, 2019 novel type of coronavirus was discovered and subsequently caused a global pandemic. The group of new cases of human pneumonia were identified in Wuhan City, China (Lu, et al. 2020; Huang, et al., 2020) The virus has evolved over four months since its first appearance and spread quickly to more than 210 countries and territories around the world (Zhu et al., 2020). The rapid spread of the disease has transformed the lives and behaviour of people globally. Coronavirus disease 2019 (COVID-19) is an infectious disease of the respiratory tract caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (COVID-19 and

vascular disease, 2020). The virus spreads through human-to-human transmission, mainly through droplets or aerosols. The virus can also be transmitted from infected surfaces to the body by touch in the eyes, nose, and mouth. Outside the human body, it can survive several hours, on plastic or metal surfaces even two days (Chen, Liu & Guo, 2020; Ge, et al., 2020). Covid-19 influences various people in different ways. Most people with infections develop mild to moderate illnesses and recover without hospitalization. The most common symptoms of coronavirus 2019 include fever, dry cough, and tiredness. People can also feel symptoms which are less common like aches and pains, sore throat, diarrhoea, conjunctivitis, headache, loss of taste or smell, a rash on the skin, or discolouration of fingers or toes. Although, some people can experience severe symptoms, for instance, difficult breathing or shortness of breath, chest pain or pressure, loss of speech or movement (World Health Organization [WHO], 2020). Furthermore, across several countries around the world, the rapid growth of positive coronavirus cases and the subsequent increase of secondary outbreaks have intensified the concern globally. As the number of new cases outside of China started to rapidly increase, the WHO on 11 March 2020 declared Covid-19 as a pandemic and alarmed about the public health emergency (Liu, Kuo & Shih, 2020). Therefore, the Covid-19 due to its rapid spread early became a global threat for society. A lot of uncertainty relates to the future development of the current pandemic. Thus, it is hard to predict when it will end and what will be the overall losses. The “first wave” of pandemic hit the world in spring and the “second wave” has started in autumn. The confirmed new cases during the “second wave” of the pandemic have been increasing significantly. Between 31 December 2019 and 31 October 2020, the total number of confirmed Covid-19 cases increased to 45.73 million and the total number of deaths rose to 1.18 million (Hale et al., 2020). Thus, the pandemic has changed the policymakers’ approach to control and stop the spread of the disease.

As a result of the exponential international rise in Covid-19 infections since the end of February 2020, coupled with a lack of effective treatment or vaccine, many countries have adopted a range of 'curve flattening' restrictions to prevent failure in healthcare. Governments were forced to change their policy and invoked unforeseen advice, rules and restrictions with impact on peoples’ lives and the existence of businesses (Brown, Jensen, Edmunds & Smith, 2020). Imposed restrictions came in many forms. According to the Czech, Wielechowski, Kotyza, Benešová & Laputková (2020) imposed limitations have been in many cases linked to economic lockdown and movement restrictions. Moreover, the effects of such actions can be seen also on a global scale. Havrnt, Darandary & Muhsen (2020) in their study argued that the globalized world has experienced the biggest, fastest, and gravest shock in contemporary history, threatening societies with, health, economic, social, moral, cooperative and management challenges across the globe. Therefore, the governments had to change their policy as a response to fight Covid-19 disease.

Many studies have found that population health is positively linked to economic welfare and growth, as measured by life expectancy, infant and child mortality and maternal mortality (Bhargava, Jamison, Lau & Murray 2006; Cuddington and Hancock, 1994; Haacker, 2004). Thus, given by the literature it is expected that pandemics have a significant negative impact on the economic activity, at least in the short term. Several researchers pointed out that the ongoing pandemic has due to the highly infectious nature of the virus a large economic impact (Zaremba, Kizys, Aharon & Demir, 2020; Zhang, Hu & Ji., 2020). According to Laing (2020) coronavirus disease has not only caused millions of infections and more than million deaths, but the world economy is also ravaged to a degree that has not been seen since at least the Great Depression. Similarly, Organization for Economic Cooperation and Development [OECD] (2020) stated that COVID-19 pandemic has already caused the deepest economic recession in nearly a century,

threatening health, weakening economic growth, and damaging well-being and employment around the world. Furthermore, there are many channels through which a contagious disease outbreak affects the economy. Jonas (2013) in his study stated that the impact of a pandemic can vary from the avoidance reaction resulting from social distancing measures (e.g. people may abandon consumption and purchase of some goods and services); low direct costs (e.g. hospitalization costs and medical charges); greater indirect costs (labour loss, production); and the compensation and cascade impacts (disruption of services, travel, and others). Therefore, today every country in the world is eager to understand the impact of Covid-19 on its economy and to explore the best solutions for an adaptive and speedy recovery of its economy. More particular examples of Covid-19 effects provided in their study Czech et al. According to this study the impact of coronavirus is expected to influence both negatively or positively, food security, inequality, democracy and human rights, human development, pollution and waste, education, urban and rural development, gender equality, poverty, trading activities and globalization (Czech, et al. 2020). We can argue that the global pandemic of Covid-19 is expected to be the economic and social phenomenon of the last few decades.

First coronavirus cases in Europe were identified in January 2020. Due to the highly infectious nature of the disease and its rapid spread, it was a question of time when the first cases will be recorded in Visegrad Four countries (V4)– Czechia, Hungary, Poland, and Slovakia. As we will mention later in this article, the first coronavirus cases in V4 countries were identified in early March with immediate government responses. The severe and strict restrictions led to an economic lockdown and negatively affected the performance of macroeconomic indicators. The primary aim of this paper is to investigate in the short run the impact of Covid-19 on the economic activity, trading activity and labour market in the Visegrad countries. We selected countries of this alliance due to their common shared history and similar economic development. In the first part of this paper, we evaluated the pandemic situation in V4 measured by the number of confirmed cases, deaths, and government policy response to Covid-19 pandemic. Following part was focused on the methods and data used in our study. In the last part, we analysed and compared the impact of Covid-19 on the development of the total output, international trading activity and unemployment in the V4 region.

## **2. Visegrad Group Countries and Covid-19**

Visegrad Group is a political and cultural alliance of four Central European countries. The Czech Republic, Hungary, Poland, and Slovakia have always been part of the same civilization based on the same cultural and intellectual values and common roots of religious traditions that they want to preserve and further strengthen. V4 group aims to encourage optimal cooperation with all countries, especially with their neighbours (International Visegrad Fund, 2006). The novel coronavirus extended through V4 countries in early March. As we will mention later, governments needed to act quickly, they implemented strict restrictions and closed the borders for the first time in modern history. The Covid-19 pandemic has affected health, social and economic life in Visegrad Four countries and at the same time brought new challenges for the future economic development in these regions.

### **2.1. *The Spread of Covid-19 in Visegrad Group Countries***

The Visegrad Four countries are experiencing Covid-19 pandemic with different intensity taking various steps to manage the pandemic. As we previously mentioned the first confirmed cases of novel coronavirus COVID-19 in Visegrad Group countries were reported in early March. As can be seen in Table 1, firstly the virus appeared in the Czech Republic (1 March 2020), few days after in

Poland (4 March 2020) and Hungary (5 March 2020) and then Slovakia (7 March 2020). Shown in Table 1 there are significant differences among Visegrad Group countries in measures of total cases, deaths, and tests. As of 31 October 2020, Poland was on the first place in the number of total confirmed Covid-19 cases (340,836 cases), following Czechia (323,673 cases), Hungary (75,322 cases) and Slovakia (45,517 cases). However, based on the data of total confirmed cases per million of the population the most dramatic situation was at the end of October in Czechia (30,225 cases). Even though Slovakia reported within V4 the least confirmed Covid-19 cases in measures of total cases per million it ended on the second place (10,091 cases). In contrast, Poland with the highest number of total coronavirus cases was on the third place measured by total cases per million (9,006 cases). The lowest statistics reported in Hungary (7,797 cases). It is important to note that within a short period, September – October, the pandemic situation in the Visegrad Four countries dramatically changed. Newly identified coronavirus cases in October represented in each country more than 60.0% of total confirmed cases during the entire period. Consequently, as the virus started to spread more rapidly the number of deaths simultaneously began to grow. The highest number of total deaths caused by Covid-19 was reported in Poland (5,351 deaths), following Czechia (3,078 deaths) and Hungary (1,750 deaths). Slovakia reported the lowest number of deaths caused by a coronavirus in V4 (212 deaths). Although Poland reported the most cases within the V4 countries, data about total deaths per million provide different insights. Based on these data the most critical situation was in Czechia (288 deaths), the following was Hungary (182 deaths), then Poland (142 deaths) and Slovakia (39 deaths). Furthermore, the number of confirmed Covid-19 cases in V4 can be associated with the testing policy. Although the test by itself does not stop coronavirus spread, it is a crucial part of the Covid-19 strategy (Salath et al., 2020). As can be seen in Table 1 Poland executed until the end of October the highest number of Covid-19 tests (4,536,794 tests), following Czechia (2,327,751 tests), Hungary (1,065,143 tests), and Slovakia (791,767 tests). It is important to mention that at the end of October the first round of the nationwide testing took place in Slovakia to control and stop the rapid spread of the virus (Ministry of Health Care of the Slovak Republic, 2020). These numbers are not included in our statistics.

**Table 1: COVID-19 in Visegrad Four countries – cases, deaths, tests, population**

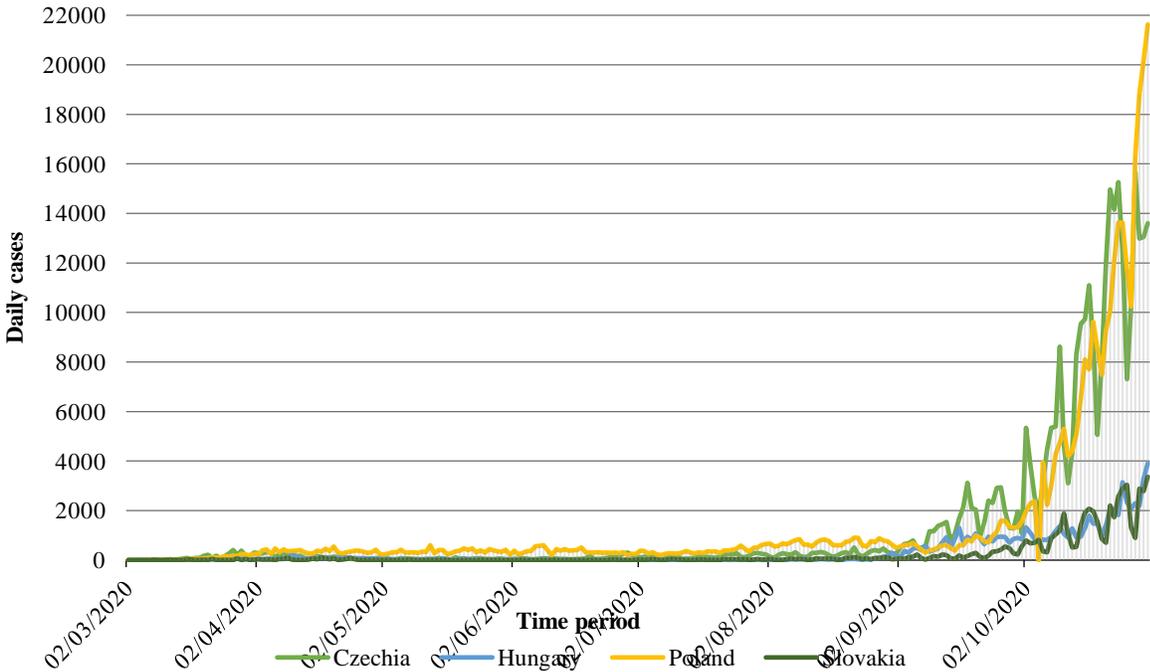
Country	Czechia	Hungary	Poland	Slovakia
<b>First Case Confirmed</b>	1 March 2020	5 March 2020	4 March 2020	7 March 2020
<b>Total Cases Confirmed</b>	323,673	75,321	340,834	55,091
<b>Total Cases per Million</b>	30,225	7,797	9,006	10,091
<b>Total Deaths</b>	3,078	1,750	5,351	212
<b>Total Deaths per Million</b>	288	182	142	39
<b>Total Tests</b>	2,327,751	1,065,143	4,536,794	791,767
<b>Population</b>	10,708,982	9,660,350	37,846,605	5,459,643

Source: Own elaboration based on Ourworldindata data (by 31 October 2020)

During the ongoing pandemic in V4 countries, two major “waves” were identified. The “first wave” took place in the early beginning of the coronavirus spread across the V4 countries. The “second wave” has started in autumn as the newly confirmed cases started to rapidly increase. We can say that during the “first wave” of Covid-19 in the spring there was not such rapid spread of new cases and deaths compared to the “second wave” in autumn. For a broader picture of the coronavirus spread in the countries of Visegrad Four, we monitored daily cases and deaths in these regions until 31 October 2020, which are displayed in Figure 1 and Figure 2. As is illustrated in

Figure 1 from the beginning of the pandemic until the August 2020 new cases of Covid-19 grew by units, tens, and hundreds on daily basis. During the “first wave” Poland reported the highest numbers of new daily cases. On the other hand, the best situation was in Slovakia. In summer countries started to ease the restrictions. Therefore, the number of performed tests decreased and eventually the number of confirmed cases started to fall. Although, starting in August the conditions started to deteriorate which culminated in a sharp increase of infected people in October. The “second wave” of Covid-19 hit the V4 in much greater power than the first wave. Countries broke several records in the numbers of daily coronavirus cases. The Czech Republic started rapidly catch up with Poland in the number of new daily cases. At the end of October, countries reported new daily records. The biggest daily increase of infected people in Poland was 21,629 newcases. Therefore, the government of Poland decided to tighten the restrictions (Government of Poland, 2020). A similar scenario happened also in the Czech Republic. Czechia broke a record of 15,663 new confirmed daily cases. As a result of his rapid spread of coronavirus,the government decided to declare a temporary lockdown (Ministry of Industry and Trade, 2020). In Hungary, the biggest increase in confirmed daily Covid-19 cases was 3,908. Similarly, the spread of coronavirus significantly accelerated in Slovakia. Slovakia broke a record of 3,363 newly identified cases. Government of the Slovak Republic proclaimed a milder version of lockdown that started on 24 October 2020(The Slovak Spectator, 2020). We can conclude that there have been significant differences between the spread and confirmed coronavirus cases during the “first wave” and the “second wave” of the pandemic.

**Figure 1: New daily Covid-19confirmed cases in Visegrad Four countries**

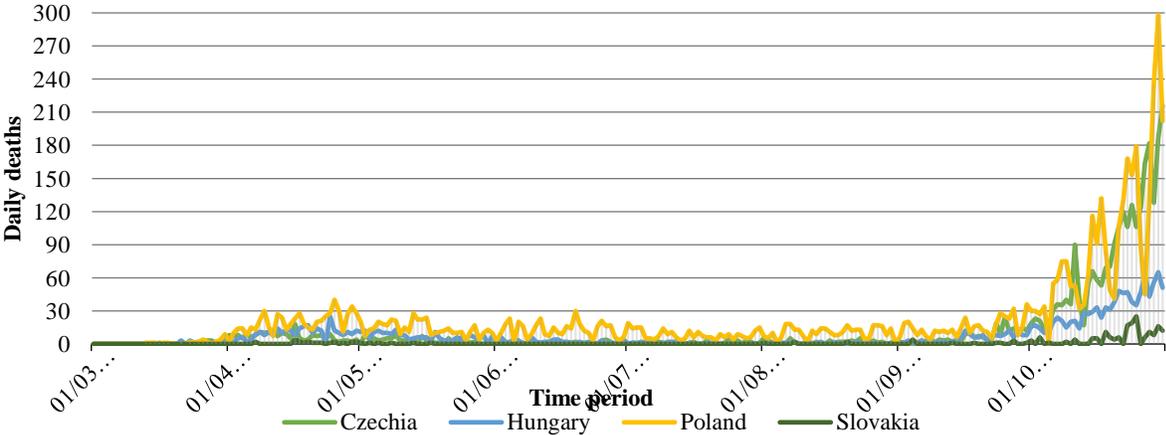


Source: Own elaboration based on Ourworldindata data (by 31 October 2020)

As we previously mentioned, with the rapid growth of newly confirmed cases the deaths began to rise. As Figure 2 shows during the “first wave” of the pandemic, the death rates were enormously lower than during the “second wave.” In October daily deaths caused by the SARS-CoV-2 began to rapidly grow. Within one-month countries broke several records in the number of deaths per day. The highest numbers of daily deaths caused by Covid-19 were reported in Poland (298 deaths),

then Czechia (216 deaths), following Hungary (65 deaths) and Slovakia (25 deaths). The numbers have been alarming because the deaths caused by coronavirus during October represented more than 50.0% of total deaths in V4 countries. Therefore, the Covid-19 mortality during the “second wave” of the pandemic has significantly overcome the deaths caused by a coronavirus in the “first wave.”

**Figure 2: New daily deaths caused by Covid-19 in Visegrad Group countries**



Source: Own elaboration based on Ourworldindata data (by 31 October 2020)

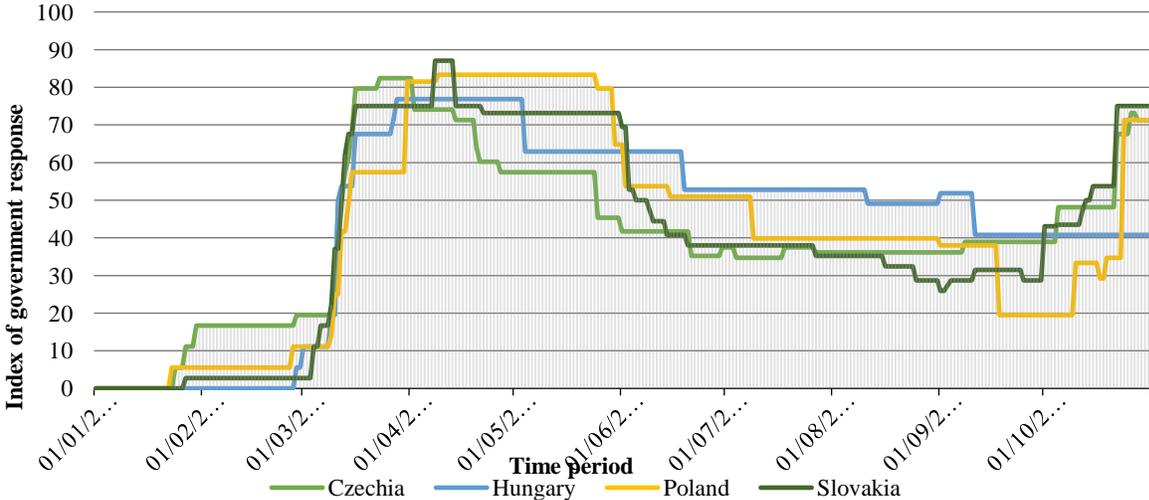
**2.2. Government Policy Response to Covid-19 in Visegrad Four Countries**

Policymakers around the world adopted several measures in a very short period, to mitigate the detrimental impact of public-health regulations on the economy and to maintain and encourage public welfare. These involve fiscal, monetary and financial policy initiatives (Gourinchas, 2020). The steps taken by governments to control the spread of the coronavirus in many cases required citizens to restrict their freedom. In response to the outbreak of Covid-19 and its effects, the Visegrad Group countries have introduced a broad range of steps in many areas (health, economy, research, border, mobility, etc.) Antošová, Voghl&Schraud, (2020) in their study found out that all sectors of the economy have been affected by these measures and restrictions. Therefore, the measures taken to control and stop the spread of the virus were at the expense of economic downturn or recession.

To measure the government response to Covid-19 the University of Oxford developed a Coronavirus Government Response Tracker (OxCGRT), which measures government responses to the pandemic in more than 180 countries. The OxCGRT gathers information systematically on many common policy responses that governments have taken, scrutinizes and summarizes them in a common Stringency Index (Hale et al, 2020). Figure 3 illustrates government response measures of Visegrad Four countries to Covid-19 pandemic. The government response was immediate as the first confirmed coronavirus cases were detected in V4. During the “first wave” of pandemic Visegrad countries adopted very strict restrictions and declared a state of emergency - Slovakia, Hungary, and the Czech Republic 6–11 days after the first case, Poland, 2 days prior (Guasti, 2020). These restrictions include for instance national quarantine, restrictions on travel and border monitoring, compulsory distance learning for schools and universities, social distancing, retail and service closures, limitations on major meetings, closing entertainment and lodging, and

encouraging widespread use of facial masks (IMF, 2020). We can say that the measures taken by the government were effective and helped to control the spread of the virus in V4. Consequently, over time governments started to ease the restrictions. However, in October when the “second wave” stroke governments of Czechia, Poland and Slovakia tightened the rules and some of them declared a temporary lockdown. In contrast, the Hungarian government response to the accelerated spread of Covid-19 cases and deaths remained at the same level as in September. Furthermore, the restrictions in V4 taken during the “first wave” were more severe and strongly negatively affected the economic activity in these regions. Therefore, during the “second wave,” authorities have decided to take less serious measures to prevent the economy from such a significant downturn as was reported at the beginning of the pandemic.

**Figure 3: Covid-19 Stringency Index in Visegrad Four countries**



Source: Own elaboration based on Ourworldindata data(2020)

**2. Data and Methods**

In this article, we investigated the short-term impact of Covid-19 pandemic on the selected macroeconomic indicators in the Visegrad Four countries, more specifically Gross domestic product (GDP), international trading activity and unemployment. The analysis was based on observation of the time series secondary data. The focus was given on the period from 2017 to 2020. It is important to note that due to the ongoing pandemic at the time of preparation of this research some data have not been available yet. Data about the observed phenomenon were taken mainly from the Eurostat database, OECD database, World Bank database and IMF database. Moreover, we analysed also statistical data from the portal Ourworldindata and Indexmundi. Outlook about the future development of the selected macroeconomic indicators developed by the European Commission and IMF is also discussed in the following part. The present research provides a deeper insight into the specific issues on the matter and future perspective of the economic development in the Visegrad Four countries.

**3. Results and Discussion**

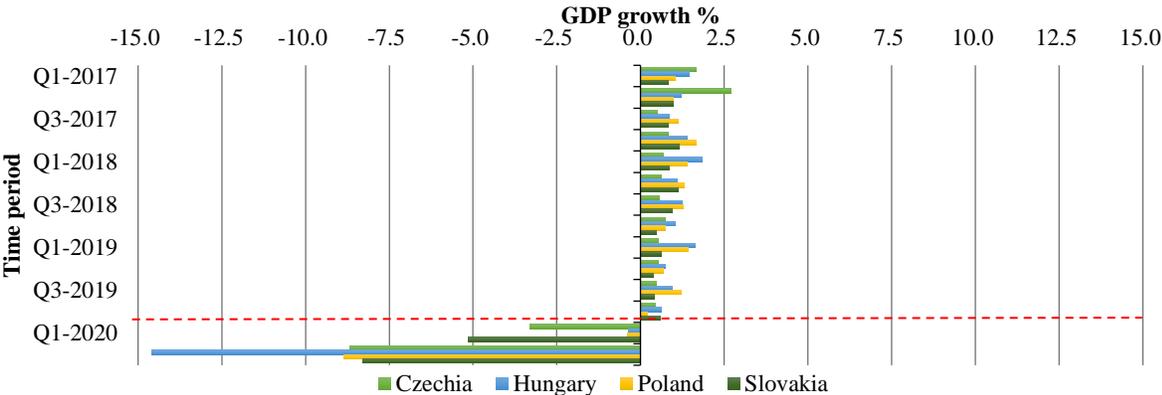
Covid-19 pandemic has paralyzed economies around the world. The anti-pandemic initiatives, border closures, population mobility suspending and decline in both demand and output have contributed to the reduction in foreign trade. To mitigate Covid-19 spread, some countries have taken an effective quarantine step. This has led to a decline in overall economic activity and dramatic economic structural changes. The ongoing pandemic has had negatively also affected

economies of the Visegrad Four. In this part, we analysed the impact of coronavirus pandemic on macroeconomic variables - GDP, international trade, and unemployment in V4 countries.

**3.1. Covid-19 and Gross Domestic Product of the Visegrad Four Countries**

The GDP or total output is the most used macroeconomic indicator when evaluating the economic performance of the country. According to the data of the World Bank (2020) in 2019, the nominal GDP of Poland was \$ 592.16 billion. Czechia reported nominal GDP of \$ 246.48 billion. Hungary and Slovakia had in 2019 nominal GDP \$ 160.96 billion and \$ 105.42 billion. We used the GDP growth rate to measure how fast the economies of V4 countries have been growing before and during the COVID-19 pandemic. As it is shown in Figure 4 before the coronavirus pandemic countries of Visegrad Four reported positive development of the GDP. However, as the disease started to spread across the region total output started to fall. In the first quarter of 2020, the most significant decrease in GDP was reported in Slovakia, where total output fell by 5.2%. In Czechia GDP decreased by 3.3%. In Hungary and Poland, the losses in the first quarter were not that significant and GDP slightly declined by 0.4%. Although, in the second quarter total output fell enormously in all V4 countries. During the second quarter, GDP fell sharply by 14.6% in Hungary. The rapid downturn also reported Czechia, Poland, and Slovakia where output declined by more than 8.0%. More specifically, GDP fell by 8.7% in Czechia, 8.9% in Poland and 8.3% in Slovakia. We can conclude that pandemic of Covid-19 caused in all Visegrad Four countries significant decline in total output in the first and second quarter of the year 2020.

**Figure 4: GDP growth in Visegrad Group countries (1Q/2017-2Q/2020)**



Source: Own elaboration based on OECD data 2020

**3.1.1. GDP by Sector in Visegrad Four Countries**

The main components of GDP by sector are services, industry, and agriculture. Figure 5 examines the GDP components by sector. In all V4 countries, services occupy the biggest share from the total output. More specifically in Czechia 60%, in Hungary 65%, Poland 57% and Slovakia 61%. Thus, services play a crucial role in the economy. The industry also creates an important part of the GDP, in Czechia 38%, Hungary 31%, Poland 40% and Slovakia 35%. The share of agriculture is the smallest within the overall pie, Czechia 2%, Hungary 4%, Poland 3% and Slovakia 4%. Thus, all these mentioned sectors have been affected by the Covid-19 pandemic.

**Figure 5: GDP components of Visegrad Four countries**



Source: Own elaboration based on Indexmundi data

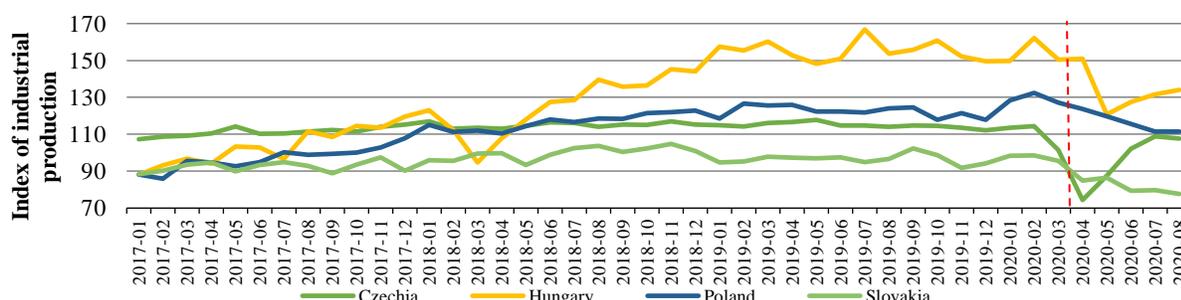
(n.d.)



As we noted before, the industry belongs

in V4 countries to the crucial sectors. Industrial production can be measured by the industrial production index that covers sectors such as mining, manufacturing, electricity, gas, and air-conditioning (OECD, 2020). When coronavirus started to spread around the V4 in March, governments imposed strict restrictions and economic lockdown. Consequently, these measures led also to a significant drop in industrial production. In March industrial production in Czechia dropped by 11.3%, in Hungary by 7.2%, in Poland by 4.0% and in Slovakia by 2.9%. In April, the production output fell even more compared to the previous month, for instance in Czechia and Slovakia by 26.7% and 11.1%. In Poland, the industrial output monthly decreased by 2.7%. In contrast, Hungary reported in April 0.3% increase (see Figure 6). Over the few months industry started to recover in Hungary and Czechia, however, not in Poland and Slovakia where it continued to fall.

**Figure 6: Industrial production index (2015=100)**



Source: Own elaboration based on Indexmundi data (2020)

There are several publications, reports and studies claiming that services have been the most hit by Covid-19 pandemic. The differences in turnover growth rates vary among different types of services. As it is shown in Table 2 the biggest losses were recorded in accommodation and food services. For instance, during the first quarter of 2020, turnover in services decreased moderately by 12.9% in Czechia, 18.5% in Hungary, 9.5% in Poland and 8.7% in Slovakia. However, in the second quarter of the year, there was an even more significant fall in turnover of accommodation and food sector. Turnover enormously fell by 54.3% in Czechia, 49.9% in Hungary, 53.1% in Poland and 18.1% in Slovakia. From our standpoint, it will take a long time for accommodation and food services to fully recover from the pandemic shock.

**Table 2: Services turnover growth rates in Visegrad Four countries**

Services		Czechia	Hungary	Poland	Slovakia
Total	Q1/2020	-4.5	-	-	-2.0

	<b>Q2/2020</b>	-16.0	-	-	-15.5
<b>Transportation &amp; storage</b>	<b>Q1/2020</b>	-1.4	-	-	-2.9
	<b>Q2/2020</b>	-18.7	-	-	-14.5
<b>Accommodation &amp; food</b>	<b>Q1/2020</b>	-12.9	-18.5	-9.5	-8.7
	<b>Q2/2020</b>	-54.3	-49.9	-53.1	-18.1
<b>Information &amp; communication</b>	<b>Q1/2020</b>	0.9	-	2.3	-0.2
	<b>Q2/2020</b>	-2.3	-	2.0	-5.4
<b>Professional services</b>	<b>Q1/2020</b>	-1.3	-	1.9	-18.1
	<b>Q2/2020</b>	-6.8	-	-4.9	-2.2
<b>Administrative support</b>	<b>Q1/2020</b>	-6.7	-13.1	1.2	-11.7
	<b>Q2/2020</b>	-32.3	-15.4	-24.2	-15.2

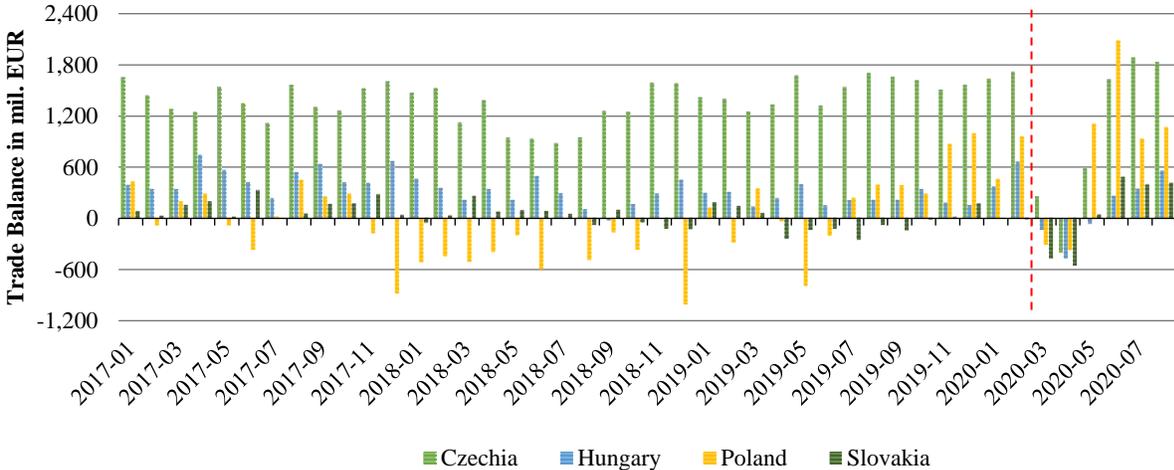
Source: Own elaboration based on Eurostat data (2020)

### 3.2. Covid-19 and International Trade of Visegrad Group Countries

Another important macroeconomic indicator is international trade. International trade plays an important role in the V4 countries. Germany is the main export market of all V4 countries. Podvršič, Becker, Piroška, Profant & Hodulák (2020) in their study stated that Czechia, Hungary, Poland, and Slovakia can be characterized by strong export orientation. However, Poland with a much greater domestic market is less international exposed. Therefore, Visegrad Four countries strongly rely on their exports. As can be seen in Figure 7 coronavirus caused a significant drop in the trading activity of the V4. In March and April imports and exports of the V4 countries from/to the rest of the world decreased. For example, in March Czechia exported € 12,687.2 million, which is a 14.1% decrease compared to the previous month. In Hungary, exports declined by 14.4% to € 8,197 million. Poland exported to the rest of the world € 18,441.8 million, which was a fall of 11.8%. Slovakia exported in March goods in the value of € 5,597.2 million, compared to previous month it was a decline of 18.2%. On the other hand, the Czech Republic imported in March goods in the value of € 12,428.8 million, which was a fall by 4.8%. Imports to Hungary decreased by 6.4% in March and represented value of € 8,332.2 million. Poland at the same time imported goods in the value of € 18,751.3 million, which was a decline of 6.0%. In the case of Slovakia in March imports decreased by 11.5% and represented value of € 6,068.5 million. Thus, the Czech Republic was the only V4 country which in March had a trade surplus of € 258.4 million. Other members, Hungary, Poland, and Slovakia reported trade deficits of € 135.2 million, € 309.4 million, and € 471.3 million, respectively. In April trading activities of the Visegrad Four decelerated even more. Exports from Czechia to the rest of the world decreased monthly by 25.7% to € 9,430.8 million. In Hungary, exports of goods declined enormously by 28.0% to € 5,902.1. Poland exported in April goods in the value of € 13,872.9 million, which was a significant monthly fall by 24.8%. In Slovakia, exports dropped rapidly by 34.5% and reached the value of € 3,665.9 million. In contrast at the same time, Czechia imported goods in the value of € 9,830.8 million, which was a significant monthly fall by 25.7%. Imports to Hungary from the rest of the world significantly declined by 20.9% to € 6,367.4 million. Poland imported in April goods in the value of € 14,243.7 million, which was a rapid monthly drop by 24.0%. In Slovakia imports in April fell enormously by 30.5% to € 4,220.6 million. Therefore, in April all V4 countries reported trade deficits, more specifically Czechia € 400.0 million, Hungary € 465.3 million, Poland € 370.8 million, and Slovakia € 554.7 million. Following months trade started partially to recover from the initial shock caused by the

pandemic. Consequently, exports began to rise more significantly compared to imports and V4 countries reported trade surpluses.

**Figure 7: Trade balance of Visegrad Group countries (01/2017-08/2020)**

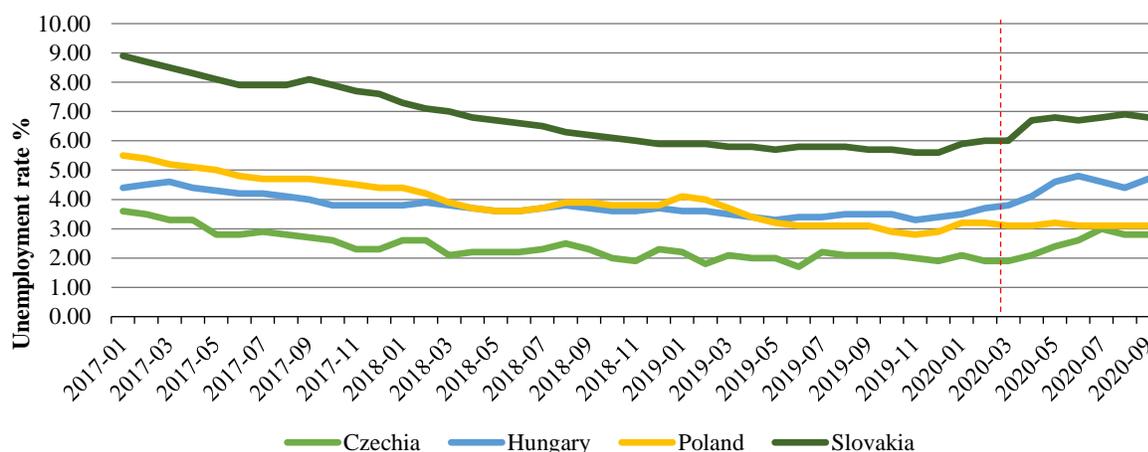


Source: Source: Own elaboration based on Eurostat data 2020

**3.3. Covid- 19 and Unemployment Rate and Labour Market in Visegrad Group Countries**

Many studies were made on the negative effects of Covid-19 pandemic on unemployment. The direct and indirect effects of coronavirus disease have affected also the labour market in Visegrad Group countries. As can be seen in Figure 8 in recent years the level of the average level of the unemployment rate was decreasing in countries of Visegrad Four. However, Covid-19 crisis has negatively affected this development and from April until September unemployment rose almost in all countries of Visegrad Four. In March 2020 unemployment rate in Czechia was 1.9%, which was the lowest within V4. As the number of people without a job started to increase the unemployment rate peaked at 3.0% in July. Within recent years this was the highest level of unemployment rate recorded in the Czech Republic. Following two months the share of unemployed persons slightly fell to 2.8%. In Hungary, the unemployment rate started to slightly increase already before the beginning of the pandemic. In March 2020, the average level of unemployment was 3.8% and in June 2020 it reached the level of 4.8%, which is the highest rate within the past years. In July and August, it slightly fell to 4.6% and 4.4%, however, in September the unemployment rate slightly rose to 4.7%. Slovakia has the highest rate of unemployment within V4. The unemployment rate in March was 6.0%. In April it moderately rose to 6.7% and it peaked at 6.9% in August. In September, the unemployment rate slightly decreased to 6.8%. Covid-19 caused that unemployment rate in Slovakia reached the level of the year 2018. In contrast, the labour market in Poland was not affected by the ongoing pandemic and it remained stable. In March, the unemployment rate was 3.1% and it remained at the same level during the whole period except May when it slightly rose to 3.2%. In short, coronavirus pandemic caused an increasing number of unemployed persons almost in all V4 countries, except Poland.

**Figure 6: The unemployment rate in Visegrad Group Countries (01/2017-09/2020)**



Source: Own elaboration based on Eurostat data 2020

Several authors studied the effects of Covid-19 on working hours and job loss (Adams-Prassl, BonevamaGolin&Rauth 2020; Kahn, Lange &Winczer, 2020). Coronavirus pandemic has caused a decline in working hours. Table 2 illustrates the Index of working hours. In the second quarter of 2020, the index of total actual working hours decreased enormously by 13.9 index points in Slovakia, by 8.6index points in Czechia, 6.3 index points in Hungary and 4.8 index points in Poland. Women were exposed more to the decrease in actual working hours than man. Slovakia belongs to the most affected countries by a decrease of working hours, total working hours dropped by 8.7% in the first quarter. The working hours of Slovak women were influenced the most by a coronavirus and in the first quarter, they decreased by 8.7% (Eurostat, 2020).In short, actual working hours decreased in all V4 countries but most significantly in Slovakia.

**Table 2: Index of total actual hours worked in the main job by sex in V4 (2006=100)**

	Total			Female			Male		
	Q4 2019	Q1 2020	Q2 2020	Q4 2019	Q1 2020	Q2 2020	Q4 2019	Q1 2020	Q2 2020
<b>Czechia</b>	99.7	97.2	88.6	103.9	98.2	89.1	97.0	96.6	88.2
<b>Hungary</b>	109.3	106.4	100.1	111.7	107.7	95.9	107.4	105.5	103.4
<b>Poland</b>	104.1	102	97.2	105.1	102.7	94.2	103.5	101.5	99.4
<b>Slovakia</b>	104.9	98.9	85.0	109.3	98.1	84.2	101.7	99.5	85.5

Source: Own elaboration based on Eurostat data 2020

### 3.4. Macroeconomic Forecast of the Selected Indicators in Visegrad Four Countries

The ongoing pandemic has crippled the global economic activity. There is still a very high level of uncertainty connected with the future spread of the virus. Many publications were prepared to forecast the long-term effect of the Covid-19 crisis on the economic performance of the countries. During the pandemic, the growth of world trade has almost stopped as a result of the gradual adoption of anti-pandemic measures. The world merchandise trade is predicted to decline in the year 2020 between 13.0% to 32.0% (WTO, 2020). Consequently, this drop-in trade led to a significant drop in economic activity. IMF (2020) in the latest World Economic Outlook predicted that global growth would drop by 4.9% in 2020, 1.9 percentage points below the April. In the first half of 2020, the Covid-19 pandemic had a greater effect on the activity than expected and is predicted to recuperate steadily than previously projected. Besides the drop-in global economic activity, countries have reported increasing numbers of unemployed people. According to the

assessment of the International Labour Organization, the economic and labour crisis produced by the COVID-19 pandemic may increase global unemployment by almost 25 million (ILO, 2020).

As we previously discussed Covid-19 pandemic caused a decrease in total output, trading activity and increased the level of unemployment in V4 countries. As is illustrated in Table 3 it is predicted that the economic recovery should start in the year 2021. In 2020 it is expected that GDP fall in V4 countries can vary from 3.6% to 7.5%. Following year total output should grow from 3.1% to 4.7% depending on the region. Furthermore, the number of unemployed persons in V4 countries is expected to grow and the labour market should start to recover in 2022. International trade in V4 countries is expected to start recovery in 2021. imports should increase by 6.9% to 10.8% and exports should rise by 6.6% to 11.4%. In 2020 it is predicted that imports should fall by 7.3% to 16.9% and exports by 7.4% to 17.4% depending on the country. To conclude, most of the selected macroeconomic indicators should start to recover from the Covid-19 pandemic the following year.

**Table 3: Macroeconomic Outlook of V4 countries**

	Indicators	GDP growth (%)	Unemployment rate (%)	The volume of import of goods (% change)	The volume of exports of goods (% change)
<b>Czechia</b>	<b>2019</b>	2.3	2.0	0.6	1.3
	<b>2020*</b>	-6.9	2.7	-9.8	-12.7
	<b>2021*</b>	3.1	3.3	8.7	11.4
	<b>2022*</b>	4.5	3.2	4.0	5.1
<b>Hungary</b>	<b>2019</b>	4.6	3.4	7.4	4.5
	<b>2020*</b>	-6.4	4.4	-7.3	-12.3
	<b>2021*</b>	4.0	4.4	6.9	9.7
	<b>2022*</b>	4.5	3.9	6.8	6.9
<b>Poland</b>	<b>2019</b>	4.5	3.3	2.7	4.7
	<b>2020*</b>	-3.6	4.0	-9.3	-7.4
	<b>2021*</b>	3.3	5.3	8.4	6.6
	<b>2022*</b>	3.5	4.1	7.0	5.0
<b>Slovakia</b>	<b>2019</b>	2.3	5.8	2.5	1.7
	<b>2020*</b>	-7.5	6.9	-16.9	-17.4
	<b>2021*</b>	4.7	7.8	10.8	9.7
	<b>2022*</b>	4.3	7.1	7.1	6.8

\*expected values

Source: Own elaboration based on Eurostat and IMF data (2020)

#### 4. Conclusion

The novel coronavirus, Covid-19 caused pandemic and exposed a threat that modern society had never faced before. A wide variety of studies have been presented about the impacts of the ongoing pandemic on the global economy. Depending on these studies and forthcoming data, the pandemic impact on the key macro-economic variables can be demonstrated and depend on the extent of the epidemic. In our study, we focused particularly on the countries of the Visegrad Four – Czechia, Hungary, Poland, and Slovakia. The disease started to spread across the region in March and governments were forced to take strict measures, restrictions, and economic lockdown to control the spread of the virus. This set of regulations and rules harmed the performance of the macroeconomic variables. The total output in these countries significantly decreased. In the second quarter of the year, GDP fell significantly by 14.6% in Hungary, 8.7% in the Czech Republic, 8.9%

in Poland and 8.3% in Slovakia. All sectors of V4 economies have been affected by economic lockdown. Services have been hit the most by the coronavirus pandemic, turnovers within various types of services fell differently. However, accommodation and food services recorded the sharpest decline in turnover. It will take several years for them to fully recover. Moreover, industrial production also declined in these regions. Besides, international trade measured by exports and imports was also negatively affected. V4 countries are strongly export-oriented. During the first two months, the drop in exports of V4 countries varied from 11.8% to 34.5%. Similarly, imports also declined from 6.0% to 30.5%. During this period countries of V4 imported more than they exported to the rest of the world. However, when the trade started to recover from the initial shock following months, countries started to export more than import, which resulted in trade surpluses. Furthermore, the contagious nature of the disease together with taken measures caused problems also on the labour market. As the unemployment rate started to rise in V4, it reached the highest levels during the past few years. Only Poland remained resistant to the initial coronavirus shock. However, the actual working hours decreased in all V4 countries. Slovakia was one of the most affected by a decrease in actual working hours within the entire European Union. Governments have already taken several steps to help their economies. These include fiscal, monetary, and financial policy initiatives. Moreover, Czechia, Hungary, Poland, and Slovakia are part of the European Union and are part of the recovery plan. As a lot of uncertainty is connected with the ongoing pandemic countries are still exposed depending on the situation to consider and follow specific policy measures to smooth down the negative consequences and stabilize the economy. Thus, the overall recovery will depend on the response to provided support, however, “the invisible enemy” can disrupt the overall plan of the recovery.

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# THE DAWN OF NEW MARKET FROM PANDEMIC BOG.

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## Abstract

*The new market has seen a dawn in the past few months of the pandemic. This new normal is changing everyone's perceptions towards the new market and the overall business operations. This change has led to the technical, physiological, operational and psychological advancement of the markets. However there are a few aspects like the financial and employment has taken a different turn. Almost all industries and sectors have adapted to the new normal protocols like work from home, social distancing, employee welfare, online business/ trading etc. Not only the products but also services like learning and development, education, corporate meetings etc. are now online. The market migration is an emerging agenda which contributes majorly to the physiological and demographic aspects. Developing nations and the developed nations are still bound on this aspect. Many nations have also reframed their legal policies for the economic growth and to sustain in one piece for example: the foreign direct investment (FDI). Political involvement in the face of international relations and geopolitics includes applying different strategies and game theories which directly-indirectly affects the market environment.*

**Key words:** *Advancements, Game Theories, Market Migration, New Market Factors.*

**JEL Classification:** *Code M, Code M00.*

## Introduction

We all have, once in our lives come across the phrase, “The History Repeats itself.” Some similar incidences in the human history has lead all of us to think upon the pandemic and epidemic diseases which have affected globally. Though today the world is experiencing the pandemic of Covid-19, before decades the world has also been suffering from similar circumstances, however the world has recovered and adapted to the pandemics since the records of 1820 Yellow Fever and there after in 1920, Spanish Flu. Now again after a century in 2019-2020 we are facing a big pandemic situation due to Covid-19. The first case of Corona virus disease was observed after mid 2019 in the states of Wuhan, China. It took around March 2020 for the world to accept this disease as a global pandemic and thereafter, each nation has changed their internal policies. People have been facing dozens of negative impacts and challenges of this pandemic but, this research paper will put a light on the positive aspects and the dawn of hope of the new normal.

Generally, we come across research papers which are more of analytical when it comes to data and figures. This research paper exceptionally will not emphasize on data analytically or graphically but will focus on the experience, observations, forecasts, immeasurable factors and explanations of context.

### **Literature Insights**

We will be discussing a few aspects from the bog of pandemic which will give a dawn to the new markets of the world.

Due to globalization, the interdependency among the nations had increased. The pandemic of Covid-19 created a few restrictions and physiological as well psychological borders in the world. This made a lasting impact on the economies and the human psychology as well. These changes not only had negative but also a few positive impacts of their own. For example, a better environment, reducing pollution, the human presence in nature, new practices in the fields of education and operations. The world also faced a challenge of the global lockdown for a long period which created many restrictions and drawbacks. But, we had to find out some solutions which are new to adapt like the work from home trend, hygiene awareness and healthcare , new investment practices, new government policies on national as well as international level.

The prices of gold struck higher than the ever usual because of the instability in the share market being a result of the nation competences before the pandemic. Now, the common psychology showcases gold as one of the best means of investment, leading to a higher demand and price hike. This investment was already familiar however the pandemic showed us its significance on such a large scale. Prior, the nations were much inter-dependant on other nations and groups like EU, SAARC, OPEC, etc (Mark Pearson, Guillaume Dedet, Martin Wenzl, 2020) however, during the pandemic due to increasing borders and other restrictions, the nations have become self centric and invert-looking for development and growth. This has made a mandate to innovate and develop new strategies and innovations in technology and other sectors for self dependency. Many nations used to purchase or borrow technology and resources from other nations. Although now, they are spending their capital on research and innovations.

Some good example of research is the pharmaceutical sector which every nation is focusing on to create an antidote for the Covid-19. This will give an intense benefit to the pioneers of the vaccine creator nation on a national level, for healthcare management & revenue generation. On

international level, it will benefit that nation to create new international relations, policies and diplomacies, and also that nation will take a lead on a global level in this particular sector even if it is a small nation. For example, the Remdesivir can be a potential antidote for Covid treatment but the nations like America with larger economical potential had big stocks of it and there was a chance of black trade of this content due to its huge demand (G serafini & B Parmigiani, QJM). But now, technology and potential is a main factor that's why a small nation can use the availability of this ingredient to create a vaccine. This opportunity was possible due to pandemic circumstances for the nations to innovate, research and study.

During the pandemic spread many nations had conveyed their disappointments against China being the pioneer of the pandemic spread and also banned many Chinese products in their nations. But, China is one of the larger suppliers of pharmaceutical raw materials globally. A basic examples is that, the diet Coke which is a best selling product in Europe and America , has its main and core ingredients used for manufacturing are supplies by China. In this pandemic, China is one of the main Vitamin and supplements provider. Last year, India purchased 53 API (Active Pharmaceutical Ingredients) from China for around 5 billion US dollars and America and European nations are also dependant on China in this particular sector. But, during the pandemic, the whole supply chain is disturbed that's why, all the nations are becoming self-sufficient. On the other hand, there are a fee countries like Franco who have initiated Green Budgeting concepts since last few years which have paid them back with investments for covid crisis. France met its goal of dedicating 30 billion EUR of its Covid-19 recovery plan to green transition (Elsa Pilichowski, oct 29, 2020).

The another aspect also focuses on the migration of industries from China to other nations. China was a hub for the manufacturing industry due to its optimization of labor, land and revenue, however this pandemic created a mandate for the nations to manufacture in their own countries and some big industries also preferred to step in some other nations for a new manufacturing platform. This has given a way forward for the developing nations to create their own platforms. These platforms were appreciated by political involvements and game theories which played an important role to attract companies towards their nations.

The oil industry is no exception for the pandemic impacts. Crude oil prices were never stable due to the competitive nature of the leading oil producing nations and industry as well (Dr. Shailendra Deolankar- Crude oil). But the lack of trade and limitations to humans as well as goods transport, the demand of petrol, diesel had decreased which mainly affected that particular industry. For example petroleum industry of America worsened during the pandemic offering free of cost petroleum to customers as well as with compensations which was never seen before in history. The better aspect for this sector was that the oil

producing nations like OPEC nations, America and Russia emphasized conferences to overcome these this crisis and set new pricing strategies to sustain the market for this sector (Mark Pearson, Guillaume Dedet, & Martin Wenzl, 2020).

Discussing on a national and international impact level, we also cannot neglect the impact of the pandemic situation on the individual psychological level. Every human being is somewhere perceiving this circumstance as a con for the globalization because individually, by human nature it is very much natural to have doubts as on “why this is impacting my life when it is a global crisis?” As we saw China being a hub of manufacturing , their trade has given rise to travelling of people to distant countries. Near about 15 crore Chinese people travelled all round the world for trade and business perspective. These travelers actually proved to be the carries of the virus spreading it into a pandemic. The main example here lies with Italy. The trade relations of Italy and China are on large scale and nearly 1.5 crore Chinese employees traveled to Italy yearly for trade (Dr. Shailendra Deolankar interview - [youtu.be/DJqlQSE5MRk](https://youtu.be/DJqlQSE5MRk)). Thus, Italy was the second most affected due to Covid-19 in the initial stage. On individual level, the work-life balance, the health and security factor, the personal and social life of human beings is affected on a large level by Covid pandemic. We can also find out that the pandemic circumstance has lead to more of stress caused suicidal deaths regardless of the numerous death caused by Covid.

Again the other side of coin suggests that the psychological factor of the individual has been prone to adapt to the loss of employment leading to creating new jobs and employment by entrepreneurships, particularly while studying the Indian market, India is known as the large geographical and demographic country with a second largest world population. During the pandemic, people lost their jobs but the markets for agricultural, poultry & perishable products which are basic mandate human needs had increased like anything. This sector catered to a lot of unemployed people for their daily bread and butter. Even at the individual level, self dependency was seen and risk taking ability of the people has risen. These basic attributes will help these individuals to expand their business and trade on a national and international level also. So such circumstances shows that the pandemic created do or die situations for human beings which are creating some of the good opportunities.

Other than the economical, psychological, and social factors which were impacted, there was one more major factor which had a drastic impact during this pandemic, namely, the environmental factor. Until now, the human interference in the environment had given rise to the green house gases, pollution, and imbalance in the ecosystems. Taking the example of marine life, the human activities like mining, under water mineral extractions, industrial & other waste dumped in to the oceans had an adverse effect on the marine ecosystem ([oecd.org/oceans](https://www.oecd.org/oceans)). The pandemic appreciated lesser human contact with the nature, helping in recovery of the environment hazards caused due to globalization. This recovery lead to the balance in marine life, and

wild life ecosystems. Now this recovery will also have a better impact on the new markets with the natural and environmental platforms. Like, many nations had marine life as one of their major resource for income. The economies of such nations were impacted due to pandemic because of social restrictions of trade. The recovery of this marine resource has improved the sea life qualities like fish breeds and marine plant and coral quality. It is now the responsibility of humans to preserve this benefit which we have incurred from the marine ecosystem recovery by avoiding past mistakes. The utility of these resources in markets should be in an ethical manner.

Though the impacts on some sectors have been negative, there are some which have positively flourished in the pandemic as well. The education sector, pharmaceutical sector and some other sectors are also impacted positively by covid-19. The usage of masks was limited in some professions like medical, mining, garbage and housekeeping, etc. but the individuals are now also prone to use these masks on a high level due to corona. Thus the industry related to manufacturing of masks, hand gloves, cleaning and sanitization supply's demand has hiked due to safety & awareness reasons.

On a technological basis, sale of drone had also increased due to social distancing for example China who used drones to deliver patient's samples and reports and also in other delivery sectors. Even the IT sector has flourished for automation. Due to the new communication platforms like video conferencing and online meetings, online education, remote doctor services etc the IT sector showed its influence thoroughly. Similar impacts were seen on the telecommunication and networking sector.

In the entertainment field, we also got to notice a positive change like Netflix, amazon prime, Hulu etc were introduced as the most popular means of entertainment leading to increase in their demand during lockdown. People are now used to these new modes of entertainment thus will lead to these platforms sustainability. Similar effects were seen on the gaming industry which became more and more popular amongst people for spending their time at home. The fad of online and offline gaming was also made the most of by the technology sector. Healthcares gym was limited to access thus people started buying healthcare and gym equipments.

A new face for the liquor industry was also observed in many countries where liquor was first only served in liquor stores and bars but some countries permitted liquors to be sold in grocery shops because of having regular consumption by people.

The lockdown did not have same or equal restrictions on a global level. Social distancing lead to increase in the online shopping and delivery sector also. Though there has been unemployment in many sectors. We can find increased employment in this sector like Amazon online shopping and delivery services employed 1 lakh employees in this sector.

## **Conclusion**

The pandemic has given the world a message that there is always a dawn after a night. This explains that the pandemic definitely had some negative impacts on the market but the other side of the coin is, an evolution of new market and a new normal has also taken place. Though this situation may have restricted globalization, and the international borders, the world still needs to create better relations internationally for a new beginning of the new markets dawn. The nations in this pandemic have become self-centric or inward looking, for sustaining their national potential during pandemic. The international organizations like EU, SAARC etc were also a bit dormant during this crisis, thus the superpowers like America, Russia etc and the middle powers like India, South Korea, Australia, Germany, Japan etc of the world should come forward as they have technology, knowledge, resource abundance, better economy and the use of such potentials should be done for the underdeveloped countries also. For examples India donated 10 million US dollar to the SAARC organization which cater to many small nations like Bhutan, Bangladesh, Nepal etc. At the level of international financial institutions, the World Bank has committed to provide financial assistance of up to US \$ 160 billion to low income countries. And as of early May 2020, the International Monetary Fund, (IMF) has reported to have received more than 100 emergency financing requests, corresponding to about US \$ 100 billion in financing (Jesus Gonzalezves- Garkia & Yuanchen Yang, 2020). However, large in absolute terms, these sums are low compared to the amounts of money mobilized by the US and European countries to protect their own economies. Such potential nations can be a helping hand to the smaller nations for creating a new market influencing market migration. This pandemic situation also has a message for the governments of all the nations to study and analyze their potential for the wellbeing of their nation alike the Indian government who provided grains free of cost to below poverty line people and at a very low cost to lower middle economy class families. As well as established Covid centers and free medical facilities and food for the corona patients. Covid pandemic also taught that the investment patterns of many nations have changed. Like many nations spending high part of economy on defense sector have realized that Covid is a hidden enemy which has no requirement of arms but is equally or more hazardous to human beings (Mark Pearson, Guillaume Dedet, & Martin Wenzl, 2020). Even the non-profit organizations have contributed on a large scale during this pandemic which showed us the beauty and significance of welfare organizations. Thus, the nations rather than investing on arms and defense have invested in science and technology, healthcare and social causes.

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## **Effect on Mental health during Covid-19**

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### ***Abstract***

*The COVID-19- pandemic has shown its impact on various aspects of individuals' life from economic the COVID-19 pandemic has shown its impact on various aspects of individuals' life from economic depression to mental depression. However, many of us ignore the adverse effect this pandemic has on mental health in different age groups. Mental health defines a person's productivity and quality of life. States are currently during the time spent re-opening, which has been trailed by many seeing a reoccurrence in COVID-19 cases. Social separation and loneliness during the pandemic might lead to poor mental and physical health. Moreover, the psychological effect of isolation during other ailment episodes demonstrate such isolates can prompt negative psychological wellness results. There is specific worry about self-destructive ideation during this time, as segregation is a danger factor for self-destruction. During this season of vulnerability and, psychological well-being issues and substance use issues among individuals with these conditions could show high growth. Also, pandemics have been appeared to actuate general worry over a populace and may prompt new emotional well-being and substance use issues. Adults are especially in danger of depression, which is frequently misdiagnosed and undertreated inside this population. The commonness of discouragement rises for the individuals who require home medical care or are emergency clinic patients. With long haul terminations of schools and childcare centers, numerous parents are encountering progressing disturbance to their day by day schedules. With increasing stress daily starting from household works to office work segment of ladies with different age groups have announced adverse effects on their psychological well-being during pandemic coronavirus. The finding of the study will emphasize mental health during the new normal of the covid-19 pandemic.*

**Keywords – Mental Health, Covid-19, Global, Pandemic, Gen Z**

## **Introduction**

On the 11 March 2020, COVID-19 has authoritatively delegated a worldwide pandemic. This pandemic presents serious dangers for the physical and psychological well-being of individuals around the globe. All and transitory breakdown of the medical care framework because of the high pace of patients requiring clinical therapy. These planned dangers drove governments all over the globe to institute different limitations trying to contain the pandemic, going from various public rules of social distancing. One key factor for adherence with general health advice is social distancing, which is the view of their viability. In this unique circumstance, realizing that those limitations are compelling in ensuring ourselves and that we can follow that guidance will support our self-adequacy. Likewise, in the current examination, we planned to evaluate the apparent adequacy of these limitations and their effect on a regular day to day existence. (WHO 2020) Moreover, the effect of a pandemic and the measures to limit it on mental wellness inclination in common outlive their physical impacts, and has significant psycho-social and fiscal outcomes. It is currently certain that the limitations against COVID-19 changed the way of life of most individuals from present-day social orders, conceivably adding to the pandemic-related emotional wellness trouble. We in this manner surveyed how the apparent danger of COVID-19 and the different limitations influenced mental prosperity of members at a beginning stage of the episode. In India, the above all else reactions to the pandemic have been dread and a feeling of absolute and inevitable threat. Fears have gone from those dependent on realities to unwarranted apprehensions dependent on deception circling in the media, especially web-based media. When change is the main steady, what to do? What not to do? These questions are close widespread and offer ascent to stress and dread. Every one of us reacts distinctively to the flood of data from worldwide and nearby sources. It can prompt individuals who create distressful mental indications and maladaptive adapting to stress, and the individuals who build up a psychological problem. The feelings of dread of getting the sickness are likewise continuous and extended from misconstruing each fever as a COVID-19 disease, needing a test accomplished for consolation even though there are rules for testing, to accumulating meds despite there not being signs for their summed-up use. Aside from the warnings concerning hand washing, questions about whether to utilize a shield, what kind of face mask to use, what separations to keep up, what surfaces need cleaning, etc. There are additionally genuine concerns about occupation misfortunes and monetary stoppage during and following the pandemic. The rundown is perpetual and prompts a pattern of worry, stress, and misery.

## ***Methodology***

The qualitative research method has been used for this research paper where, secondary data from various public sources such as articles, news-letters, and public reports has been referred for better understanding of the research topic.

Exploratory approach has been used in the research to explore various factors in the mental health and global pandemic covid-19.

## ***Objective***

The objective of the study is to explore the reasons behind the mental health issues and how the pandemic has been a catalyst for the mental disorders.

The study extensively focuses on examining the various aspects of human mental health with major focus on demographical factor- Age.

The objective of the study is to deliver possible solution to reduce the mental health issues.

## ***Mental health of working generation during covid-19 pandemic***

The working class in different domains experience work related pressure and anxiety on the daily basis. Numerous workers describe their positions as a notable of stress and nervousness, without much of a stretch ascent to the degree of a tension issue with negative implications for physical health, mental prosperity, working environment profitability, and occupation openings. The pandemic enhanced the scenario of emotional health issues in the working environment. It has mostly extended the solution of antidepressants and stress-reducing meds, large numbers of which are related health concerns, including the danger of abuse, compulsion, and even demise, tending to work environment stress and uneasiness during the COVID-19 pandemic. The past demands novel ways to deal with mental wellbeing support and an on basic level distinctive norm of care contrasted with current drug options for tension and wretchedness problems. The COVID-19 pandemic has exacerbated the current difficulties related to pressure and tension in the working environment. For a few, the real factors of working openly during a worldwide pandemic situation raise wellbeing and security concerns. For other people, telecommuting conveys difficulties of its own. Others get themselves jobless and in desperate money related waterways, which vigorously adds to pressure and tension too. Another option for the working-class is to work from a home

structure. The pressure of social disconnection and a "consistently on" attitude could without much of a stretch add to burnout, a typical working environment marvel recognized by the World Health Organization. For those working in a physical work environment, the requests of adjusting to COVID-19 and social removing measures can intrude on imagination and work process profitability in various manners. The working generation should not get distressed due to rising work pressure and compromise health. Businesses realize that worker prosperity improves work execution, makes their positions simpler, and makes them operate efficiently. Another danger factor is that other than anxiety or depression is the result of pressure, physical issues, for example, hypertension and diabetes. However, the shame connected to having a mental issue is the reason because of which employees hesitant to look for treatment with fear of hampering their job. Simultaneously, administrators might need to help, however, unsure how to do as such. The connection present between mental disorders leading to physical illness and organizations need to understand this and urge staff to keep up a decent work-life balance (ADAA, 2006). In this manner, associations need to have rules about working hours dependent on modern practices and take measures to implement these regularly. As the pandemic hit the economy, it indirectly damages the working culture of many organizations and puts the jobs of many individuals in danger. The job terms were unmanageable and, working schedules were scattered, along with the fear of losing a job and pressure of outperforming the market scenarios. As health care and online retail were glooming in these uncertain times, other sectors were going bankrupt and were operating in an unstable capital structure. These conditions damage the health of the working class physically as well as mentally, which further hamper the working efficiency at work and peace at home.

### ***Mental health of millennials and z generation during covid-19 pandemic***

The millennials are in danger since everybody is mentally different from each other. Thoughtful people may even flourish in this season of social distancing. Yet, the spread of depression and anxiety is a sufficient blight to rank close by corona transmission. The global pandemic followed by lockdown has impacted the lives in all the generation. Millennials and Generation Z are no different when it comes to the effects of a pandemic. This generation has been brought up in the era of the social network. Their definition of social life is highly dependent on social media status (CDC, 2020). Many of the individuals of this generation were separated socially because of the over exposure of the internet. Less social activity has been the major area of worry for the many parents which they observed in their children. After the lockdown, this social interaction barrier

becomes mandatory for everyone and the millennials and generation z were becoming more and more disconnected from their social life physically and were getting involved in social activities virtually. The freedom to go out and have a cup of coffee or even walked was taken away from the citizens in many nations. The mindset of this generation was switched from living a healthy life to living for survival has been a danger factor. The way that these ages have never survived anything like this is a purpose behind their expanded anxiety and other mental disorders. Another is that they were a 'more restless' generation even before this pandemic. Presently, around one out of four youngsters matured 15 to 19 years meet the rules for having a plausible genuine psychological instability. During the pandemic, many people's flexibility and the capacity to recover from trouble – was questioned. When it came to financial flexibility, Generation Z was limited emotionally flexible. This generation will always be known as the generation which grew up in the pandemic situation and a huge part of their life was affected due to this pandemic. mental disorders were always the most significant concern for this generation with changing global dynamics which directly or indirectly affect mental health. (Mumbai mirror, 2020).

### ***Less awareness for mental health during covid-19 pandemic***

As indicated by WHO, each one out of seven individual experiences either, emotional wellness issue, and along these lines tending to the absence of psychological fitness mindfulness is the need of great importance. Psychological fitness issues are with the end goal that can strike anybody and everybody. It is typical as coming down with a bug or experiencing a fever. It's simply that we should be more mindful of it as we know about actual health. What's more, in the pandemic circumstance where individuals are advised to disengage and isolate, their more odds of confronting the emotional well-being issue. Yet, one needs to imagine that being segregated doesn't intend to confine you from mingling very well may be in any case done through web-based media stages. Psychological sickness can hugely affect an individual's state of mind conduct, perspective, and by and large prosperity (NCBI, 2020). For quite a while, emotional well-being was considered as an indication of humiliation or shortcomings. It is even observed today that looking for help from a guide or in any event, conversing with shut ones is implausible, and is met with bias, decisions, and comments. This is fundamentally a result of the shame that psychological well-being is covered with. Many individuals with psychological instability don't realize whom to counsel or look for help. This can be more a result of the absence of qualified experts in the field.

A couple can pick to seek after psychiatry Also numerous youthful grown-ups go for directing and treatment without the information on their relatives and they are a lot reluctant to acknowledge their emotions. Individuals have confused that psychological well-being issues are hopeless, and thus neglect to recognize it. There are a few different ways somebody who needs emotional wellness care probably won't know it. To begin with, is disavowal. The ramifications of conceding psychological issues and looking for help are too unimaginable to even consider comprehending. If they perceive the issue by any stretch of the imagination, they concoct reasons they needn't bother with assistance (Department of Psychiatry, NIMHANS, 2020).

The subsequent way individuals can be careless, they need assistance is they don't know that what they're encountering is a perceived emotional wellness issue that can be viably treated. You just truly recognize what it resembles to be you. On the off chance that you've had a specific disorder since you can recollect, it probably won't become obvious you to look for direction. This can occur with numerous emotional wellness issues, including relentless burdensome problem, social tension issues, avoidant character brokenness, and others. The third way individuals can be unconscious they need assistance is a condition called anosognosia. This commonly occurs in about a portion of individuals with schizophrenia also other insane problems. They are so debilitated by their disease that they are unconscious there's anything wrong.

Progress in psychological well-being administration conveyance is delayed in generally low-and center economy Nations. Hindrances incorporate the current general wellbeing needs and its effect on financing, difficulties to the conveyance of psychological well-being care in essential consideration settings, the low quantities of those prepared in emotional wellness care, and the absence of emotional wellness point of view in general wellbeing initiative. There have been various calls for conjuring political will, for upgrading support, and for stirring network cooperation; all with insufficient improvement in results. Consequently, it turns out to be presently helpful to investigate the worldview of emotional well-being mindfulness as a method for battling shame, improving avoidance, guaranteeing early acknowledgment, and furthermore invigorating straightforward and reasonable intercessions inside the network. Today there are openings as far as developing affirmation of mental problems as key focuses of worldwide wellbeing activity, just as of utilizing new advances especially the web, huge information, and phones in enhancing straightforward field intercessions discovered effectively.

### ***Possible solution for better mental health during covid-19 pandemic***

The social distancing and lockdown have likewise prompted a few changes in everyday exercises, rearrangement of home tasks, broad telecommuting, and more prominent time went through with those living individually. Despite the significance of social removing (albeit many like to utilize the term physical separating), such a necessity has implied long partition from families (for those working endlessly from the places where they grew up), money related pressure, and relational strain. Responses can go from weariness and surliness to outrage, bothering, and dissatisfaction. Another maladaptive adaptation is using mind-changing substances. Vulnerability and a feeling of loss of control are without a doubt the pathogenic operators for tension, frenzy, and misery. self-care. Self-care incorporates those exercises to advance our enthusiastic, physical, social, and otherworldly/strict wellbeing. These incorporate the accompanying: - Have a daily schedule, Ensure breaks and satisfactory rest, Keep in contact with family members/companions, Carry out certain exercises and interests irrelevant to work, Exercise routinely and have a solid eating regimen, Practice unwinding practices like yoga, Religious exercises (in the event that you are a strict individual) - Make time for yourself and your family (World Economic Forum). Interruption yet doesn't freeze: Pay thoughtfulness regarding what's going on however cease from becoming involved with the "despondency hype. Remain quiet and spotlight on yourself. Recognize your stressors and make an arrangement: record the particular ways you and your family can decrease costs thought of an activity plan and survey it together. It might be nervousness inciting to consider however having a composed arrangement and focusing on it proficiently can be helpful for long haul pressure decrease. Perceive how you manage budgetary pressure: In intense monetary occasions, individuals are bound to diminish pressure with unfortunate adapting strategies like smoking, drinking, betting, or passionate eating. These practices can likewise prompt more clashes seeing someone. Be aware of this and consider looking for proficient assistance in the event that they start to exacerbate. Transform this time into open doors for development: Times are troublesome. Attempt to utilize this as an occasion to move yourself to discover a better method of adapting pressure. Go for a stroll, get some activity, eat with your family, gain proficiency with other expertise, take a course, or investigate minimal effort resources. The key is to consider better approaches to dealing with your life. Request Professional uphold: Contact credit advising administrations and money-related organizers to assist you with recovering control of your budgetary circumstances. In the event that you are battling with bills or obligations, contact your

bank, utilities, or charge card organization. Additionally, consider conversing with a therapist on the off chance that it might assist you with tending to your feelings and nervousness. Get some assistance from loved ones: Go and converse with your shut ones. Try not to be excessively hard on yourself: Unfortunately, this is a troublesome time for individuals with uneasiness and OCD and it is critical to be benevolent to yourself during this cycle. Recognize that this is hard for everybody, that you can make an honest effort and jumble up. You will feel too on edge and that is alright. Recall it is alright to not be awesome, none of us are, talk through your tension with friends and family.

### ***Conclusion***

The pandemic is a situation that is new to everyone, and no one has control over That. Mental health issues following the COVID-19 pandemic originate from people being introduced to 'unprecedented conditions'. The current condition fuses energetic inconveniences like disquiet, despairing, characteristic outcomes like rest, hunger inconveniences similarly as genuine mental awkwardness, and substance misuse. For a large number of individuals, these results are delicate and transient, nonetheless, a minority may make extraordinary mental health gives that require extra passionate prosperity uphold. Children, grown-ups, people with past broken conduct, pregnant women, people living alone, and gatherings of the individuals who have passed on in the COVID-19 pandemic may have a spot with this get-together. The extraordinary social and money related unsettling influence of the pandemic has assembled a psychosocial influence unbelievable in present-day times. The all-out of what these have been moreover controlled by the information of new age media stages that have consistently spread a mix of careful similarly as mixed up information and even roused ideas which hence have mentally influenced the framework. Here comes into the picture mental wellbeing care. Concerning real prosperity people think about the triggers and results identified with it anyway in the case of mental prosperity the condition is unprecedented, numerous individuals don't think about health important issue, in like manner, a few people think about it yet assimilated towards the issue, it isn't focused on as a genuine clinical issue. When people think about the issues perceived with mental health then it ends up being not hard to deal with the issue and recognize expected responses for it. Various on numerous occasions simply great assistance is expected to fix passionate wellbeing related issues. There is disarray

about it that there are no responses for it, yet it isn't the circumstance, yes there are answers for it. It's basically that a little care towards the issue besides to whom to guide while confronting such issue such a data is required.

The global pandemic has been the major reason for increasing the mental disorders all over the globe with the spread in all the age groups and various work cutlers.

## **ACKNOWLEDGEMENT**

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## Implications of Covid-19 for Labour and Employment

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### ***Abstract***

*This article discussed some of the important issues regarding the effect of epidemics like COVID-19 on the migrant population. These impacts are most troubling for low-income households, which are less well positioned to cope with earnings losses during a recession, have no alternative earnings and have no social security available. Most of these workers earn little more than a subsistence wage and have no other means to protect their incomes if they lose their jobs. Migrant workers constitute quite a large proportion of such vulnerable population. The COVID-19 is a globe-spanning health and socio-economic crisis. Its impact can be seen directly at the local level, where it amplifies the pre-existing socio-economic condition in our cities. Along with news of fatalities, our country has witnessed enough disturbing visuals of discrimination, hunger and poverty also. The International Labour Organization (ILO), an affiliate of the United Nations, says the coronavirus outbreak will cause an estimated million of jobs. The corona virus can lead to lockdowns, reduced working hours, and pay cuts, which can increase unemployment. Developing countries will be hit the hardest, says the ILO. In 2020, the salaries of few crore workers would be estimated at to billion. But this money will not go into their pockets. The shopkeepers who depend on them will also have to bear the loss. Unemployment is a serious issue for any economy. It creates negative affects to unemployed as they are jobless and suffer from worse prospects to find new job and those who are employed feel less secure to keep their jobs in future. This is just a fraction of what pandemic has presented in front of this generation.*

**Keywords** - COVID-19, Unemployment Crisis, International Labour Organization (ILO), Socio-economic, Employment, Reduced working hours, Lockdown.

## Introduction

The ILO was quick to acknowledge that the COVID-19 pandemic isn't just a health crisis, but equally an economic and labour market crisis. The lockdown measures adopted in most countries to stop the spread of the pandemic restricted economic activities. Evidently, developing countries have faced disruptions in trade and provide chains, triggering negative growth. As early as on 18 March 2020, ILO's first monitor on COVID-19 had estimated an increase in unemployment and underemployment between 5.3 million ('low' scenario) and 24.7 million ('high' scenario) from a base level of 188 million in 2019. The figures have proved as highly underestimated. ILO 5th Monitor on COVID-19 impact released on 30 June 2020 suggests that the labour market recovery during the second half of 2020 will be uncertain and incomplete. The working-hour losses could range between 140 million full-time jobs and 340 million full-time jobs within the half-moon of the year, depending upon the spread of the pandemic. The 5th edition of ILO monitor highlights, despite the easing of lockdowns and workplace closure measures in some places, 93% of the world's workers are still living in countries with some restrictions in situ, and one in five are in countries where closures affect about essential workers. In India, the lockdown combined with global headwinds delivered a severe blow to the economy. For 2020, the IMF estimates GDP growth of just 1.9% for the country, the lowest rate since the 1991 balance-of-payments crisis.

This assumes significance in an economy dominated by micro and little businesses, primarily within the informal sector. ILO Rapid assessment predicts casual workers, and the self-employed workers are most likely to lose their work and incomes. India doesn't have labour force data covering the amount quarter 4, 2019, to quarter 2, 2020. However, the PLFS 2017–2018 estimates that 77.1% of employment in India is non-regular—either self-employed or casual workers. There is an extra 13.7% in regular but unprotected jobs. When applying 2020 UN population estimate to the above proportion, it suggests that between 364 and 473 million workers are in peril of being adversely suffering from the lockdown.

Women are marginally more likely than men to be in non-regular employment. Thus, COVID-19 has increased vulnerability of girls employment and has further added care work responsibilities during this time. Women's labour participation numbers were declining even before the pandemic with the increased engagement of girls in education and with domestic duties not being classified as 'work'. The rapid assessment estimates that together, 181 million people in households, mostly

women, engaged in domestic duties or unpaid family businesses, are bearing the brunt of the increased care and work burden.

COVID-19 has also exposed the vulnerability of urban casual workers, many of whom are migrants. They were among the primary to be jolted by the lockdown measures as economic activities were halted threatening survival of the many small urban units and jobs of those workers. In most urban units, the jobs are linked with accommodation at workplace and the unemployment may have forced these workers to vacate their shelters as well. With little choice, they're forced to return to their village in desperation. With limited data available on inter-state migration and employment in informal sectors, it's difficult to work the numbers of migrants who lost jobs and accommodation during the pandemic and returned home. However, using different available data sets, they seem to be a minimum of 5 million or possibly much higher, as per ILO's rapid assessment.

For enterprises, the impact of COVID-19 has been uneven for various regions, different sectors and different populations. Majority of employers operate businesses within the hardest-hit sectors of producing , accommodation and food services, wholesale, retail trade, land and business activities. Restrictions on movement have had an immediate impact on trade, and particularly on retail trade, and it's going to stick with lowered demand. Manufacturing had already experienced a slowdown thanks to a decline in both domestic demand and exports. The impact of lockdown on construction was direct and immediate as construction largely ceased.

Although not affected directly by the containment measures, the reverse migration can potentially turn the agriculture sector as refuge employer during the economic slowdown. Transport sector is partially surviving with some urban businesses still operating due to increased use of home delivery systems. Domestic workers may become victim of the second-round effects when households facing losses can not employ them. Addressing the deteriorating conditions of employment and therefore the widening disparities within the job market requires a strengthening and rebuilding of the labour market from rock bottom up. In the immediate term, this involves an expansion of supplementary benefit and public workfare programmes to supply relief and protection to the foremost vulnerable and disadvantaged. However, this alone is not enough. In the end of the day , there's a requirement to expand earnings, job opportunities and provides security to

those at the lower end of the education and skills ladder. This will require a serious rethinking of our growth and development strategy.

## **Literature Review**

Focusing research efforts on real-world benefits means acknowledging how the COVID-19 pandemic has exposed and exacerbated existing inequities within the market. Millions of workers in the U.S. have precarious jobs that are uncertain within the continuity and amount of labour, don't pay a wage, don't give workers power to advocate for his or her needs, or don't provide access to basic benefits (Kalleberg, 2009). Power and privilege are major determinants of who is in danger for precarious work, with historically marginalized communities being disproportionately susceptible to these job conditions (International Labour Organization, 2020a). In turn, people with precarious work experience chronic stress and uncertainty, putting them in danger for psychological state, physical, and relational problems (Blustein, 2019). These risk factors may further worsen the consequences of the COVID-19 crisis while simultaneously exposing inequities that existed before the crises.

As reflected during a recent International Labour Organization (2020a) report on the impact of the COVID-19 crisis, youth were already vulnerable within the workforce before the crisis; the recent advent of massive job losses and growing precocity of labour has particularly painful impacts on children across the planet. The COVID-19 depression with vast increases in unemployment (and competition between workers) and therefore the probable growth of digitalization may end in a serious dislocation of young workers from the market for a few time (International Labour Organization, 2020b). To provide knowledge to satisfy this daunting challenge, researchers should develop an agenda that specialize in two major components—the first may be a participatory mode of understanding the experience of youth and the second is that the development of evidence-based interventions that are derived from this research process.

The data gathering aspect of this research agenda optimally should specialize in understanding unemployed youths' perception of their situation (opportunities, barriers, fears, and intentions) and of the new market. We propose that research is required to unpack how youth are constructing this new reality, their relationship to society, to others, and to the planet. This crisis may have changed their priorities, the meaning of labour, and their lifestyle. For example, this crisis may have led to an awareness of the need of developing more environmentally responsible behaviours (Cohen-Scali

et al., 2018). These new life styles could end in skills development and increased autonomy and adaptableness among children. In addition, the foremost target on understanding youths' experience, which may encompass qualitative and quantitative methods, should also include explorations of shifts in youths' sense of identity and purpose, which may be dramatically affected by the crisis. The children who are without work should be involved at each step of the research process so as to enhance their capacities, knowledge, and agency and to make sure that the research is meant from their lived experiences.

Building on these research efforts, interventions could also be designed that include individual counselling strategies also as systemic interventions supported analyses of the communities during which children are involved (for example, families and couples and not only individuals). In addition, we'd like more research to find out about the method of collective empowerment and important consciousness development, which may inform youths' advocacy efforts and function a buffer in their career development (Blustein, 2019).

## **Methodology**

Data and information presented in current study are collected from various reports prepared by national and international agencies on COVID-19 pandemic. Information are collected from various authentic websites. Some journals and e-contents relating to implications of COVID-19 for Labour and Unemployment.

## **Conclusion**

The research ideas presented during this contribution are offered as a way of stimulating needed scholarship, program development, and advocacy efforts. Naturally, these ideas aren't intended to be exhaustive. We hope that readers will find ideas and perspectives in our essay which will stimulate a broad-based research agenda for our field, optimally informing transformative interventions and needed policy interventions for people and communities affected by the loss of labour (and loss of loved ones during this pandemic). A common thread in our essay is that the recommendation that research efforts be constructed from the lived experiences of the individuals who are now out of labour . As we've noted here, their experiences might not be almost like other periods of in depth unemployment, which argues strongly for experience-near, participatory

research. We also are advocating for the utilization of rigorous quantitative methods to develop new understanding of the character of unemployment during this era and to develop and assess interventions. In addition, we might wish to advocate that the collective scholarly efforts of our community include incentives and outcomes that support unemployed individuals. For example, online workshops and resources are often shared with participants and other communities as how of not just dignifying their participation, but of also providing tangible support during a crisis.

In closing, we are humbled by the stories that we hear from our communities about the work loss of this pandemic period. Our authorship team shares a deep commitment to research that matters; during this context, we believe that our work now matters quite we will imagine.

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## Psychological Impacts of Students on Online Learning: The Pandemic COVID-19 Breakout

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### ***Abstract***

*The Indian government officially implements rules of study, love, and work from home from March 16, 2020. Limiting and restricting gatherings including physical contact is a push to decrease the spread of the COVID-19 infection. These conditions have suggestions for the adequacy of the learning cycle in advanced education. The reason for this examination was to distinguish the effect of understudy brain science on web based getting the hang of during the COVID-19 pandemic. The exploration technique utilizes a subjective examination sort of phenomenology. The research discoveries show that (1) students have begun to get exhausted with web based learning after the initial fourteen days of gaining from home, (2) significant tension on research subjects whose guardians have low pay, since they need to purchase portions to have the option to partake in web based learning, (3) temperament or mind-set changes happen because of an excessive number of tasks and are viewed as incapable by understudies. Proposals and suggestions from this exploration are the requirement for extreme endeavors in helping the mental prosperity of understudies through the contribution of guides and therapists. The study also highlights the role of the Indian government for online learning mode during pandemic.*

**Key Words:** *Student Psychology, Online Learning, Covid-19*

### **1. Introduction**

The novel corona virus (COVID-19) pandemic has rapidly spread across the globe, causing massive disruptions to everyday life, including India. The (COVID-19) pandemic and the social removing measures that numerous nations have executed have made interruptions day by day schedules. As of April 8, 2020, schools have been suspended cross country in 188 nations, as per UNESCO. Over 90% of enlisted students (1.5 billion youngsters) overall are currently out of training. <sup>1</sup>The UNESCO Director-General Audrey Azoulay cautioned that "the worldwide scale and speed of the current instructive disturbance is unrivaled". The pandemic can possibly influence undergrads actually, scholastically, monetarily and mentally. In a brief timeframe, understudies' lives have drastically changed as they have been approached to leave grounds,

based learning, especially in courses that were not initially intended for on-line conveyance probably has expanded pressure among understudies. A few students may experience issues with admittance to PCs and the web at home.<sup>2</sup> Extra difficulties incorporate worries about their wellbeing, soundness of relatives, and stress over accounts, especially among the individuals who uphold themselves by working in enterprises seriously affected by delayed terminations, for example, retail or the administration business.

Students and teachers likewise have their own battles while getting to these online stages. Because of money related imperatives, understudies can't get to the web, and are without electronic devices and PC, telephone or PC or even radio and TV.<sup>3</sup> students who had facility to take care of online classes face obstructions regarding inaccessibility of internet, which is similarly pertinent to educators who should direct online classes from their home. There are likewise social obstructions, for example, oppression young ladies as they are relied upon to do family errands as opposed to going to online classes in the mornings. In provincial regions, young men are regularly expected to deal with the family farmlands.<sup>4</sup> in homes where TV and radio are accessible; the topic of who has command over these devices is significant. More often than not, young ladies are not permitted to watch instructive projects. It should be noted here that missing from all the accounts of online schooling is the topic of value and balance, the foundation of the Constitution of India. Likewise, the Right to Education Act 2009, orders to give impartial quality schooling to all kids from six to 14 years old. Notwithstanding, all the endeavors of the administration to encourage training measures during the pandemic causes to notice the way that the milieu of public/government instruction framework, and low charge non-public school or moderate non-public schools, are out of the domain of government activities of online instruction.<sup>5</sup> Indeed, even individuals from burdened networks be it, educators, understudies or guardians have been left to battle for themselves while Government is making arrangements for internet learning or wanting to continue disconnected nearby school post-COVID.<sup>6</sup> Disturbing is the way that the legislature is absent to the unmistakable real factors of social disparities. The current study highlights the impact of pandemic on students learning process and the government initiatives during the lockdown scenario. The study throws light on the psychological aspects of student and impact of online learning during pandemic.

## **2. Background**

### *Stress & Anxiety- A Concept*

Stress is defined as “a particular relationship between the person and the environment that the person considers to be taxing or exceeding his or her resources and putting his or her well-being at risk.” These authors further postulated that stress is best viewed as an interpretative paradigm between the stressors and the individual’s psychological reactions.

Anxiety, being a subcategory of psychological impacts, has attracted less attention, although it is as widespread and conceivably as crippling as depression Anxiety can be fueled by uncertainty and by fears and is still undiagnosed and under-treated in the global context <sup>7</sup>

The schooling framework is bound to confront a variety of issues post-Covid. These reach from another weight on Government schools because of flood of understudies from low expense non-public schools the same number of them will not, at this point have the option to bear to pay for training because of money related requirements to psycho-social issues of kids emerging out of issues at home. Every one of these difficulties will influence kids monstrously. Given the abovementioned, the administration should approach with a strategy viewpoint on present Covid reaction on training. This should involve an arrangement to address the particular scholarly requirements and psycho-social necessities of youngsters once they re-visitation of school just as methodologies to alleviate Covid initiated issues identified with the administration of schools, tending to developing learning holes among kids, and preparing of instructors to utilize standards of mixed learning flipped study hall. Familiarity with the presence of such mediations ought to be plainly imparted to the understudy populace. Schools bought to likewise offer mental types of assistance, either eye to eye or distantly, as they will relieve the enthusiastic and mental effects on students.

## **3. Research Methodology**

The study is exploratory in nature carried using secondary published data. The data was reviewed through books in college library, net resources; open access journal by using the key words, Student Psychology, online learning, impact of Covid-19 reviewing conceptual work the

path of the paper was piloted. The paper will highlight student psychology scenario along with the online learning methods and remedies by the government with reference to this pandemic will be highlighted followed by conclusion and implications

#### **4. Student Psychology in the context of Pandemic**

School schedules are significant ways of dealing with stress for youngsters with psychological wellness issues. At the point when schools are shut, they lose an anchor throughout everyday life and their side effects could backslide. Going to class had been a battle for some youngsters with depression preceding the pandemic, however in any event they had school schedules to stay with,. Since schools are shut, some lock themselves up inside their spaces for quite a long time, declining to clean up, eat, or leave their beds. For certain kids with despondency, there will be significant troubles changing back to ordinary life when school resumes.<sup>8</sup>

Regardless of how straightforward an innovation or plan is being utilized to give schooling to all, a portion of the youngsters will stay forgot about during basic circumstances because of different causes, for example, neediness, movement, family issues, etc.. Such plans that explain where to utilize low just as innovative instructive arrangements which will get ready additionally set up the administration to battle any post Covid emergency, for example, struggle, catastrophic event or besides contamination. The sufferings of the instructive foundations during this basic situation have constrained them to grasp tech-based arrangements. Internet instructing arrangements like virtual study halls and e-learning have empowered the instructive foundations to grant essential lessons without settling on the ideal quality. There is also a need to monitor mental health status over the long term, and to study how prolonged school closures, strict social distancing measures, and the pandemic itself affect the wellbeing of children and adolescents

#### **5. Online learning benefits during lockdown for students**

The estimation of web based learning is being perceived by more associations, since it is a savvy approach to convey an enormous number of individuals. It can deliver huge results by diminishing expenses, yet additionally by improving execution. On the web learning is urged because of following reasons during lockdown period for Covid-19.<sup>9</sup>

- One can procure information remaining at home and can keep up social separating.

- Outbreak of Covid-19 can be limited because of social separating
- It offers profoundly powerful learning conditions.
- It offers integral intelligent help that permits understudies to consider day in and day out and work at their own movement.
- It offers adaptable booking.
- It is accessible in any area, with a web association and understudies can join in utilizing their gadgets (versatile, PCs, tablets, and so forth)
- Deals with continuous understudy observing just as revealing
- Improves the picture of foundation by offering innovative arrangements that illuminate genuine issue

## **6. India's Initiatives towards online learning during lockdown**

Since nations everywhere on the world have gone into lockdowns because of Covid-19, instructive establishments have been no special case. During the Covid-19 flare-up in the whole country, the nation is confronting significant emergency in numerous areas yet the most noticeably awful hit area is the instruction area, as a large portion of the tests have been dropped during the last appraisals. Students and teachers are attempting to approach continuous and consistent nature of web association. Simultaneously, the nation ought not bargain understudy's highly wanted scholarly advancement.<sup>3</sup> Consequently, instructive establishments ought to receive keen answers for defeat the endemic emergency by embracing the online method of schooling. Many State Governments of India are likewise investigating internet learning stage for getting to online instructive assets, during the continuous lockdown. They are hoping to plan approaches to assist students with continuing with their getting the hang of during the cross country lockdown because of Covid-19. The point is to successfully proceed with the scholastic patterns of the understudies and not let the lockdown influence their learning. They are getting ready for understudies to give sound and video based substance alongside self appraisal works out. Exceptional uncertainty clearing meetings on significant subjects might be held for understudies. Individuals of India need to proceed with facilitated and aggregate endeavors to battle Covid-19 and furthermore utilize their time during the current circumstance by receiving Information and Communication Technology (ICT) for

educating learning measure and contribute towards the scholarly abundance of the country. Online classes have been advanced over the various colleges by the University Grants Commission (UGC) during the lockdown stage so as to ensure that the understudies don't pass up the classes during the time. While addressing the media on 13.04.2020 (DD news), UGC Chairman pronounced that the UGC has established two panels to advance internet picking up during Covid-19 lockdown.<sup>1</sup>

### **7. Impact on learning of students during Covid-19**

Students in the board studies related investigations appeared to have a more elevated level of tension contrasted, which guessed that clinical and medical services understudies experience a more significant level of uneasiness during seasons of pestilence or pandemics. The specific purpose behind the thing that matters isn't firm, yet there is a likelihood that the medical services students might have been all around educated on what's in store as the pandemic advances contrasted with the understudies of business-or the executives' related examinations. Students who were remaining alone encountered the most noteworthy nervousness levels contrasted with those remaining with loved ones. All things considered, those remaining alone are typically away from their friends and family and the unexpected danger to their wellbeing and security during this pandemic might have caused these understudies to feel lonelier and presented difficulties from numerous points.<sup>4</sup>Following delayed depression and quick intercessions are basic in decreasing sentiments of nervousness as they embrace a feeling of having a place. Building and keeping up connections is vital for mental and social prosperity and is one of the signs of understudy life. Tragically, the COVID-19 pandemic has made a "social downturn"— a persistent example of social separating, past the quick pandemic, that is making an absence of passionate help and more extensive cultural impacts, which incorporate expanded nervousness levels. From a broader perspective, ministries and related agencies in coordination with the WHO, UNESCO, and CDC need to intensify community mindfulness, specifically for the students, by using artificial intelligence to obtain evidenced-based and scientific measures for pandemics.<sup>10</sup>In the emergency remote teaching has contributed to significant anxiety among students Efforts should also be focused toward discovering innovative methods of upholding social attachment amongst

students while still complying with public health guidelines for curtailing the spread of the pandemic

## 8. Conclusion

The study concludes moreover, although universities swiftly implemented remote online classes, most teachers still used the same curricula and learning outcomes meant for face-to-face teaching. The study augur well with students and added tremendous stress and anxiety as they were excessively burdened with continuous alternative assessments. Many instructors fail to realize that the students are wading through complicated emotions due to COVID-19 and lockdowns and the fact that they have to adjust to remote learning and being isolated from their friends creates undue frustration, anger, resentment and ultimately, anxiety. Government has also taken appropriate measures to guide students through path of stress free education considering the student psychology of online education during pandemic.

There is a strong call for all stakeholders in the education industry to recognize the need for an immediate and holistic policy to identify and manage the psychological impact of COVID-19 or any future pandemics on students.

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## **Problems & Prospects in Healthcare service with reference to COVID- 19 Pandemic**

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### **Abstract**

*In India, on multiple fronts, the Covid-19 pandemic has thrown open challenges: (a) the reconfiguration of hospital care in response to Covid-19 has resulted in many patients suffering from non-Covid-19 conditions having to postpone their treatment, and (b) the lockdown that, while appropriate, has unequally affected people, some being much worse off than. Even if fewer than 5 % of patients seek urgent care services, in a world where intensive care services and funding are limited and unevenly distributed, this would still easily overwhelm the healthcare system. In the light of the India's health status outlined above, the present study is designed to explore the problems and prospects to make availability of health care services and bridge the gaps in the current health care facilities. In this study, we highlight India's critical care preparedness for the pandemic and the related challenges. The Post pandemic offers big prospects for healthcare start-ups the innovative technologies allowing telemedicine startups to enhance the access and reduce the burden on hospitals through real-time consultation with doctors through ICT tools.*

**Key words:** *Health care, Healthcare Management, Covid-19, Start-ups.*

**JEL Code:** *JEL: I (10) Health, Education and Welfare*

### **Introduction**

To date, the 2019 Corona virus Disease (COVID-19) pandemic caused by extreme acute respiratory syndrome corona virus 2 (SARS-CoV-2) has resulted in more than 15 million infections and 628,903 deaths worldwide.<sup>1</sup> India currently has the highest number of confirmed cases in Asia and the third largest number of COVID-19 infections worldwide. As of 25 July 2020, a total of over 1.3 million cases and 31,358

deaths in the country have been reported by the Ministry of Health and Family Welfare (MOHFW).<sup>2</sup> India's case fatality rate is comparatively lower at 2.40%, compared to the global 4.7%, at 25%.<sup>3</sup> India's approach to pandemics has been consistent and largely consistent with the guidelines of the WHO over the past two decades. India focused primarily on diligent screening and quarantine of incoming passengers, concentrated testing, case isolation, expansion of hospital beds and contact tracing. The appearance and rapid dissemination of SARS-CoV-2, however, presents a previously unknown scale of challenges. India has a population of 1.3 billion<sup>7</sup> and is one of the world's most heavily populated countries with a population density of 382 people per square kilometer.<sup>4</sup> This, combined with family structures that remain together in the same household for many generations, restricts the ability and effectiveness of social distance interventions to control the pandemic. Consequently, by October 2020, if modeling predictions are realized.<sup>5</sup> In the light of the India's health status outlined above, the present study is designed to explore the problems and prospects to make availability of health care services and bridge the gaps in the current health care facilities. In this study, we highlight India's critical care preparedness for the pandemic and the related challenges

## 1. **Background**

Pandemics are not new to mankind, and perpetually our wellbeing framework accepts the greater part of the brunt as it takes into account existing outstanding burden and endeavors to adapt to the new interest. In the wake of Covid-19, the worldwide network is wrestling with endeavors to contain the infection as new improvements are unfurling quickly. According to gauges from the 2009 flu pandemic: school terminations, isolate and social removing are the most costly intercessions regarding costs per demise forestalled, while reconnaissance, contact following and face covers were the most economical. India endeavored to operational a few of these measures, yet Covid-19 appears to have surpassed the working of wellbeing offices while the lockdowns have made extra difficulties to looking for routine consideration. The inquiry we are attempting to comprehend is 'What is the impact of Covid-19 on the admittance to medical services frameworks in India? (For crisis care, conditions

requiring contact with wellbeing offices and subsequent meet-ups). Searches were directed in the principal seven day stretch of April 2020, utilizing an assortment of sources, for example, scholarly writing, media reports, online media, and sites. These inquiries pointed us towards a few troubles that individuals are looking in getting to medical care.<sup>6</sup>

The WHO rules suggest the utilization of oxygen for patients with gentle to direct COVID-19.<sup>5</sup> The WHO assesses that with 1 million new contaminations seven days, the worldwide prerequisite for oxygen is assessed to be around 620,000 cubic meters for every day.<sup>15</sup> According to the MoHFW in India, starting at 28 June 2020, there are 1,055 devoted COVID clinics with 177,529 separation beds and 78,060 oxygen upheld beds; there are 2,400 committed COVID Health Centers with 140,099 detachment beds and 51,371 oxygen upheld beds.<sup>16</sup> In complete, there are around 120,000 oxygen upheld beds.<sup>7</sup> It is assessed that 15% of patients will have gentle to direct contamination requiring oxygen beds, which will mean about 1.5 million patients in India. Regardless of whether the need is amazed, this interest will quickly exceed flexibly. This tension on beds has been proven by the need to use train carriages as wards to make more bed spaces. In India, committed ICUs started to develop in the mid 1970s with the foundation of the primary ICU in Mumbai.<sup>8</sup> Over the most recent thirty years, devoted serious consideration offices have been set up in all the significant Indian urban areas and bigger towns.

Regardless of the advancement, there are restricted information on authoritative viewpoints, for example, asset accessibility (for example number of contrary weight rooms, admittance to non-obtrusive and intrusive ventilation, intravenous liquids, and so forth) and work force (basic consideration medical caretakers, specialists and united wellbeing authorities).

**Statement of Problem:** India has made considerable progress in improving healthcare. But improving access to basic healthcare services in India is perhaps one of the most pressing, from a straightforward human development perspective as well as to ensure a solid foundation for future economic growth. Healthcare indicators vary widely across states, partly reflecting the differing levels of resources available to state

governments and in the hospitals. But one trend that is totally consistent is that indicators are much worse in rural areas than in urban ones. The critical problem is that of availability and accessibility of health checkup and consultation in developing country like India. This study tries to bridge the gap through addressing the challenges in form of problems and opportunities as prospects for healthcare services for consultation and awareness of health issues and employment generation prospective

## 2. **Research Methodology**

The study is exploratory in nature carried using secondary published data. The data was reviewed through books in college library, net resources, open access journal by using the key words, Rural Health; Healthcare Management. Reviewing conceptual work the path of the paper was piloted. The paper will highlight Current problems and prospects with reference to Covid 19 pandemic in India, Addressing the challenges like training of medical health workers, Critical care guidelines during the Covid 19 and the opportunities it presents in form of telemedicine startups followed by conclusion.

## 3. **Challenges/problems in healthcare services**

### 4. *Training of medical care workers*

While the position articulation of the ISCCM calls for deliberate activity on preparing as a component of the flood response, concerns have been communicated about the all out yearly admission of colleagues across preparing programs in the country.<sup>30</sup> Recognizing the restricted accessibility of prepared basic consideration specialists and medical attendants, preparing of non-ICU medical services experts has been started by some state governments. Thiruvananthapuram, a region in Kerala, had the option to prepare upwards of 320 specialists and 180 attendants in the principal period of a basic consideration preparing course. Non-ICU medical services faculty were prepared all in all ICU care which included activity of different hardware, with an accentuation on ventilator the executives.<sup>9</sup> The Ministry of Health through the All India Institute of Medical Sciences, New Delhi, has additionally actualized web based preparing on parts of basic consideration the executives for ICU and non-ICU specialists

5. *Difficulties in executing International Critical Care Guidelines for COVID-19*

In March 2020, the European Society of Intensive Care Medicine and the Society of Critical Care Medicine (SCCM) mutually distributed the Surviving Sepsis Campaign rules for the administration of fundamentally sick grown-ups with COVID-19.<sup>10</sup> Although the extent of these rules stretches out to both high and low-center pay settings, there are a few difficulties in actualizing these suggestions in lower-center pay settings. Three of the best practice proclamations from these rules identify with disease control - performing airborne producing strategies on ICU patients with COVID-19 out of a negative weight room, utilizing fitted respirator veils (N95 respirators, FFP2 or same) and tracheal intubations to be performed by the most experienced aviation route administrator.<sup>11</sup> While the last is achievable, the initial two will be trying to actualize consistently across India. Hardly any ICUs have negative weight rooms. While PPE accessibility has generously improved since April, there is inconstancy in the admittance to N95, FFP2 or identical veils, and asset constraints have constrained a few places to utilize careful covers with face shields or hoods. The fourth proclamation identifies with patients accepting non-obtrusive ventilation (NIV) or high stream nasal oxygen (HFNO). In any case, NIV and HFNO are not consistently accessible in India.<sup>12</sup> To defeat these restrictions; there is a squeezing requirement for interest in local economical advancements in oxygen conveyance gadgets that might have the option to decrease the requirement for more significant level consideration and in the plan of actual spaces that can give the ability to confinement.

6. *Potential innovations in delivery of pandemic critical care*

Increasing load and hospitalization, there is a critical requirement for creative and setting explicit arrangements, all around the world, the utilization of tele-medication for the conveyance of COVID and non-COVID care in ICUs has started extraordinary interest.<sup>13</sup> The upsides of tele-basic consideration incorporate productive screening and emergency of patients to proper degrees of care (telemetry unit versus high reliance unit (HDU) versus ICU), capacity to give distant checking and discussion diminishing

the hour of direct HCW presentation, expanded consistence with proof based prescribed procedures and in guiding groups of basically sick patients. The upgraded effectiveness of care gave by a focal tele-basic consideration unit in dealing with a few HDUs/ICUs is of specific pertinence to asset compelled settings. However, mechanical difficulties, for example, absence of data transmission in far off areas are an obstruction to inescapable selection. Moderate medical services advancements are being endeavored for patients without the necessity for mechanical ventilation, yet at the same time requiring oxygen treatment. These incorporate the utilization of inclined high stream O442 also, 3D-printed PEEP valve fitted O2 masks. ideally, and these medicines must be assessed in randomized controlled preliminaries.<sup>14</sup> Absence of negative weight rooms might be tended to by sufficiently ventilated single rooms, cohering affirmed gentle cases in bigger very much ventilated rooms with satisfactory space among beds, and the utilization of various fumes fans in single rooms with the expansion of independent HEPA channels.

## 7. **Prospects in healthcares Services**

WHO suggests a doctor population proportion of 1:1000 while the current specialist populace proportion in India is just 0.62:1000.<sup>15</sup> Training of new doctors is tedious and costly, subsequently the specialist to understanding proportion can be relied upon to stay low for quite a while to come. This shortfall is halfway being made up by the dynamic telemedicine administrations in different pieces of the nation. This provides the huge prospects for Telemedicine administrations in the nation go under the consolidated ward of Ministry of Health and Family Welfare and the Department of Information Technology. Telemedicine division of MOHFW, GOI has set up a National Rural Telemedicine Network for e-healthcare delivery. As a constituent of the e-health wing of the National Health Portal (NHP), with a dream of accomplishing excellent wellbeing administrations for all Indians through the financially savvy and secure utilization of ICTs in wellbeing and wellbeing related fields. Telemedicine rehearses in India are additionally reached out to the fields of customary medication. The National Rural AYUSH Telemedicine Network expects to advance the advantage of customary strategies for mending to a bigger populace through telemedicine.<sup>16</sup>

Village Resource Center (VRC): The VRC idea has been created by ISRO to give an assortment of administrations, for example, tele instruction, telemedicine, online choice help, intuitive ranchers' warning administrations, tele fishery, e governance administrations, climate administrations and water the executives. The VRCs go about as learning focuses and as well as give availability to forte emergency clinics, hence carrying the administrations of master specialists to the towns. Almost 500 such VRCs have been built up in the country.<sup>17</sup>

## 8. **Telemedicine: Next huge Prospects in healthcare**

The telemedicine business is relied upon to make more than \$5.4 Bn market opportunity by 2025<sup>13</sup>. India's telemedicine rules given in Walk 2020 have explained guidelines for new companies and speculators. India is one of the main 10 nations in the telemedicine market on the planet. The early selection of an administrative system will enable the portion to develop quickly. The extraordinary Corona virus flare-up made articulate difficulties on customary medical care frameworks in India. Because of countrywide lockdown, residents have not had the option to talk with specialists truly. This circumstance drove the legislature to change the guidelines around far off conveyance of medical care benefits and permit telemedicine by means of video, sound or text. New companies, for example, Practo and Doc Prime are driving India's telemedicine market with a lot of undiscovered chances. With an expansion in the frequency of way of life ailments and rising medical services costs, there's enormous weight on the customary medical services framework. Inventive advances are permitting wellbeing associations to upgrade the entrance and decrease the weight on clinics through continuous discussion with specialists through cell phones, tablets, workstations or PCs.<sup>4</sup> India has a lack of around assessed 600K specialists and 2 Mn medical attendants, according to reports a year ago. India just has one government specialist for each 1,139 individuals, while the World Wellbeing Association (WHO) suggests a proportion of 1:1,000<sup>15</sup>. The lack of specialists is restricting vis-à-vis counsels among patients. Besides, India likewise has a deficiency of medical clinic beds, which makes hospitalization precarious, and there should be better offices and

foundation for situations where patients can be taken care of by means of tele consultation. Telemedicine will decrease the hour of discussions and improve the nature of medical care administrations in provincial zones, eliminating huge numbers of infrastructural challenges. The telemedicine market in India is relied upon to reach \$5.4 Bn by 2025 with a CAGR of 31%. Remarking on late telemedicine rules by the Indian government, Ayush Mishra, originator and President of Tattvan E-Facilities included, Presently, telemedicine administrations can be made accessible to all regardless of time, place, economic wellbeing or sex. Gujarat Govt's. E-health scheme, Aravind eye emergency clinic's tele ophthalmology unit at Andipatti,<sup>17</sup> the idea of town asset focus Village Resource Centre (VRC) by ISRO are altogether instances of India's means towards spearheading in telemedicine administrations. Concerning Corona virus pandemic, telemedicine is assuming a functioning job. A ton of medical clinics have opened tele consultation administrations to permit individual's admittance to specialists from the security of their homes. At Paras Medical care, we have begun tele and video interviews over the emergency clinics, and there is a rising interest for these.<sup>18</sup> The individuals in country zones are happy to decide on elective methods of getting to medical services and telemedicine can be a successful device, given they are instructed of the focal points. The ideal model for provincial territories is to set up telemedicine focuses on IT- empowered stands and train a lot of nearby individuals in utilizing these focuses. Moreover, such focuses should likewise be upheld up by symptomatic offices and clinical dispensaries in light of the fact that these regions additionally come up short on these offices.

## 9. **Conclusion:**

The COVID-19 pandemic has placed an unprecedented demand on the healthcare system in India. With a population exceeding 1.3 billion and the majority living in rural and remote regions, critical care and public health capacity in India face enormous pressure. Moreover, the pandemic is expected to persist for a longer duration, and given India's unique circumstances, the flattening of the curve will take longer. With the anticipated increase in case numbers, a coordinated effort by various public health organizations and the ISCCM will be crucial for ensuring adequate

delivery of intensive care to critically ill COVID-19 patients. Administrations like tele health, education and tele home medical services are ending up being ponders in the field of medical care. The significance of satellite correspondences is stressed in the field of catastrophe the board when all earthbound methods of correspondence are upset. Worldwide telemedicine activities are bringing the world closer and separation is not, at this point an obstruction in fulfillment of value medical services. Absence of mindfulness and acknowledgment of new innovation both by the general population and the experts are keeping it down. Governments are currently beginning to take a distinct fascination for creating telemedicine works on bringing about a moderate however consistent ascent in its usage in general wellbeing. Ideally in a couple of years, telemedicine practices will arrive at their actual potential giving huge chances to telemedicine new businesses to serve the people of India.

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## Impact of COVID-19 and Associated Policy Decisions on the Agri – Food Sector in Slovakia

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### Abstract

The recent outbreak of a new Coronavirus has developed into a global pandemic with more than 49 million reported cases and over 1.2 million deaths worldwide. The COVID-19 outbreak forced governments to make decisions that had adverse effects on local food systems and supply chains. Our paper reports an analysis of the impact that this pandemic and associated policy decisions had on the Slovak agri-food sector. While the agri-food sector proved imperative, the measures adopted to control the virus spread can affect all of the sector's elements, from primary supply and processing to trade, as well as intermediary and final demand. This paper provides a snapshot of how the sector has performed during the pandemic of COVID -19, how was it effected by policy decisions – mainly decision to test every adult of its 5.4-million-strong population. We try to analyse if this decision could have impact on agri-food sector and if it could lead to subsequent market tensions and what challenges lay ahead for country if it decide to implement similar plan as Slovakia - nationwide testing, into its arsenal against pandemic.

**Keywords:** agriculture, COVID - 19, pandemic, Slovakia, nationwide, testing,

**JEL Classification:** D79, H59, K49, L23, Q10

### 1. COVID-19 pandemic

Coronavirus disease 2019 (COVID-19) is caused by a new coronavirus first identified in Wuhan, China, in December 2019. International Committee on Taxonomy announced “severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)” as the name of the new virus on 11 February 2020. It has spread from the Chinese city of Wuhan to virtually the entire world. Cases of the virus have been confirmed in numerous countries and territories worldwide. On March 11, the World Health Organization (WHO) declared the global outbreak a pandemic. Nowadays, there are more than 49 million confirmed cases of the disease in the world, and more than 1.2 million people have died (World Health Organization [WHO], 2020; BBC, 2020). This new coronavirus poses the greatest risk to the elderly, the chronically ill and people with weakened immunity.

**Figure 1: COVID-19 Global and Local Cases (06.11.2020)**

Location	Total cases ↓	New cases (1 day*)	New cases (last 60 days)	Cases per 1M people	Deaths
 Worldwide	49,382,879	581,679		6,351	1,243,789
 Slovakia	71,088	2,354		13,028	317

Source: Google database, 2020.

### ***1.1 The first wave of COVID-19 pandemic in Slovakia***

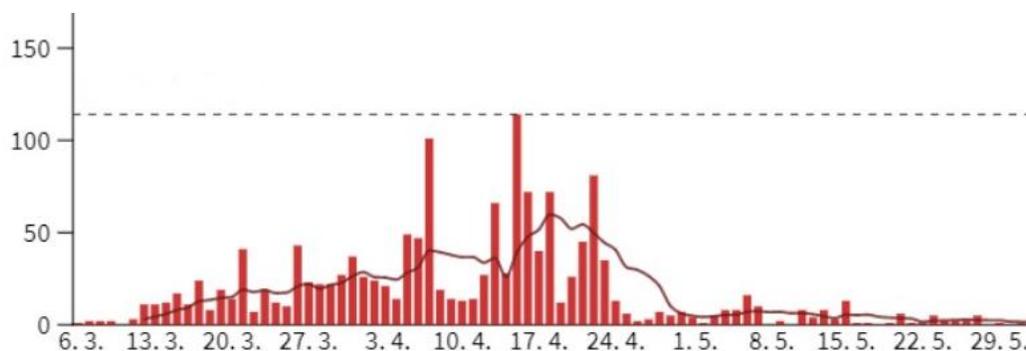
In Slovakia, the first case of diagnosed COVID-19 was on March 6. It was imported from Venetian carnival. The patient required the intensive care unit treatment and has had successfully recovered.

Governments main focus from the beginning was to stop the spreading of infection by usage of personal protective equipment and regulation of movement. The official regulation was made to use PPE in public transport or any other institution from the very beginning of Covid-19 occurrence. Within 10 days of identifying its first case, Slovakia went into lockdown. The border was officially closed on March 15. Its schools, shops, restaurants, and other establishments were closed. Slovaks who crossed the border coming back home, had to stay in a 14-day quarantine in special facilities.

Public figures, including president and prime minister of Slovakia, supported the established rules and measures to set an example. Their efforts played a crucial role in normalizing the use of face masks across the country. Slovakia was among the first countries worldwide, second in Europe, to make masks mandatory in public spaces. Not everyone considered this decision reasonable. For example, World Health Organization has so far held off on advising people to wear masks in public (Sample, 2020). As there was a lack of PPE, the people and small companies started tailoring home-made masks, and the companies were changing their focus on alcohol disinfection products instead of alcohol consumption products.

The measures put in place and the discipline of the population have proved to be effective. Slovakia has become nation with the lowest per-capita death rate in all of Europe, and the one that on 8th of May recorded its first day of no new cases since identifying its first case. Despite the fact that Slovakia is not an especially rich country with a strong national healthcare system, nor was it regarded as particularly well equipped to handle a pandemic in the first place Slovakia managed the first wave of this pandemic excellently.

**Figure 2: First wave of COVID-19 cases in Slovakia**

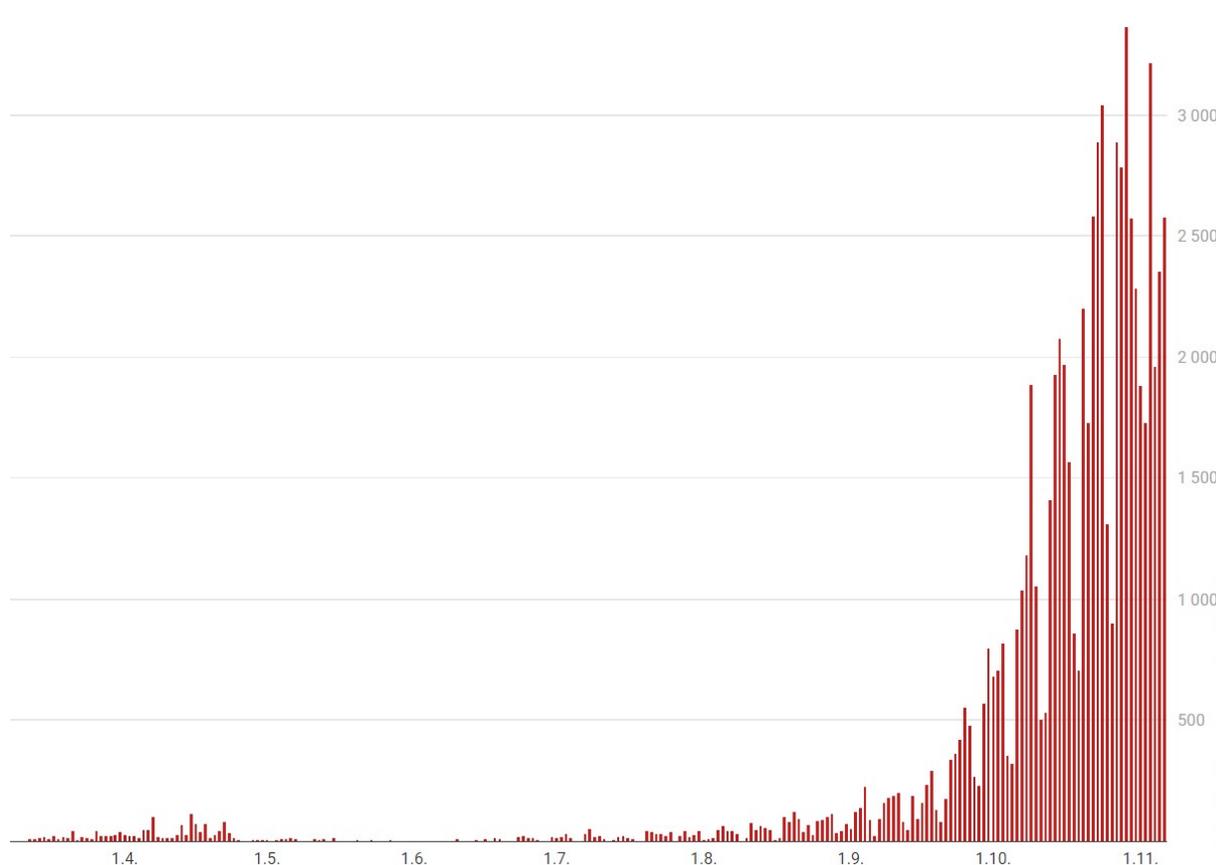


Source: Dennikn, 2020.

### ***1.2 The second wave of COVID-19 pandemic in Slovakia***

Slovakia was very successful in dealing with the first wave, after locking down rapidly in March. But since September and in recent weeks cases have skyrocketed. 33,177 new infections were recorded in Slovakia in last 14. days (Oct 24–Nov 6) and there is intense pressure on under-resourced healthcare system (Public Health Authority of the Slovak Republic [PHASR], 2020).

**Figure 2: Cases in Slovakia over time**



Source:Dennikn, 2020.

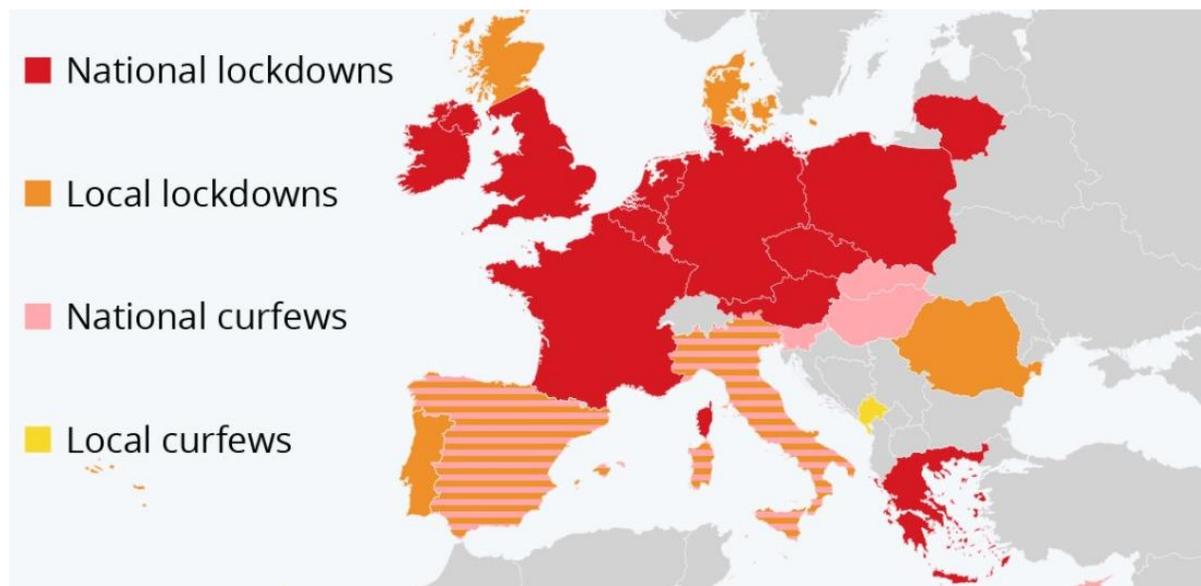
Similar trend is occurring in all European countries. Experts criticise the governments did not heed advice from public health officials about the need to reintroduce restrictions when the number of cases were rising at the end of summer and in early fall. In response, most states in the region are now tightening restrictions in hope of keeping the new outbreaks under control.

Slovakia's general state of emergency came into effect on October 1, following record growth in coronavirus cases. Authorities announced enhanced restrictive measures to combat second wave of COVID-19. From October 13, public gatherings are limited to a maximum of six people. From October 15, face masks became mandatory in all outdoor spaces, mass events were banned, drinking and eating indoors at restaurants, cafes, and bars are banned, and shopping malls and shops will have to operate at a reduced capacity (PHASR, 2020). The country is building capacity to care for a massive rise in COVID-19 patients and hospitals are cutting other types of care.

Most of the cases were imported from abroad but politicians and experts agree that the ever-growing second wave of the coronavirus cases in Slovakia has been strongly influenced by misinformation and conspiracy theories. As a result, support for wearing face masks and following other measures dropped from 94 percent in April, to 62.5 percent in September (Širotníková, 2020).

Countries across the Europe are imposing or thinking of imposing a full lockdown.

**Figure 3: Lockdown and curfew measures in Europe**



Source: Statista, 2020

In Slovakia, the government decided to take a different approach and test every adult of its 5.4-million-strong population. *"This will be our road to freedom,"* said Prime Minister Igor Matovic, hinting that virus restrictions could be eased once testing is complete, or reinforced (full lockdown) if the programme is not carried out.

Few countries already tried this approach and were mostly successful, for example Iceland, with a population of only about 360,000, has carried out mass testing, and China recently tested the entire population of Kashgar, a city in Xinjiang, in days, but no other EU nation has tried anything similar (Shotton & Gross, 2020).

"If bigger countries like Germany tried to do this, they would have to do it step by step over a longer period. Logistically it would not be possible to do it in 2 or 3 days," said Vladimír Krčmery, an expert on tropical and infectious diseases and a fellow of the UK's Royal College of Physicians.

The undertaking of this plan has not been without critics. The plan was announced out of the blue, drawing accusations it was not properly thought through. A lot of medical professionals have warned it might have unwanted consequences and could lead to an increase in cases. Slovak Association of General Practitioners has also criticised the operation as ill-conceived, pointing out that crowding into testing sites went against anti-infection protocols.

The plan was to set a curfew in Slovakia from 2 to 8 of November 2020, from 5:00 AM to 1:00 AM the following day. The curfew will not apply to a few exceptions, amongst them to a person with a negative result of the antigen test performed from October 30 to November 1 of 2020 within a nationwide testing. In districts where the second round of testing will take place over the

next weekend, an up-to-date test will be required. In all other districts, the certificate from the testing from October 29 to November 1 will be sufficient.

But despite criticism, Slovakia has decided to implement this risky plan. Hoping that it will bring the same success as the controversial decision made at the beginning of the first wave – to wear mask mandatory in public spaces.

A successful pilot exercise one week before nation-wide testing in Bardejov and Orava, the two regions with the highest number of cases. About 140,000 people — 91 per cent of the eligible population — took part. 4% of tested were found to be infected and have been quarantined (Ministry of Interior of the Slovak republic, 2020).

On the weekend of October 30 to November 1 of 2020 was performed first nationwide testing which appears to be also successful. Over the weekend over 3.6 million people were tested, uncovering over 38,000 positive cases in people who have now been sent into quarantine (Ministry of Interior of the Slovak republic, 2020).

“I think we’ve taken a great step,” concluded Matovic, saying that Slovakia might have found an alternative to a strict lockdown.

Ultimately, the testing went smoothly, with the exception of several small logistical problems on Saturday morning.

Despite the fact that this political decision, to test the whole population, and to set a curfew for those who will not have negative result of the antigen test, does not appear to have devastating effects on business after the first round of testing, this potential is certainly there. The government should have known and prepared for possible negative consequences of this plan, especially as far as the strategic agri-food sector is concerned.

## **2. Data and Methods**

The main aim of the paper is to analyse political decisions made in Slovakia to stop recent outbreak of a new Coronavirus that has developed into a global pandemic. The COVID-19 outbreak forced government to make decisions that could have adverse effects on local food systems and supply chains.

Our paper reports an analysis of the impact that this pandemic and associated policy decision to test every adult of its population with antigen test had and could have had on the Slovak agri-food sector. While the agri-food sector proved imperative, the measures adopted to control the virus spread can affect all of the sector’s elements, from primary supply and processing to trade, as well as intermediary and final demand.

This paper provides a snapshot of how the sector was and how it could have been affected by this policy decision. We will try to answer the question if this decision could have impact on agri-food sector and if it could lead to subsequent market tensions and what challenges lay ahead for country if it decide to implement similar plan as Slovakia - nationwide testing, into its arsenal against pandemic.

As a data source we used mainly official data from the Public Health Office of the Slovak Republic.

In the work we refer to the official statements of the chambers representatives of individual sectors. We also had available to us a written opinion on the policy decision of the Slovak Agriculture and Food Chamber, it was provided to us by a member of the chamber for our research.

### 3. Nationwide testing and its impact on agriculture and food sector

A major risk of nationwide testing is a labour shortage due to a positive result on Covid-19 test, due to a close contact with a positive person, as well as due to the mandatory quarantine of persons who do not undergo testing. If a large majority of the working population is required to undergo quarantine, there will in fact be a lockdown of the economy, which will have a negative impact on food production security and negative consequences for the whole country and its economy.

For the agri-food sector, it is essential to answer the question of how labour shortages will be addressed, as this sector requires continuous operation, and at the same time this sector places specific requirements on the professional and medical qualifications of its employees.

The greatest risks are in establishments that are open continuously 24/7. There is a fear that failure to resolve potential negative consequences of this plan will cause significant damage to the agricultural and food businesses in country.

Following the publication of the plan, companies announced that many employees had taken the position not to take the tests and to undergo mandatory quarantine. In cases where a significant proportion of employees actually decide not to take part in the testing and thus undergo mandatory domestic quarantine, there could be a serious operational problems.

Highly endangered sectors include the bakery industry, animal and plant production or the dairy industry. Beer and malt producers, wine and grape growers and companies in the sugar industry may also be at risk.

#### ***Bakery industry***

In the event of a shortage of manpower in this sector, the quantity, breadth of assortment will be limited and the production and distribution of bakery products on time will be at risk. Nationwide testing also has the potential to complicate or prevent production itself during the weekend of testing, when a large number of employees will not be able to perform their work during testing.

The possible absence of specialized production professions (mixer, baker, confectioner), drivers, maintenance workers can cause significant problems. This type of professional workers cannot be replaced quickly.

Small and medium-sized bakeries will be forced to close businesses in the absence of more than one employee at a time, as they are unable to make up for this shortage of labour, which will make their production process impossible and we can expect liquidating effects on their business if this situation occurs for longer period of time.

From the statement of the Guild of Bakers and Confectioners of Western Slovakia, which unites 58 food production companies within the West Slovakian region: *"Each personnel position in the technological process is occupied by specialists. Specialists such as chief baker (technologist), sales worker, expedient, change manager and drivers. ... Businesses do not have spare staff capacities due to the labour market as well as for economic reasons. ... In the case of proposed nationwide testing, it may happen that at one point, on Saturday or Sunday, 25-40% of employees will be objectively not able to come to work. ... Production, dispatch, distribution becomes immediately unfeasible and the establishment fails to meet the agreed obligations and most importantly the supply of food and bakery products may be significantly endangered in Western region"* ("Pekári o celoplošnom testovaní", 2020)

The Guild of Bakers and Confectioners of Western Slovakia further states that it respects the measure put in place by the Government to resolve positive cases by quarantine, but they don't agree with the 10-day quarantine of citizens who refuse testing for personal reasons. Members also expressed their willingness to support any form of measures that will lead to a rational outcome, ensure health, alleviate the tense situation in society as a whole and measures that will lead to economic growth and resilience of the Slovak Republic as soon as possible.

If there is a situation where, because of nationwide testing, companies are unable to fulfil orders 100%, various customers –international chains can penalize them or terminate their cooperation. This situation also can have very negative economic consequences.

Therefore, before making such a major political decision every government should prepare for the possible negative consequences.

### ***Dairy sector***

The processing of milk into dairy products cannot be postponed or interrupted. In case of such a sudden policy decision as this, with no time to adapt the production process, when a large number of employees will not be able to work, will ultimately cause enormous economic damage.

Production can become immediately unfeasible and milk intended for processing will perish. The production outage itself can also cause a shortage of dairy products.

### ***Beer and malt sector***

Companies in this sector often operate in a continuous cycle and a loss of workers would cause production to stop. The immediate suspension of the production of the 6-day process of malting will have disastrous consequences.<sup>1</sup>

### ***Sugar sector***

As both sugar factories in Slovakia are in continuous 24-hour operation, Nation-wide testing on Covid-19 can cause major problems. Loss of workers even only for short period of time can cause a serious problem in production. The Slovak Sugar Association has proposed that companies which are part of economic mobilization should be granted an exemption from the obligation to test their employees ("Potravináři: Hroziavýpadky v zásobovanísurovinamičipotravinami", 2020).

### ***Wine sector***

Grape-growing and wine-making companies have also raised a number of concerns, as this segment of production is also in danger of collapsing due to the continuous harvesting of grapes over the next few weeks. Every state which is thinking of implementing nationwide testing should also take into consideration whether this decision will not cause problem in sectors where immediate seasonal work is needed.

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<sup>1</sup>The soaked barley needs to be processed in 6 days. The suspension of production must be known at least 6 days in advance so that the barley does not get wet.

### ***Livestock production sector***

Daily care of animals such as feeding, milking, veterinary care, etc., are highly specialized activities, which in the event of staff shortages cannot be easily replaced by another workforce. There is therefore a great deal of concern about the provision of primary care for livestock. In addition, there may also be a risk of the uncontrolled spread of infectious diseases and zoonoses due to possible neglect of animal care. The consequences could ultimately have not only a negative impact on livestock health but also on the overall health of the population which is already in danger.

### ***Crop production sector***

The situation, which may arise due to nation-wide testing and possible quarantine of the workforce in this sector, will cause delays in autumn work, which is already delayed due to excessive rainfall. In the western regions, in the case of field work situation is unfavourable, as a result of numerous rainfall companies has completely stopped sowing winter crops, or are sowing a minimum of areas that are not enough to secure food resources.

The shortage of labour in the coming weeks due to mandatory quarantine can also cause significant damage in this sector and can endanger the overall food security in Slovakia.

## **4. Conclusion**

From the available statements of the representatives of individual sectors and our analysis we can state that the greatest risk of nationwide testing and mandatory quarantine for the agri-food sector are the possible shortages of the workforce, either due to a positive result on COVID-19 of employee, or a person with whom the employee was in close contact, or due to mandatory quarantine of employees who do not undergo nationwide testing voluntarily.

In cases where a significant proportion of employees actually decide not to take part in the testing and thus undergo mandatory domestic quarantine, there could be a serious operational problems. Should such a situation arise, agricultural and food businesses are unable to guarantee the security and functioning of the production process. In this case we could with high probability expect confusion in the organization of work, interruption, or closure of operations in some cases with liquidating effects, endangerment or collapse of production and supply of goods, endangerment of animals and significant economic losses. Problems can also be caused by the possible limited availability of service for agricultural machinery and specialised food machinery. If a large majority of the working population is required to undergo quarantine, there will in fact be a lockdown of the economy, which will have a negative impact on production and food security and negative consequences for the whole country and its economy.

For the agri-food sector, it is essential to answer the question of how labour shortages will be addressed, as this sector requires continuous operation, and at the same time this sector places specific requirements on the professional and medical qualifications of its employees. Staff shortages will be difficult to compensate. It is equally important to answer the question whether positive-tested workers, whose presence in agricultural and food establishments is necessary and who cannot be replaced, will be able to be present at the workplace in compliance with strict epidemiological measures (so-called mandatory quarantine at workplaces).

Therefore, before making such a major political decision, every government should prepare for the possible negative consequences of this decision and have prepared answer for some basic questions such as:

- Who will make bakery and confectionery products, dairy products and other products in agri-food sector in the absence of specialized production professions?
- Who ships the products if there are no dispatchers?
- Who distributes the products in the absence of drivers?
- How will the company ensure production if suppliers are not able to supply them with raw materials?
- What will be the procedure of the regional public health authorities if a large number of positive employees are identified in the company? Will public health authorities order its closure in this case?
- Will this decision cause problem in sectors where immediate seasonal work is needed? If so, how will the state provide necessary workers?
- The question of what solutions are planned in case of loss of sales and who will compensate companies for losses is also relevant.

In this context, we consider it necessary for State which is considering implementing nationwide testing, into its arsenal against pandemic, to make priority before implementing any political decisions, to instruct the relevant State institutions to draw up a Plan of Procedure for agricultural and food businesses.

In case of Slovakia, we can say that the smooth operation of businesses and minimal economic losses in agri-food sector after the first round of nationwide testing is more a result of luck than the State's readiness for this decision. If the negative scenarios were fulfilled, the State would not be able to respond to the crisis that would occur in this sector.

In the case of Slovakia, we can say that a successful result and minimal economic losses after the first round of testing is not the result of the state's readiness. If the most negative scenarios were fulfilled, the state would not be able to respond to the crisis that would occur in this sector.

### ***Acknowledgements***

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## **“A Socioeconomic Study on the overall lockdown impact of COVID-19: Challenges and Changes in Bangladesh”**

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### **Abstract**

*Due to Covid-19 spreading over the country, Bangladesh has started following “hard” lockdown since late March 2020 in various places to deal with the condition. As a lower-middle-income country, this country has abundant limits in confining the runaway the virus. As the situation exaggerates, researchers started investigating how Bangladesh will navigate the socio-economic crisis by creating a 'lockdown generation'. Data was gathered through the web-based survey, several weeks after the beginning of the ongoing COVID-19 lockdown to gain a better understanding of how socio-economic study results in different experiences and impacts. To find out the challenges and changes in the society researchers were dependent on a mix between purposive sampling and convenience sampling among the varied group of people only who were eligible to take part in the online survey to comply with COVID-19 prevention measures and reduce risk of transmission. A mix of the open and close-ended questionnaire was consisted of collecting and analysing mixed (both qualitative and quantitative) data from the 500 responses. This small-scale study found that the economic depression triggered by the pandemic will make thoughtful changes for the overall economy and society where everyone has been impacted significantly in different ways. The study suggests that government need an urgent plan to ease the lockdown challenges due to socio-economic impacts.*

**Keywords:** Crisis in Bangladesh, Covid-19, Lockdown Impact, Socio-Economic Challenges.

**JEL Classification:** A14, C83, Y1Y0, Y8Y80

### **1. Introduction**

The worldwide pandemic of coronavirus disease 2019 (COVID-19) instigated by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Covid-19 in Bangladesh is not out of this pandemic counted countries. On 8th March 2020, Bangladesh confirmed first positive cases and continue to the blowout. It has become 269,000 and the number of deaths mentioned as 3,557 on 13 August 2020 (The Daily Star, 2020). Bangladesh executed its first lockdown at Shibchar, Madaripur (United News of Bangladesh, 2020). On 23<sup>rd</sup> March 2020, the Bangladesh government declared the shutting of all government and private offices to avoid the blowout of Covid-19 diseases from 26 March until 4 April 2020 except some emergency services (Daily Star, 2020). Following the situation when the pandemic started spreading over the country and schools, colleges, offices, business studios shut down; people were in dilemmas. Seeing the population compactness, healthcare dimensions, inadequate capitals and prevailing scarcity, environmental features, societal construction, educational models; the spread of COVID-19 among the entire population started up-to-the-minute.

These intensified a multifaceted fear among the concern authorities. The aim of this article is, therefore, to understand the public perception of socioeconomic challenges and perceptible impacts in resource-restricted settings of Bangladesh during the COVID-19 lockdown.

### 3. Data through Web-Based Survey

In Bangladesh, Covid-19 was suspected on the early March 2020, but the Government observed and responded to lockdown from the late March 2020. From a website following the lockdown strategies in Bangladesh, a developing country with estimated 164,689,383 people at the mid-year<sup>2</sup>, lockdown usually predicted as greater challenges and unexpected changes for the overall society and economy as well. Keeping this in mind researchers started “web-based survey” during the pandemic situation and disseminated questionnaire among the people only who can participate in the online survey method.

Researchers distributed copies of the survey to a group known and asked them, in turn, to send it out to their contacts following the “purposive sampling and convenience sampling”. This method was determined for the pandemic situation and easier, faster and more accurate data analysis from electronically accepted information (Web-based Surveys, 2020). Side by side, web-based survey on this topic was cheap to carry out as this project was researcher’s self-interests and no one funded for this. So that people who are in lockdown and for tackling Covid 19 and out of transmission risk were participated in the data collection processes.

Respondents criteria cover most of the students who are attaining graduation and post-graduation level as because most of them have a digital device and know how to participate in an online survey. Apart from University students’ respondents’ criteria also covers researchers and academician to discuss and analyses the in-depth imagination and outcomes of the lockdown generation. Housewives and other professionals along with some other groups were also included in the criterion to provide an overall general idea of implications of sudden lockdown. The questionnaire was structured as mixed form, for what gathered data can be analyzed in both quantitative and qualitative manner.

Finally, researchers stopped getting responses after having 500 filled questionnaires from the disseminated questionnaires. In the questionnaire instructions, it was written that respondents are free to answer in any form of language (Bangla/English), their responses will be anonymous and kept confidential. It was also mentioned in the digital questionnaire that the electronically written information will be used only for this research purposes.

### 4. Results and Discussion

The questionnaire was designed in a manner so that the authors analyse the data in both quantitative and qualitative manner depends on question pattern. To make the analysis easy to understand, some parts are presents here in the quantitative pattern where some others are qualitative. For quantitative representation, most of the data here show through using the pie chart. For qualitative analysis, authors show hierarchical charts in some cases, sometimes treemap to compare the proportion of respondent’s notes. Finally, they point the major questions from the questionnaire to comprehend the structure of the questionnaire. So, this small-scale data collection strategy through web-based survey study helps the researchers to come up in a stand that how

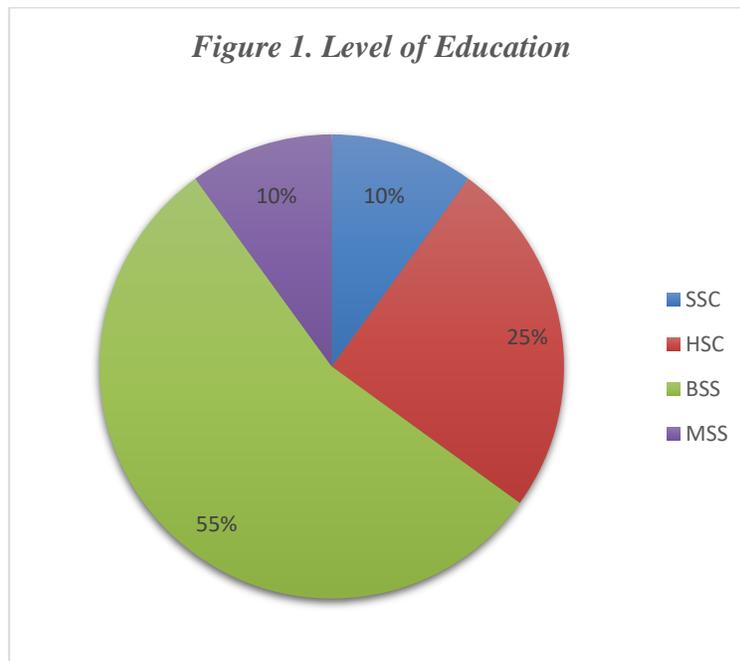
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<sup>2</sup><https://www.worldometers.info/world-population/bangladesh-population/>

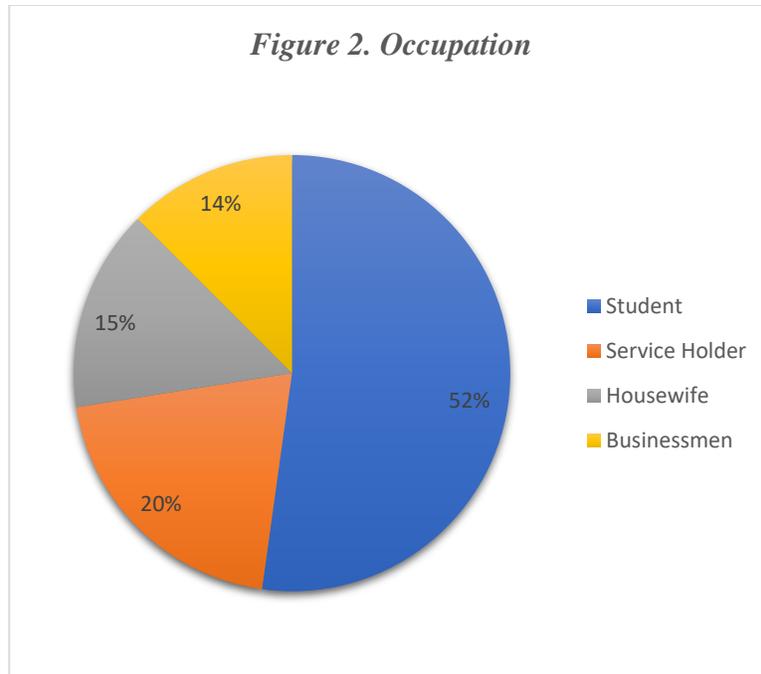
people faced the challenges during the Covid-19 lockdown and what will be the immediate future impacts in Bangladesh from this unprecedented crisis.

55% of respondents are attaining their post-graduation level of education. After them, it was graduate students from different departments or faculties covered 25% data information. 10% of respondents studying higher secondary education while other 10% are in secondary higher education level who covered service pouches, entrepreneurs, researchers and academicians too (see Figure 1).

Among all of them 65% lives with their family and rest of the 35% lives in dormitory or hostel or rented shared rooms, sometimes in a single apartment due to study purpose or job location (see Figure4). Among the 500 respondents, 52% were students, 20% were service holders, 15% of them were housewives while the rest of the 10% were businessmen (see Figure 3).

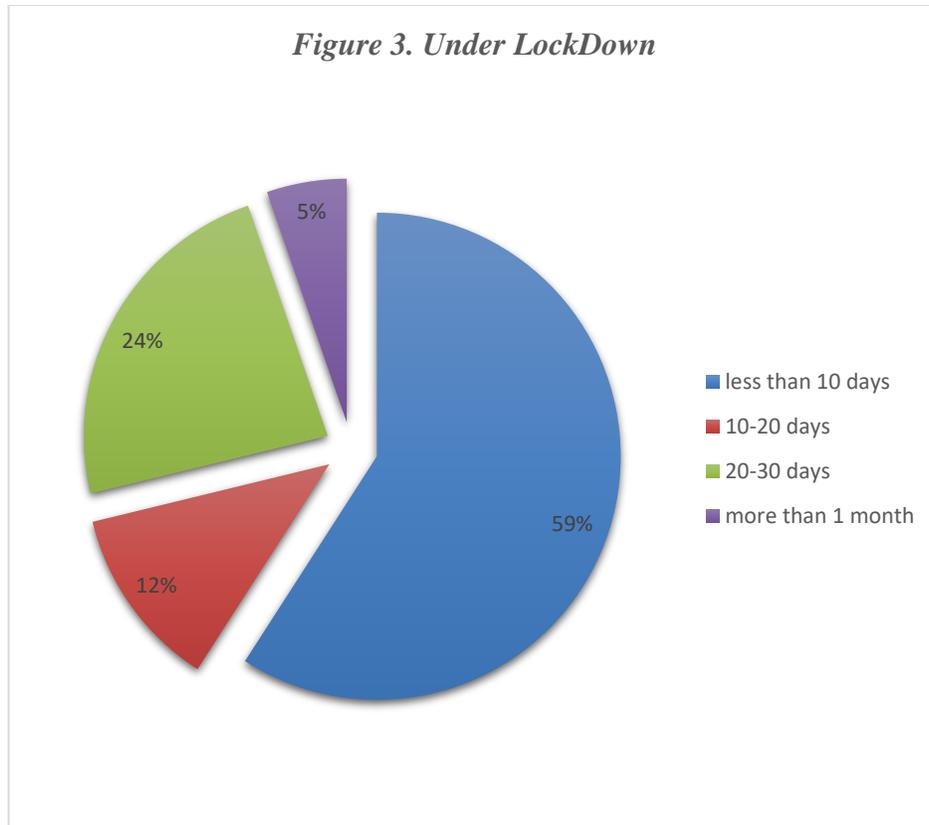


While data was collecting, it was found through the survey question that only 5% respondents were following lockdown for more than 1 month and 24% of the respondents represented those who were under lockdown for the last 20 to 30 days during the survey period. 12% of the respondents were following lockdown for the last 10 to 20 days while 59% of the respondents started keeping themselves in lockdown process for less than 10 days (see Figure 3).



#### ***4.1 The reason behind spreading the pandemic in Bangladesh***

To find out the root cause of positively affected Covid-19 victims in Bangladesh, the question was open to answering for getting comprehensive understanding from the respondents. According to most of the respondent's negligence of the government to take early initiatives is the major common reason behind spreading Covid-19 throughout the country. Bangladeshi people along with foreigner's free movement from one country to another using airport founds second most major causes among all others. People think lack of proper regulations in airports to test Covid-19 and not to bound them for being isolated or quarantined whatever needed once identified as the root cause for pandemic spreading in Bangladesh. In that case, people who came from abroad were highly reluctant and started spreading the pandemic without maintaining social distancing despite knowing that they might have been the carrier of the virus. Some mentioned the terms in brief as "Irresponsible human behaviour and lack of timely tools to prevent it".



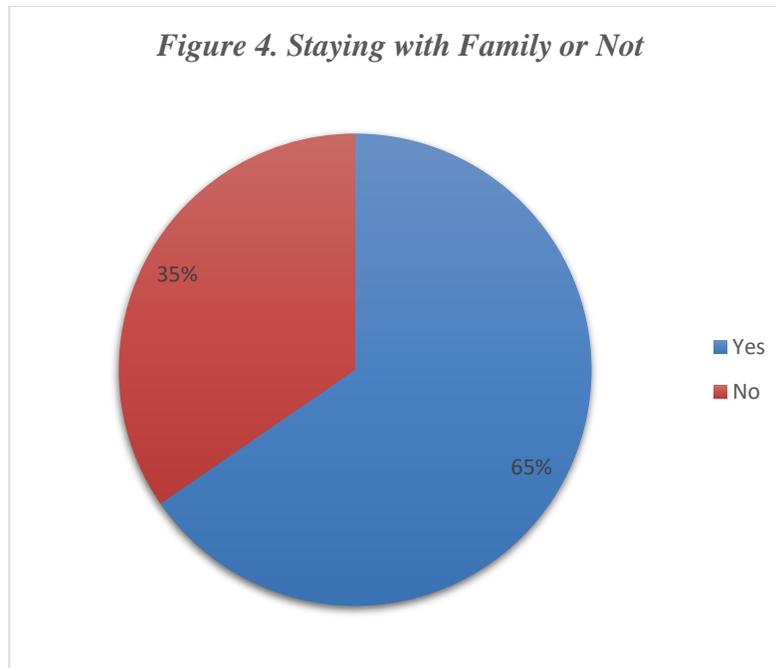
Apart from this, people living in Bangladesh was diffusely trusting in fake news spread from social media as hot climate restrains of Covid-19. Though it was said by some of the respondents that overpopulation is another reason for what Government failed to impose regulation, however, the absence of awareness and proper tools for instant treatment, coordination among the doctors, nurses, health ministry and relevant bodies along with cultural and religious prejudice influenced mass people a lot.

Health ministry was quite a clam and had shady knowledge about the situation in China. They did not take even protective measures for the Doctors and other health service providers against Covid-19 before the outbreak. As a result, doctors and health service providers were somehow demotivated to treat the patients to some extent. Mass people did not mindful of the impact of being victimized. They did not maintain any social distance throughout the earlier stage when this research was conducting. Poor health facilities and lack of awareness among the for the overall mass people threaten health security for the entire population.

This public health scenario ultimately results in limited job growth soon. Because health and other social aspects are highly interrelated to economic strategy for a nation. So, these responses from the collected data are no way should be undermined by the future researchers.

#### ***4.2 Assumed social difficulties for COVID-19 lockdown***

It was assumed that the economic crisis will automatically lead our society into a chaotic situation. While maintaining social distance, the employer of each organization will shorten employee lists. Thereby, less skilled, aged will lose their job. Again, lockdown impacts on day labourer's life a most. Rickshaw pullers, domestic helpers, garment workers, street vendors, auto driver and helpers are already jobless and passing days without any daily income. It was said described by few respondents that, if this situation continues for long; then crime activities will be started increasing. As a result, unemployment and lack of income will lead needy people to theft and robbery due to food scarcity. These will impact domestic violence and famine.



Many of the respondents mentioned that they heard about suicidal cases due to starvation. They think it will upsurge day by day. Lack of food supply and income generation will be led to the economic recession. Another thing is people are getting tempered and disgusted for staying at home for such a long time. Some people have family issues, they are suffering as they must live in a toxic environment for longer than usual. It is affecting mental health.

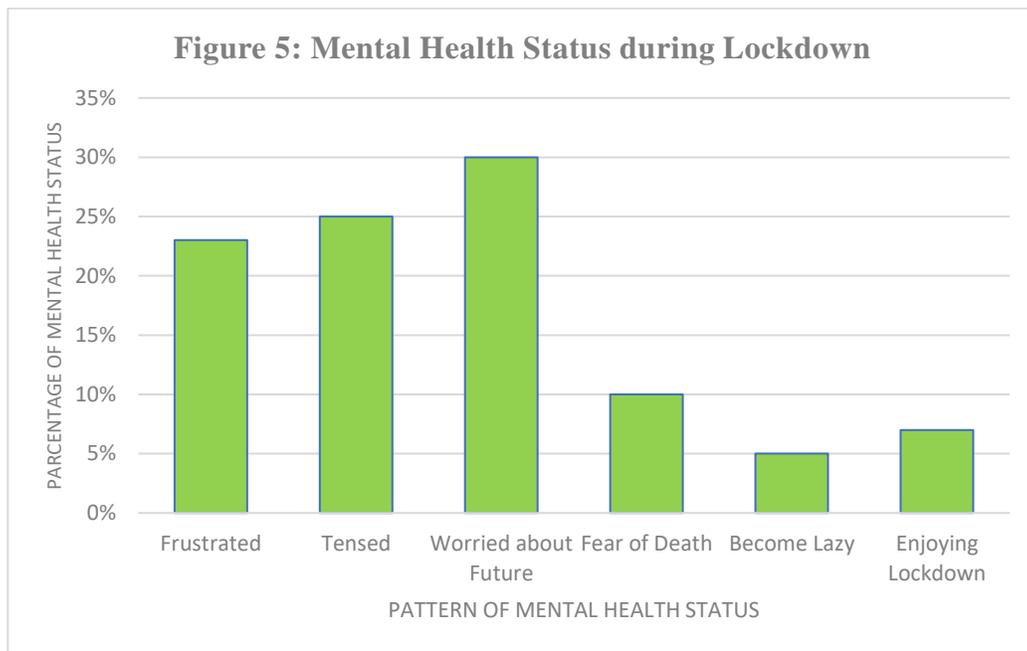
The stress and panic of uncertainty are also unruly. Side by side, people are becoming more self-oriented. It may decrease the future social bonding among people. If domestic violence over women continues, the divorce rate will be high. It was stated by few that sooner or later, there might be chaos, because of the excessive price hike. In one side people are losing the job, on the other side, due to lack of food supply for lockdown they are failing to meet their goods. Few of the respondents said that as Bangladesh is fighting with both flood and Covid-19, this has become very struggling for the economic sector to tackle the situation at a time.

#### ***4.3 Impact on Mental Health during Lockdown***

While answering about the current mental issues' respondents were dealing with, mainly six categories were unlocked (see Figure 5) through the closed-ended question. Among those highest number of people were worried about their future, either they are student, employer, employee, entrepreneur, daily earner or whatever. This was a big proportion which represents 30% among the

500 responses. What is going to happen to them, to others, to the country and the global arena was 25% people's reason of tension where 23% signifies those who were completely frustrated for many reasons during the Covid-19 lockdown.

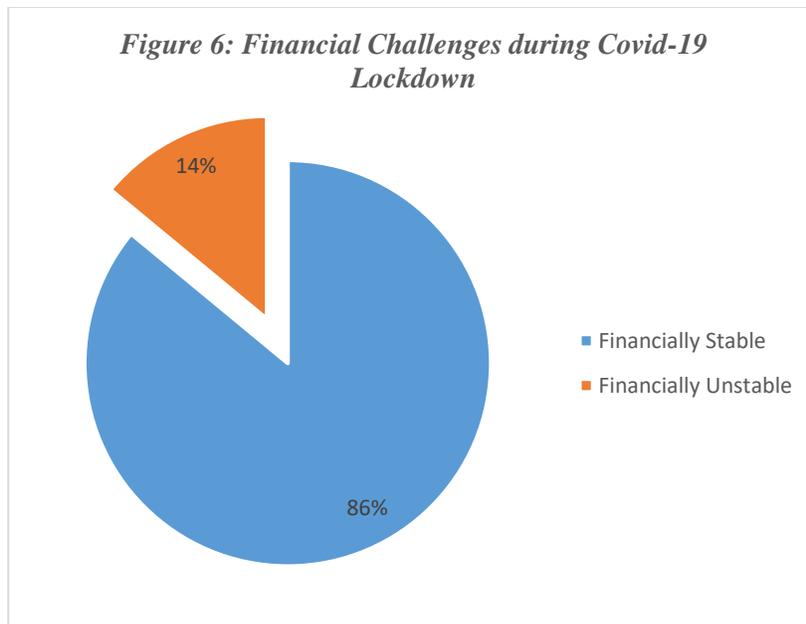
Apart from frustration, tension, worried for the future, some were also in fear of death. This covers 10% among the respondents. Most of the feared people were represented senior citizens as they think they are vulnerable in case of dealing with the virus. Only a very few, 5%, people were feeling lazy due to no job at home. Nonetheless, a coin has two sides. Therefore, it was found from the study that 7% of people were enjoying the lockdown because of no workload, having family time and leisure.



#### ***4.4 Financial Certainties/Uncertainties' during the Crisis***

People were about financial stability. Except for those who were belonging in well-off families or having family wealth or savings, most of the people mentioned future financial uncertainties' regarding. Meanwhile, many people were losing their job as those were privately funded. Only Government employees were secured due to lockdown as those were getting regular salaries in their bank account. They were less tensed about meeting the daily necessities of their family member. Businessmen were also hopeful that they could be able to carry a few months of coverage of their family. But in the long run, everything will be challenging without a regular scope of investment, savings, and regular profits.

Thus, who were losing job or passing days with no income, but had to meet their children's school fees, tutors' fees and monthly deposit to the bank had to face problems. This part of the question was both designed as opened and closed format. While answered closely, 86% were found financially unstable due to lockdown whereas rest of the 14% were found financially stable for the time being.

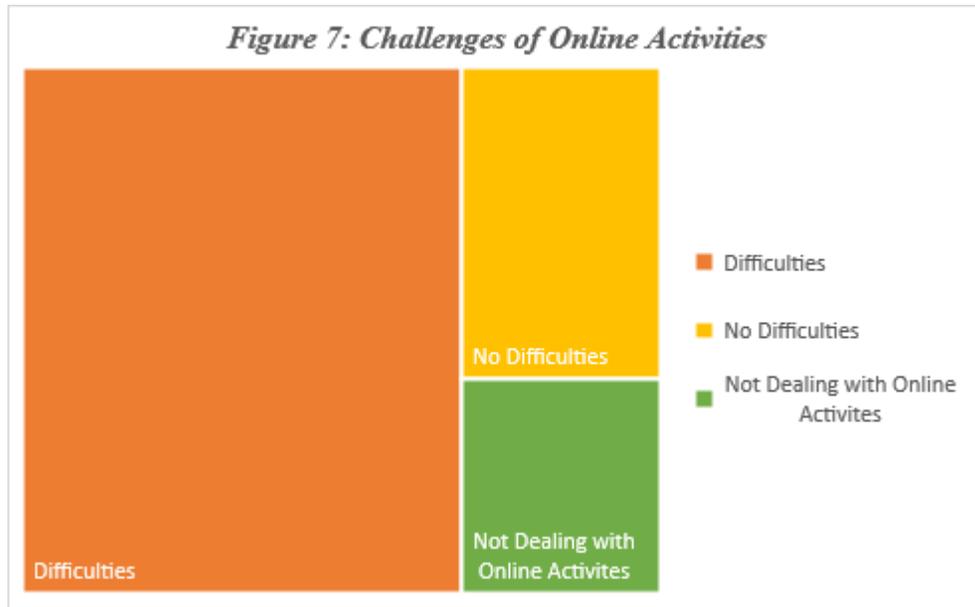


#### ***4.5 Challenges to Deal with Online Activities***

As the universities are closed, most of the students and teachers were compelled to take online classes which is very costly, particularly for the students. Online education is a good option to continue the ongoing study program during this crisis period. For a developing country like Bangladesh, it is not possible to have 100% student's participation in an online platform, thus it is going to create an immense pressure for the students and teachers as well. Students stated that they do not understand the lectures properly.

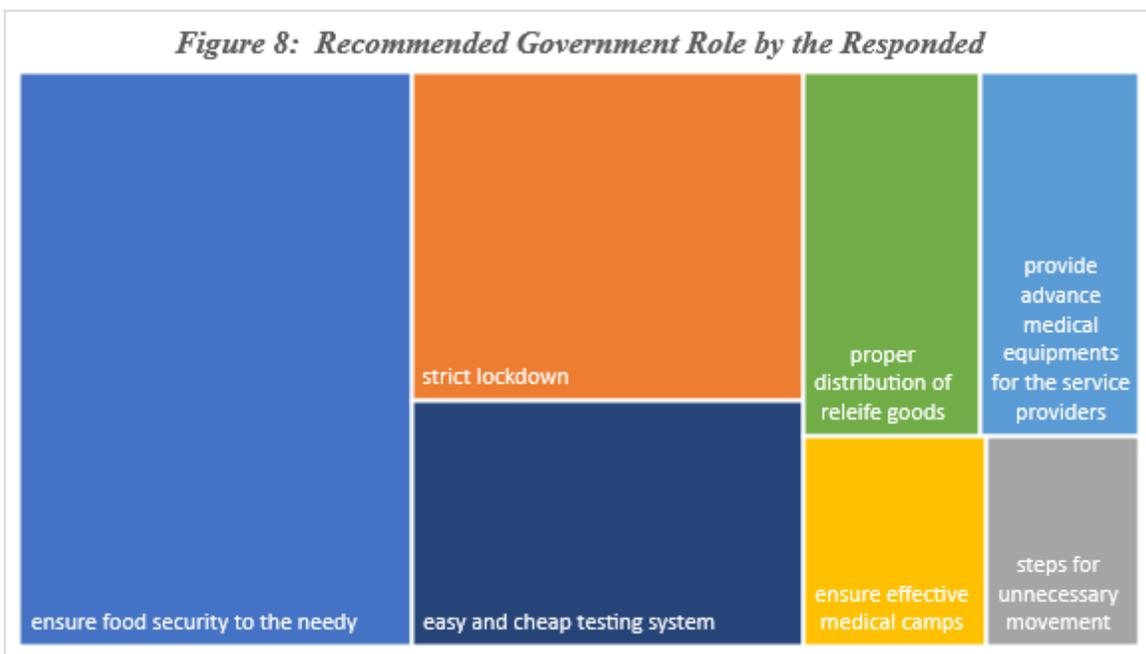
According to them the classes through online is not perfectly meaningful for them. Some responded that online classes can never take the place of classroom lectures. Moreover, in-classroom there is a way of learning and practising together, a student can ask any question. But in the online class, students are hardly understanding any lectures and while asking questions or discussion continues; it creates noise for other responses. Many students do not have well network access too. For both of some teachers and students, the pandemic situation postponed all academic activities. So, they were worried about academic session jams and extra-academic stress for the students after the lockdown goes over. Definitely. This might hamper the overall education system, create psychological issues among students and economic crisis for private educational institutions.

Therefore, proportionately most respondents were having difficulties to participate in online classes, some of them were teachers where most of them were students. In Bangladesh, internet speed is not good everywhere. Even city people are always facing trouble to be connected via a cable line. Due to Covid-19 Lockdown many of the students went back to their villages and faced trouble to take part in their regular classes. It was also mentioned that buying online access is very expensive for most of the students. Not only the students but many service providers were also dealing with work from home which was disquieting them too because of low internet connection. Only a few of the respondents did not have to face regular online activities during the lockdown and this study period. The amount of the problem was answered through the open question. But it can be graphed hierarchically to understand as a part of the whole.



**4.6 steps that can be taken by the government to prevent Covid-19 crisis in Bangladesh**

Respondents had mixed responses for this part of the question. Among all of them, most of the participants mentioned that immediately the Bangladesh Government should ensure food security among needy families. So that they do not insist to go out for their daily earning. Then the Government also need to impose serious actions if people do not maintain lockdown and stop unnecessary moving. Creating more effective medical camps for Covid-19 patients, ensuring advanced medical equipment's for the medical service providers and proper distribution of relief goods are timely demand. Some mentioned that the virus testing process should be easy and cheap too! This scenario can also be charted by using treemap for clear understanding.



Researchers are thankful for the following brunch of questions which helps them to figure out the object of this research:

1. *What is your current level of Education?*
2. *For how long you are partly or completely following lockdown rules?*
3. *Are you staying with your family now?*
4. *What are the social problems generating now or would soon seem as a result of COVID-19 LOCKDOWN by you?*
5. *What are the family problems/violence creating/generating now or could be soon for such LOCKDOWN as per your understanding? You can add an example if you want to describe your answer.*
6. *What is the current mental health status which influences over you by pandemic lockdown?*
7. *Do you think the current situation defines your financial certainty/uncertainty?*
8. *What is your occupation?*
9. *If you must take part in the online institutional system, is it working for you?*
10. *If you are a student/ researcher/academician/ HSC examinee/love to study in any forms, how the pandemic affecting your regular study?*
11. *If you are attending any digital platform for education/home office, is it helpful for you or you are facing problems?*
12. *What steps do you think the government can take to prevent this epidemic in Bangladesh now?*
13. *What we can learn from this pandemic situation? (optional)*
14. *What is your individual/social role to meet different kinds of need during this pandemic? (optional)*

## **5. Conclusion**

According to a report by World Health organization ( WHO) on December 31, 2019, it was confirmed that COVID-19 outbreak is a global health emergency while on March 11, 2020, they declared COVID-19 a global pandemic, its first such designation since declaring H1N1 influenza a pandemic in 2009. (David J Cennimo, 2020). From this small scale study, it is clearly understood that the Covid-19 pandemic mostly impacting the poorest proportion of people in Bangladesh. They are the most vulnerable and is in severe insecure future in both cases of social and economic status. When it was the first phase of lockdown since late March 2020 in Bangladesh, by two subsequent months people who are under the moderate and extreme poverty were in the hardest hit. They loss regular income lacks proper health care. Even they faced employment insecurity, education barrier and health protection.

Bangladesh achieved development in few aspects throughout the last two decades, which is now under threat because of the overall socio-economic crisis of Covid-19 challenges. Though it can be assumed that this crisis might have a public health impact, it is not. This unexpected situation immediate impacts on our overall society on a large scale. This crisis of Covid-19 challenges has a long run economical impact on job growth strategies to business sustainability. This immense situation will result in low standard livelihoods for the greater population. Therefore it is suggested that the Government of Bangladesh should take immediate necessary steps to keep its poverty reduction strategy followed by the last few decades.

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## **Aroma Marketing and Its Impact on the Sales Success and the Economic Situation in Café InCuple**

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### **Abstract**

*The main goal of the paper is to evaluate the impact of the use of aromatization in the Café InCuple due to a gradual decrease in sales of nuts and cakes, but also a decrease in sales in general, too. Aroma selection took place in the Laboratory of consumer studies from more than three hundred scents. The aromatization was performed for three months, in two places in the company due to inefficient flavoring. After completing process of aromatization and evaluating the questionnaire survey, we came to the conclusion, that aroma marketing in the Café In Cuple had a positive effect on attendance, sales, sales of nuts, cakes and coffee, but also we can say that consumers began buying a new product Tuba dessert. The measures announced by the Government of the Slovak republic in connection with COVID-19 will affect this café in the negative direction as all other operations in public catering sector. From viewpoint of using aroma marketing effect, measures will eliminate a positive aroma marketing effect on sales development in terms of exposure duration time and creating a pleasant atmosphere during shopping.*

**Keywords:** aromatization, aroma marketing, customer, emotion, aroma, sales

**JEL Classification:** M3 Marketing and Advertising

### **1. Introduction**

The modern and rapidly changing times are also reflected in the shopping behaviour of consumers, who do not only have to behave rationally and logically when making decisions, but are increasingly also making impulsive decisions, i.e. based on emotions. The smell and atmosphere of a company are often elements that encourage the customer to make an action-purchase, because it is said that there is only one chance of a first impression and the experience of the first seconds that the company provides to its customer may affect consumer behaviour in the future. The aim of the article is to characterize the selection and investigation of the influence of aroma on the shopping behaviour of customers of the selected company and the subsequent evaluation of the questionnaire survey in terms of the effect of the flavouring unit on emotions and shopping behaviour of customers.

Aroma marketing has been discovered in long-ago history, confirmed by the following facts:

- hours in ancient Japan burned different types of scents every 15 minutes,

- Queen Cleopatra perfumed sails in her royal river boat,
- fragrant oils were used to lubricate ancient Roman pets and Greek athletes,
- Elizabethan perfumed their precious jewellery,
- during the revolution, Parisians sprayed women's cigarettes with a mixture of peach, jasmine, rose, patchouli, cedar oil and other scents that made them fresher and more sensual. According to Air-Scent International, this was the first example in modern times when aroma marketing was used as a tool,

In a world full of advertising, traditional tools of marketing becomes less effective. The current trend is communication oriented to several human senses, which represent modern phenomenon called aroma marketing, according to Berčík J., Palúchová J., Gálová, J. a kol. (2018) and further claim that through aroma marketing it is possible to connect with customers on a deeper emotional level, provide them with an unforgettable experience, attract new customers, increase the perceived value of goods and services, as well as increase brand awareness and achieve overall customer satisfaction.

Anne Marie Helmenstine(2019) in her article writes, that human olfactory receptor cells are grouped in the back of the nasal cavity and each of them has algae that reach into the air. Algae have receptors that bind aromatic compounds. When binding occurs, a chemical stimulus initiates an electrical signal in the neuron, which transforms the information into the olfactory nerve, which transmits the signal to the so-called olfactory bulb, which is associated with emotions. They also claim that there is a threshold for smell detection. One aromatic compound can bind to any of several different receptors.

Smell is the sense that is most closely attached to emotional reactions. According to Guillet et al. (2017) this makes scent not only in retailing, but also in the hotel environment an important atmospheric variable to study, because fragrances are expected to increase the likelihood of producing an emotional reaction from consumers.

Besides studies on impact of scent marketing on consumer behaviour we can find several studies that deal with ethical issues and provide more evidence of how the sense of smell can, and should be used by marketers (Bradford - Desrochers, 2010).

As it was discovered in the study of Roopchund (2016) the sense of smell is linked to pleasure and well-being and is closely associated to emotions and memories. As a scent can be administered and create an effect in a person mind without him or her even paying attention to it, smell is „something that the consumer cannot ignore “.

Air-Scent International (2017) considers the main results of the aroma marketing to be:

- makes the brand unforgettable,
- prolongs customer life,
- attracts more customers,
- encourages repeat business,
- supports increased sales,
- inspires loyalty to the given brand,
- affects the performance of workers in the workplace,

- neutralizes smells.

The smell stay in memory for years, contrary to the sight which only stay in memory for few months. The consumer behaviour under the smell influence can react positively to smell and then can contribute to a success of a product or service. Blondeau, M., & Tran, A. (2009).

Old loyalties to stores and shops are almost non-existent because customers can no longer be depended upon. They want to be wooed, courted, stroked, and serviced; they want to be entertained, and each sale is a first sale. If ever something were needed to distinguish one store from another, to make one specialty shop seem more special, more unique, more tuned in to what the market wants— that something is needed now wrote Pegler, M.,M. Bliss, and L.L (2006). Retailers are gradually realizing that only selling the product is not important, but customers' satisfaction and convenience is also important for shopping and we can say that stimulus in retailing includes space related, product related and people related aspects Mehta, N., &Chugan, P. K. (2012).

## 2. Data and Methods

Fulfilling the goal of the work, which is investigation of the influence of aroma on the shopping behaviour of customers of the selected company and the subsequent evaluation of the questionnaire survey in terms of the effect of the flavouring unit on emotions and shopping behaviour of customers assumed the use of the following data:

- information on the range of products and the nature of the company that influenced the choice of aroma,
- internal data on attendance, sales in company operation Café InCuple before and during flavouring.

To obtain the results, we used the following methods of data collection:

- questionnaire method of data collection, aimed at examining the perception and reaction of customers to the aroma in the café - online in the period from 17.02 to 17.03, 100 respondents were addressed, 100 questionnaires were filled out, the aim was to find out how customers react to a new smell in the space and record its impact on their purchasing behaviour.
- method of analysis, comparison, and synthesis,
- study of available information on the issue and the nature of the object of research.

The selection of a specific aroma "Nougat" was carried out in the premises of the Laboratory of Consumer Studies at FEM SPU in Nitra, where the possibility of choosing from more than 200 samples of fragrances from the company Aroma Marketing, s. r. o., which are produced by the company REIMA Air Concept, on 14.02.2020 - the company REIMA AirConcent characterizes the scent "Nougat" as a creamy scent of roasted finely ground almonds or hazelnuts, or. walnuts mixed with other raw materials, e.g. honey.

When choosing the aroma in the Café InCuple, we collaborate with the owners and together we chose the "Nougat" aroma for the following reasons:

- sales of nuts and cakes gradually decreased during operation,

- interest in finding out how sales will increase / decrease during deployment coffee with a characteristic nutty taste and aroma,
- examine how the selected aroma will affect the sale of nuts and hazelnut-flavoured cakes,
- record how customers will react to the introduction of a new product in the company's offer - Tuba dessert from the Slovak company Kolatch, which by its nature is very close to the aroma of the flavouring unit.

**Figure 1: Fragrance filling "Nougat"**



Source: own processing

The fragrance was discharged through a borrowed diffuser Aroma Streamer 650 Bluetooth from the company Aroma Marketing, s. r. o., purchased from the resources of the research project APVV 17-0654 Use of consumer neuroscience and innovative research solutions in aromachology and its application in production, trade and services.

**Figure 2: Diffuser Aroma Streamer 650 Bluetooth**



Source: duftmarketing.de, own processing

During the research, the diffuser was placed in two places, the first place was a table in the corner at the end of the café from 17.02.2020 - 22.02.2020 and the second place was a bar opposite the entrance to the café, next to the shelf with goods from 24.02 to 17.03). The reason for this change was the fact that despite the increase in the intensity of the scent, we did not notice almost any

changes and observations in customer behaviour. Placing the diffuser in the corner next to the door caused the aroma to escape through the door into the secondary production area. Despite the less visible location in the first case, the aroma diffuser began to fulfil the purpose of the new location more effectively.

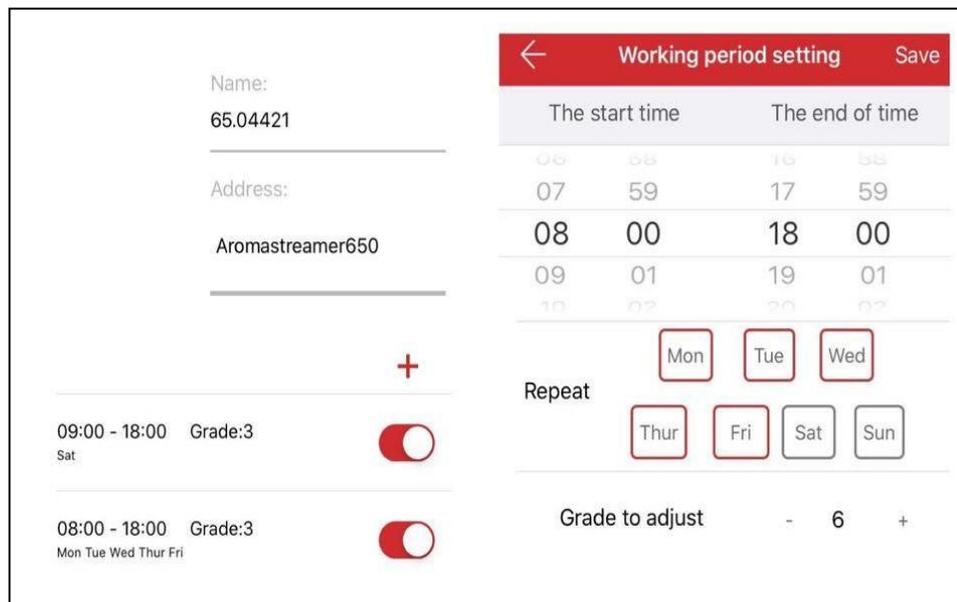
**Figure 3: Placing of flavouring unit**

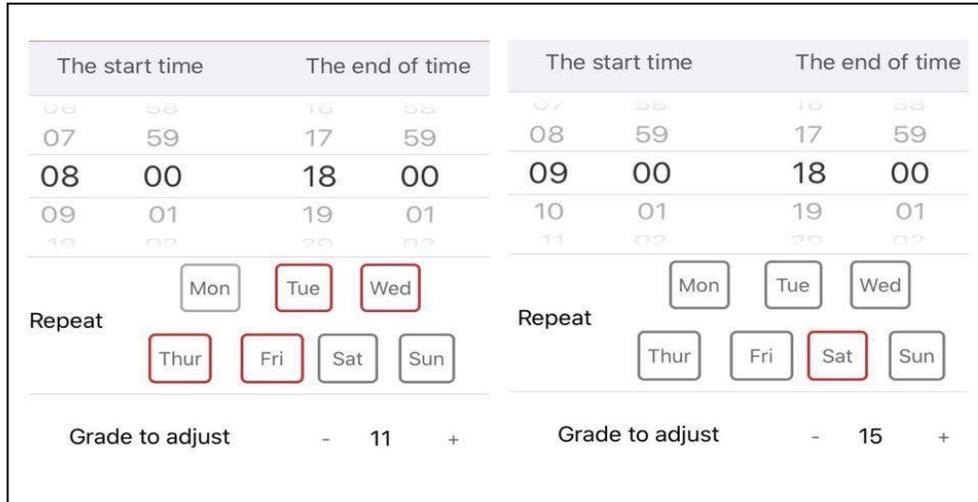


Source: own photo

An important element of the research process was the REIMA application, which we paired with the flavouring unit via Bluetooth and set the start, end, and intensity of the flavouring. On the first day, we set the intensity of aromatization to level 3, on a scale from 1-20 - the left part of the picture. As the smell spread across the next room due to the inappropriate placement of the flavouring unit, we increased the intensity to level 6 after 3 days - the right part of the picture 4.

**Figure 4: REIMA settings – first day, intensity after 3 days**

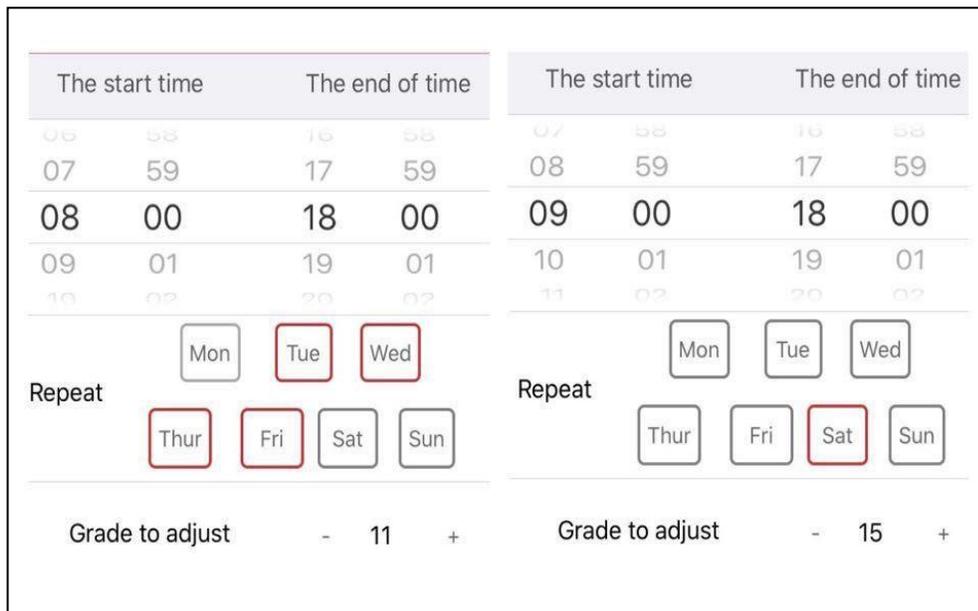




Source: own photo

By moving the flavouring unit to another location in the café, we pre-set the following setting for the diffuser power as shown in figure no. 5.

**Figure 5: REIMA settings on the other days**



Source: own photo

Due to the fact that the company operation is closed on Sundays, we pre-set the aroma to a stronger level every Monday from 8 am to 10 am and then, after automating the space, we set the application for optimal performance. On the other days of the working week, we set the intensity of the aroma to level 11, as on Saturday the company records higher attendance, we increased the

intensity of flavouring. At the beginning of the aromatization of the premises, we set ourselves the goal of finding and setting the optimal level of aroma release. During the whole period of flavouring, we recorded only one day, when the weather began to affect the aroma to such an extent that it was unpleasant for customers. We subsequently reduced the intensity and did not encounter any negative effects until the end of testing.

The flavouring setting was as follows:

**Table 1: Monitoring aroma intensity in CaféInCuple**

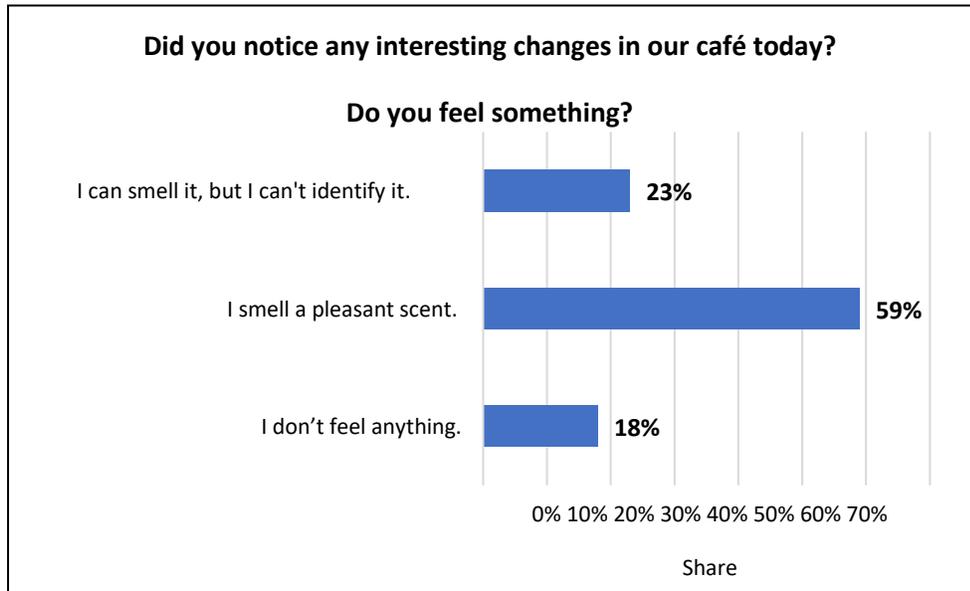
Date	Aroma intensity	Reason for the change
17.02. (MON)	3	Intensity test
20.02. (THU)	6	Low intensity
24.02. (MON)	11	Low intensity
29.02. (SAT)	15	Higher attendance
02.03. (MON) 8:00-10:00	16	Café closed
02.03. (MON) 8:00-10:00	10	Flavor and optimize
03.03. (TUE) 8:00-11:00	11	Default setting
03.03. (TUE) 11:00-18:00	8	The aroma was unpleasant, too warm (15°C), heavy air
04.03. (WED)	11	Default setting
07.03. (SAT)	15	Higher attendance
09.03.(MON) 8:00-10:00	16	Café closed
09.03. (MON) 8:00-10:00	10	Flavor and optimize
10.03. (TU)	11	Default setting
14.03. (SAT)	15	Higher attendance

Source: own processing

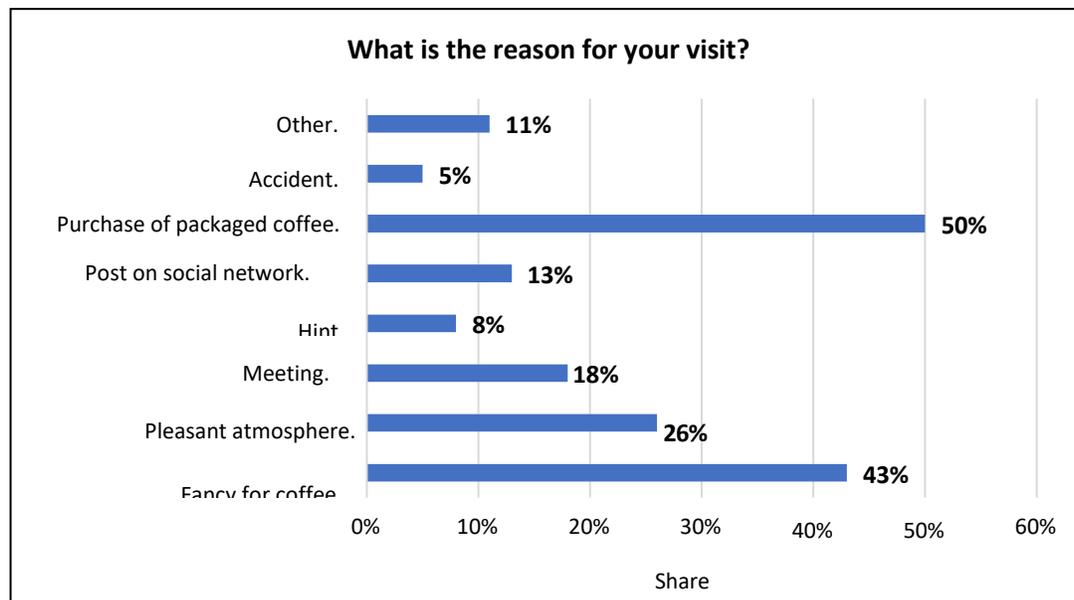
### 3. Results

During the research process, we asked randomly selected customers in the company to fill out a questionnaire. Their number was 100. The research lasted exactly 24 days, on average we received 4 questionnaires a day - exactly 100 questionnaires were completed by 39% of women and 61% of men. The most frequently mentioned reason for the visit was the purchase of packaged coffee (50%).

**Figure 6: Reason for visiting in CaféInCuple**



Source: own processing



We also asked the selected respondents whether they feel a change in the scent in the company.

**Figure 7: Changes in Café InCuple**

Source: own processing

The answers show that 59% of customers said they felt pleasant scent. 23% of customers felt the change but could not identify it. 18% of respondents did not register changed smell. Among 18% of customers we advise those who filled in the questionnaire at the time of incorrect placement of the flavouring unit in the corner of the café and those who were in the café at the time of ventilation.

Regarding the identification of what scent, it is and what customers associate the scent with, the most common answer was coffee (41%). Often respondents reminded respondents of nuts, chocolate, cake (38%), which means that the choice of aroma was appropriate, and customers felt it, as they said in the question above.

After the implementation of the questionnaire, we focused on the benefits of flavouring for the company by introducing aroma marketing.

**Table 2: Benefits of flavouring for company by introducing aroma marketing**

Indicator	17.02 – 17.03.	17.01. – 15.02.	Acquisition
Attendance	2038 customers	1852 customers	+ 186 customers
Sale of nuts	36 pc	11 pc	+ 25 pc
Cakes(moravian, strudel, butter rolls)	420 pc	358 pc	+ 62 pc
Coffee of month Brazilia	520 pc	484 pc	+ 36 pc
New product Tuba dessert	138 pc	-	+ 138 pc

Source: own processing

In the table we can see that the introduction of aroma marketing represents a benefit for the company in terms of increased attendance by 186 customers, percentage increase in sales by 7.87%, as well as increased sales of products related to the aroma - namely nuts, cakes and coffee Brazil with nut flavor. During the period of aromatization of the operation with the aroma of "Nougat", we examined the following indicators of sales of cakes listed in the table (strudel, croissant, butter rolls, Moravian cakes, hazelnut cookies).

**Table 3: Sale of cakes**

Quantity sold before flavouring	Quantity sold during flavouring	Acquisition of operation before flavouring	Acquisition of operation during flavouring	Difference in profit
400 pc	420 pc	170€	225€	+55€

Source: own processing

In the table we can see how, thanks to the use of the Nougat aroma, the profit from the sale of cakes and their sale fluctuated - the company achieved a profit of € 225 in the sale of 420 cakes, which is € 55 higher than in the non-flavouring period. In the monitored period, the company deliberately added more cakes to the offer, especially with nut flavour, especially Moravian cakes,

pulled strudel and butter rolls. Many customers responded positively, feel a pleasant smell during the operation, so they enjoyed the cake with coffee or many of them had the cakes packed with them.

We saw the most positive results when selling the relatively new product Tuba Dessert from Kolatch. The company launched this product just after using the aroma. In 21 days, 138 pieces of the mentioned goods were sold, which is much more in comparison with other similar products offered in the offer, e.g. Lyra stick - sales higher by 64 pcs.

#### **4. Conclusion**

Based on the results, we can say that the aromatization of the premises in the company Café InCuple met the expected goals. Customers felt the change of aroma during the first days, during the aroma the sale of coffee with the smell of nuts increased, as well as the sale of nuts and cakes themselves, which was the goal of the company. The new product TUBA dessert was also a success, as it was sold in larger quantities than the old product. The advantage for the company was also that the costs of flavoring were paid within the project, otherwise the rental of flavoring would cost the cafe 50 €/month. In connection with the COVID-19 pandemic, aromatization is not justified, because the masks in the Slovak Republic are ordered to be worn indoors as well. The company had to close one of its stores as it was unprofitable, which was linked to a curfew for citizens. For the company, this means reducing the number of customers, reducing sales, sales of products and coffee. After the pandemic, it would be appropriate to flavor the premises again and take measurements to ensure and improve the economic situation in the company.

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## Indirect International Trade Barriers

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### **Abstract**

*There are numerous variables which directly or indirectly influence worldwide trade. Such barriers are tariffs and non-tariff barriers such as quotas, licenses and etc. Aside from these trade obstructions, there are likewise non-trade boundaries which indirectly may influence the universal trade. Be that as it may, a government may influence its global trade exercises numerous ways by implication. Such motivations fundamentally include non-tariff hindrances. Among these targets, industrialization, worldwide competitiveness, territorial improvement, changing the income distribution and diminishing unemployment are a definitive objective for usage of non-trade boundaries. They may empower enterprises and increment government income. Be that as it may, over the long haul they influence universal trade if those items are traded which will prompt unreasonable rivalry in worldwide market. Before a trade boundary execution, singular advantages, yet in addition in general worldwide trade exercises and reasonable rivalry nuts and bolts ought to be mulled over as premise so as to forestall any unfortunate and unjustifiable action.*

**Keywords:** non-tariff barriers, non-trade barriers, technical barriers to trade, European union

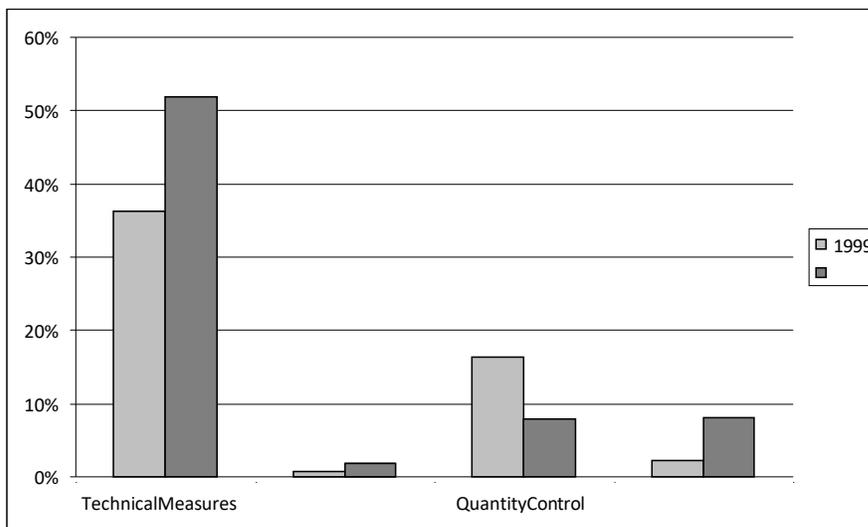
**JEL Classification:** F10, F13, F18, F20

### **1. Introduction**

Non-tariff measures, especially technical measures have become an important characteristic within the adjustment of global trade in goods. Figure 1 illustrates this issue effectively. When we analyze the figure, we can make comparison between 1999 and 2010; around 13 percent difference was observed in terms of technical regulations. (Bora, 2002, p.4) The volume of technical regulations can be classified in two main categories. The first one is sanitary or phytosanitary measures. The second category is technical barriers to trade. In terms of sanitary measures, preservation of human, animal and plant life are considered. On the other hand, Technical barriers concern with technical regulations, norms and procedures. There are two agreements of World Trade Organization aiming to foist disciplines regarding to trade in European Union. Apart from objectives and legitimate frameworks of TBTS and SPS, they can have necessary effects on international trade. (Peters, 2004) Regarding with incidence, TBTs are by far mostly utilized regulatory measures; most countries apply TBTs around 30 per cent of products and trade. On the other hand, significant number of countries impose SPS measures around 15 per cent of trade as well. (Klinger, 2009) Another important point is that there are raising concerns relating to huge incidence of both technical barriers to trade and sanitary or phytosanitary measures in second-world countries' exports within Europe. Both TBS and SPS foist quality and safety norms that often surpass globally accepted standards. On the other hand, there is not adequate level of analysis regarding to

proceeding of policy in Europe. Considerable literature exists on individual kinds of NTMs, and there is significant empirical analysis regarding to their effect like antidumping relating to integration to European Union. However, this information is likely to be instrument, industry or country explicitly. Good reasons of existence and duration of this case can be shown. Under a usual measure NTMs bestir an extensive arrangement of tools of trade policy. On the other hand, there are differences between tariffs and NTMs. Firstly, NTMs are not classified as accurately quantifiable, not alone decisively smooth to model. Moreover, gathering of information about NTMS is considerably difficult (figure 1).

**Figure 1: Frequency index by broad type of non-tariff measures (1999 and 2010)**



Source: Gourdon and Nicita (2013)

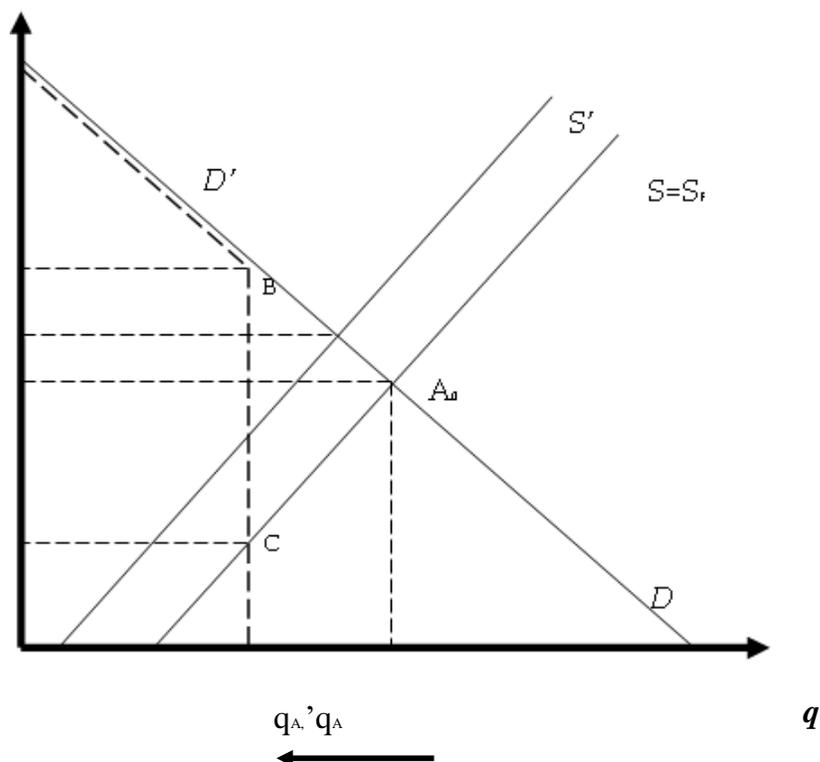
### ***1.1 Conceptual Identification of Non-tariff Measures***

Supply-demand diagram helps us a lot to get informed regarding to value price and quantity impacts of NTMs in terms of imports. By utilizing this approach, we get permission of cost-raising and trade restriction, in which influence of mentioned aspects can be seen in the border, more commonly known as protection impact. Protection effect owns a clear reverse overtone. This could not be vindicated if the NTM in charge of the effect did not own protectionist aim.

### ***1.2 Numerous Flapping Non-tariff***

It can be difficult to determine the impact of a particular NTM on price and quantity in a situation where many NTMs are run for the same product. From perspectives of both conceptual or an empiric side, the easiest approach is to contemplate the comprehensive influence that is scrutinized to be the relative force in the trade constraint of every applicable NTM. So, a presiding NTM with regard to influence which surrounds the influence of whole NTMs. There is a presentation of amalgamation of quota and technical adjustment in figure 2. The quota is supposed to be irrevocable. When we analyze the figure, we can come to a conclusion that quota's prohibitions on imports is related with the cost impact on technical adjustment, which is engrossed by the influence of quota price. Far and wide, the equilibrium price rise does not give symptom of the technical regulation price effect.

**Figure 2: Multiple overlapping non-tariff measures**



Source: Gourdon and Nicita (2013)

### 1.3 European Integration and NTMs

One of the ways of integration in EU might be achieved by improving trade relations. Since trade activities is one of the indicators of economic performance, the integration in the Europe is positively related to economic and trade performances of countries from the perspective of economic integration. (Ferenczi, 1994) It is a fact that NTMs are hindrances for international trade activities. So, it can be concluded that NTMs indirectly affect European economic integration. Below, the effects of TBTs and SPSs, which are NTMs indicated.

### 1.4 Effects of SPSs and TBTs on European Integration

As reported by the World Trade Organization, the EU is among the most intermittently addressed trading partners in terms of SPS and TBT measures. The SPS and TBT measures address headmost the agriculture and food sector. Agriculture and food sector are considered among three biggest export groups within the European Union. Both SPS and TBT measures cover substantial governing requirements. In addition, the conformity assessment procedures are utilized in order to regulate conformity via the regulations or standards mentioned above. (Bennet, 2018) For instance, there are requirements of testing, inspection, and certification, and systems for preceding authorization of particular products. Reasonably, both procedural and administrative requirements can create serious restrictions to trade.

### ***1.5 Potential Solutions***

Speculation is one of the fundamental issues needing care right now. Wide speculation is constantly risky in conversation of exchange impacts due to non-customary hindrances to exchange the substance of administrative and procedural or managerial prerequisites in regards to African, Caribbean and Pacific nations. The assortment of ACP nations must be evoked since it effects on the capacity of these nations to deal with the exchange prohibitive effects of such prerequisites by acclimating to refreshed necessities and guarantying market share. (Snow, 2011) A 2005 World Bank report shows that a few nations have ability to defeat the issue remain by better expectations on trade markets. It gives the case of Kenya. (World Bank, 2005) Nourishment industry in Kenya has met to the sanitation principles in agreement the EU by propelling the underwriting of refreshed stockpile the board methods and including in participation with the open division. As an outcome, Kenya can supply crisp vegetables and plate of mixed greens to principle European general store chains. (Global Economics Prospects, 2004)

## **2. Issue Formulation and Methodology**

In the gatherings of the methodologies foreseen to be the more trustworthy in measuring NTMs, inventory measures, business surveys and gravity models are the most regularly used. Then again, even in the least demanding hypothetical structure, the economic and welfare assistance effects of NTMs are not ready to be clearly decided. This angle isn't exclusively characteristic for numerous NTMs yet in addition to NTMs, for example, SPS measures and TBTs. (Basu, 2009) The key point in the examination of NTMs has been to produce value sway ascertain and convert them into extent identical measures. This methodology is explicitly engaging as it could amalgamate in one sole metric the impact of an instrument with a few measurements every now and again connected with one another. Then again, the investigation acknowledged in the prior area has represented to the way that this extent comparable doesn't predominantly need to be sure, and regardless of whether it is certain it doesn't fundamentally mirror a restricted amount sway. In addition, the ideal empirical strategy should supply counts of both quantity and price effects on grant for an appropriate capability and distinguishing proof the NTM impact. In late time, progress in gravity-based examination have made the premise to remove the various effects of the execution having a place specialized measures for a specific decent market. Considering the conceivable existing of inverse effects due to the execution of NTM additionally runs the as of late revived money saving advantage examination.

### ***2.1 Inventory Measures***

The most effortless total indications of the use and rate of NTMs are called frequency index and the coverage ratio. A frequency index is delegated an offer in whole levy lines holding at least one NTMs. The part might be exhibited in weighted terms depended on either imports or production. (Fugazza, 2010) The coverage ratio represented the level of imports impacted by at least one NTMs to generally speaking imports. These inventory measures grant the portrayal of data on NTMs assembled at an aggregated level in one sign. Inventory measures are valuable as far as social occasion data as per each sort of data independently, and far reaching information because of inventory measures edifies the situation better. Extensive data accumulated for a nation at a complete level is significant for the count of these measures. The frequency index figures

exclusively for the presence or truanacy of NTM, and compresses the level of merchandise to which at least one NTMs are placed in.

## 2.2 Business Surveys

Business surveys or organized meetings have additionally been used to get data on the regularity of NTMs. Survey examinations can be used to accumulate information for a specific explanatory target like data in regards to the recurrence of NTMs, or the near noteworthiness of different measures, similar to exchange limitation or exchange impact. One issue is that surveys float be very asset concentrated. (Cornford, 2006) This perspective is likely to urge the scale and scope of the request and range to which the assembled data could be seen as run of the mill portrayal of the part or industry. Fundamental survey members will be chiefs of general store chains in Europe since they can give substantial data identifying with issue due to SPS and TBS. Surveys additionally rely upon insight data in lieu on measurable information, and disparities in methodology develop correlations between different overview sources hard.

## 2.3 Gravity Models

The gravity model of trade has additionally been used to ascertain the worth impact of NTMs. In an irregular example, a worth impact is differentiating to an amount impact after some value standardization. Then again, with respect to acknowledgment of the effect of the execution of NTM measure, a board structure is increasingly reasonable regardless of whether it can make it confounded the exact rot of difference in esteem into cost and amount uniqueness. (Puri, 2007)The typical gravity figuring is perceived at the two degrees of item or at the business. In the past, estimation is by and large item specific and regularly confined to a constrained example of nations. On account of acknowledgment at the business level, despite the fact that the investigation can be complete in regards to industry inclusion it is generally constrained to a limited number of nations. Aside from information accessibility, exact procedures need to make a finish of calculatable limitations. A full plume gravity model works at the item level (for example, HS-6 digit) for a few nation occasion (in excess of 20 nations) during 3 years or more probably won't be easily determined, explicitly while overseeing for conceivable determination preference. The fundamental particular of the gravity model is composed underneath:

$$\ln X_{sij,t} = \phi_{sij,t} \ln(1 + \text{tar}_{sij,t}) + \gamma' \text{NTM}_{sj,t} + \beta' Z_{ij} + \alpha_{si} + \alpha_j + \alpha_t + \epsilon_{sij,t}$$

In this formula, tar represents tariff used by country whereas j represents imports of good. S represents goods, and j represents particular country. NTM introduces NTM implementation-regarded signs, z is the common set of mutual gravity variables and the variables regard to fixed impacts sector exporting country particular, importer particular and time specific. The other figures in the formula are statistical terms used for calculation. The NTM set can decrease to the normal dichotomic sign of the presence of an NTM, feasibly seizing its trade cost impact. On the other hand, it can also comprise variables permitting for the recognition and calculation of the demand-increasing influence discussed above. In Xiong and Beghin (2011) a variable measuring the discrepancy in acerbity between the SPS measure introduced locally and that introduced in the terminus country is anticipated to hold the demand-increasing impact. The other variable getting the strictest SPS measure as citation is anticipated to hold the trade cost impact.

## ***2.4 Cost–Benefit Analysis***

Since NTMs don't for the most part understand the economical incapability which are connected with traditional trade limitations, it isn't generally the situation that trade limitations of regulations are unfit, or that rejection of related non-tariff measures that impact trade can pick up viability getting that could outperform the misfortunes identifying with more fragile guideline. As a result of this explanation, specific NTMs are generally examined in cost-benefit structure. A case of cost-benefit structure acquainted with NTMs is presented. The essential advantage of such a methodology is, that the amount of expenses and advantages for all the different practical entertainers like neighborhood purchasers, nearby and global makers, and nearby government which are included licenses for a more modified proof-based utilization of specific NTMs. This relative way to deal with NTMs licenses for the acknowledgment of various approaches to tackle specific administrative issues. (Scollay and Gilbert, 2001) The cost-benefit analysis is for the most part used exclusively specifically contextual investigations of NTMs of explicit need where far reaching data could be picked up. As far as training, the traditional cost-benefit analysis structure develops the investigation to envelope not just one expense or advantage respected to the presence of the NTMs, yet additionally those respected with not owning the measure set up. In the end, this procedure has commitment to a more comprehensive government assistance examination of NTMs than that recommended by breaking down exchange impacts alone. In the money saving advantage structure, the expenses of the measures are for the most part embedded because of the readiness to pay strategies. That is the worth that customers and makers credit to pulling back the measure. For example, the worth which purchasers provide for abstain from an undesirable item highlight is a primary variable in the evaluation of money saving advantage. Clearly, the soundness of the examination of money saving advantage depends on the accuracy to which the readiness to pay is determined. This can be fundamentally tricky to ascertain. There are various techniques used to figure ability to pay. Unplanned assessment strategies incorporate straightly questioning individuals about their readiness to pay to get a difficult to reach great. Decision explores associatively manage the ability to pay by means of econometric computation depended on decisions models. Investigational financial matters use duplication and oversee gatherings to uncover the eagerness to pay of individuals.

## **3. Conclusion**

The predominance of technical regulations in the circle of NTMs has risen essentially more than twenty years, and the pattern isn't foreseen to return. Technical regulations can have direct effect on the two exporters' and importing consumers' conduct with conflicted last effects in contrast with increasingly typical NTMs like standards. At the point when we make a hypothetical investigation, even in constrained balance condition, we uncover that specialized measures can impact exchange size and the propensity to exchange either heading. Truth be told, a compacted standard of public regulation empowers exchange if its interest expanding sway controls its trade-cost impact; it obstructs trade if its interest expanding sway decreases short of the trade-cost sway. The systematic uncertainty of the impact of specialized measures on overall exchange calls for higher careful observational evaluation and acknowledgment of the exchange effects of these measures, an obligation we follow right now. The refreshed assessment, despite the fact that not complete of present experimental works, has unveiled a various image of determined impacts. Different TBTs and SPS measures are started to make different trade impacts for different exporters and different enterprises. TBTs and SPSs make trade boundaries terms of testing, investigation, and

accreditation. The best method to deal with it is to maintain a strategic distance from expansive speculation in the procedures referenced previously. The distinctions in examinations can be contemplated by contrasts in information cases, fundamentally contrasts in industry, nation, and conglomeration level. Contrasts in determined trade effects can likewise be offered ascend to different states of specialized estimates intermediaries, model recognizable proof, and other strategy contrasts. The most refreshed experimental works depended on a refined hypothesis basic gravity conditions and econometric computation systems have tackled refreshed issues like cure of zero exchange streams. This advancement in exact methodologies presents an unequivocal improvement despite the fact that they are limited to nation division and measure-explicit examination.

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## The role of education in times of crisis: A critical analysis of the India region in 2020

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### **Abstract**

*The spread of the Covid-19 pandemic has seriously affected all facets of human life , including education. In many educational institutions around the planet, campuses are closed, and teaching-studying has moved online. Higher education's response to the COVID-19 pandemic rests largely on its management leaders, whose varying responses to the crisis will make an impression on their institutions and most importantly on student life for years to come. In India, about 32 crore learners stopped moving schools / colleges and all educational activities came to a halt. Despite all these difficulties, many of the Higher Education Institutions ( HEIs) have responded positively and have managed to ensure continuity of tutoring-learning, study and social service with certain resources and techniques during the pandemic. This paper critically analyses on role played by HEI's to respond to crisis and its impact in India. Some of the steps taken by the Indian HEIs and educational authorities and their effect during and after the crisis are addressed. Some effective suggestions are also indicated to carry out educational activities during the pandemic situation. We advocate the significance of education as a means of transforming social, economic, and cultural reality.*

**Keywords** - higher education, crisis, impact, India, post Covid-19, pandemic

**JEL Classification:** I 230, I 210, I 250

## 1 Introduction

The new coronavirus disease first identified in Wuhan , China, was referred to as coronavirus disease in 2019 (COVID-19) – ‘CO’ stands for corona, ‘VI’ for virus, and ‘D’ for disease (UNICEF, 2020). On March 11, 2020 World Health Organisation (WHO) declared Covid-19 as a pandemic. Covid-19 has affected more than 4.9 million peoples worldwide (World Health Organization, 2020). In India, the first affected case of Covid-19 was reported in the state of Kerala on 30 January 2020 and the affected individual had travel history from Wuhan , China. (Wikipedia, 2020). A disease everyone who lived in 21<sup>st</sup> century will ever forget about. has quickly spread to various countries, with many cases having been reported worldwide. As of November 8th, 2020, in India, 8,513,011 positive cases have been reported (Worldometers, 2020; World Health Organization, 2020). In a country like India, with a population of more than 1.36 billion (World Bank, 2019), the world's second largest population, has had trouble restricting the transmission of Covid-19 among its population.

On 19 March, the University Grants Commission ordered universities to postpone the examinations until 31 March (UGC, 2020). Even if the closure of the Higher Education Institute (HEI) is temporary, it carries high socio - economic costs. The disruptions they create affect people across cultures, but their effect is more serious for vulnerable students and their families, including disrupted learning, reduced remote access to learning services , health issues and consequent economic costs for families unable to work. (UNESCO, 2020). The lockdown has forced all educational institutions to cancel their lectures, exams and internships and adopt online learning methods. People in rural areas are still very limited of technology and thus impede the cause of online education (Kumar, 2020). Initially, there was a dispute between teachers and students about how to deal with the situation. Yet somehow the lockdown has taught so many lessons to manage the crisis.

This paper starts a dialogue to analyse the India's initial wave of university responses. In order to answer the first of our research questions, we undertake this analysis: How do government/colleges/universities respond to COVID-19? We continue to answer this in our discussion to include some preliminary forms of current and upcoming college/university responses.

## 2 Objectives

The study is focused on following objectives

- Understand the Covid-19 impact on higher education.
- What were the key challenges? Faced by various stakeholders.
- How have various stakeholders responded to those challenges.

### 3 Data and Method

The paper adopts a desktop learning approach with careful consideration of the reliability of the resource information. To bring about an accurate and comprehensive update of the status of universities within India, it is important that we aim to use credible sources, given the general fluctuation of information on COVID-19. For transparency, we used 30 sources. Emphasis was

imposed on the use of direct university and government sources, complemented by newspapers, higher education news outlets and other communication methods.

To assure that we reviewed across India, we attempted to achieve a rough equality of all States across the India's four regions. There are several states that we deemed to have the same or similar strategies to the current sample. Our aim was to analyse at least two states from each region, with a stronger focus on states that have different strategies than others. The goal of this stratification was to improve our online strategy. We also attempted to balance states with high cases and those whose cases are just negligible.

### 4 Result and Discussion

Crisis like pandemic Covid-19 create long term and severe disruptions across the world. And whether economic, social, or pandemic education system is most vulnerable and unavoidable sector facing the impact of crisis. Some of the key areas of higher education system got impacted are as below.

#### *Halted all educational activities*

Various events such as admissions, examinations, entrance exams, competitive exams by various boards, schools, colleges, and universities are deferred. Most entrance exams for higher education have been revoked, which has created a huge obstacle in the life of an aspiring higher education student (NewIndianExpress, 2020). The Maharashtra government announced on 16 March that it would postpone all university exams (MumbaiMirror, 2020). The University of Pondicherry declared on 17 March that it would terminate all academic activities (Times of India, 2020), followed by the University Grants Commission directing all universities on 19 March to postpone the exams until the end of March (UGC, 2020). The University of Hyderabad declared on 20 March that it would delay all academic activities and close their hostels, followed by the SRM Institute of Science and Technology (TheHindu, 2020).

No universities could be identified as announcing a move to online instruction because of COVID-19 and many are implementing a shutdown or postponement strategy until the end of April (Crawford, 2020). Later The easy response for the institutions was to focus on online learning. Fortunately, within a relatively short period of time, HEIs have been able to provide assistance to students via online modes. With the benefit of numerous e-conferencing tools such as Zoom, Google Meet, Microsoft Teams, YouTube Live, Facebook Live, WebEx etc., HEIs began conducting training sessions, induction events and counselling sessions to provide student support and services. This uncertainty has created anxiety among students as they are stuck in the same grade/class without promotion (The Economic Times, 2020). Many Universities have

promoted students of mid years to next semester, but uncertainty stays for final year students of the courses. Similarly, many students who had appeared final/board examinations would suffer a lot as by the time they get their certificates, it might be too late for them to apply for the forthcoming academic year in other countries due to lockdown. Also most of prestigious institutes had closed their admissions where victims were students from states/universities having slow responses to disruption caused by pandemic.

### ***Economic impact***

One of the biggest concerns for the sector at large is the percentage of domestic migrant students that make up the India's higher education markets. In case of 45000 plus foreign students who make up major part of International Universities in India (Department of Higher Education, MHRD, Government of India, 2018), those admissions will be severely affected as international travel restriction continues as of October 2020. Although travel restrictions to and from other countries have been helpful in slowing the spread of the disease, they have also left international students stranded (Times of India, 2020). Although this may be a small fraction of the overall student population, the question remains: how long will this last? If the restrictions remain in effect, even the domestic higher education system will carry the burden of the economic downturn. In addition, some students are likely to face difficulties in paying fees to schools, colleges and other educational institutions. Many parents and caregivers are facing problems during the lockdown owing to unemployment or lack of work (India Today, 2020).

Moreover, the pandemic have provided an opportunity to EdTech platforms to strengthen their learning management system. There is high demand for EdTech platforms. For instance, the Upgrad in collaboration with Mumbai University now offers degree programmes online with the University Grants Commission's new regulation (Upgrad, 2020) (Hindustan Times, 2020). India's higher education regulator has permitted universities to give lectures that are recorded or delivered through video - conferencing and presented in an online discussion forum. E-learning material can be used instead of textbooks and with Upgrad, including a mechanism for self-assessment (Upgrad, 2020).

### ***Reduced employment opportunities***

Most of the recruiting and placement of employees has been delayed as businesses stall the onboarding of new employees. As a result, unemployment has risen. The Centre for Indian Economic Monitoring estimates of unemployment rose from 8.4 per cent in mid-March to 23 per cent in early April and urban unemployment rose to 30.9 per cent (LiveMint, 2020). Numerous Indians returned home after losing their jobs abroad due to COVID-19. Moreover, many students who received offer letters are not able to join the company due to lockdown. According to the report by Quacquarelli Symonds (QS), which presents the coveted global ranking of educational institutions, the decision of more than 48 per cent of Indian students wishing to study abroad was affected by the COVID-19 pandemic (India Today, 2020). In this change, experts at QS have pointed out that the significantly lower return on investment in an already expensive worldwide higher education sector, coupled with further reduced possibilities of employability in the post-

COVID-19 world, plays a key role.

### ***Unequal access to technology and educational resources***

The pandemic has accelerated demand for digital education and encouraged students and teachers to learn and work together and gather knowledge. Furthermore, students can easily connect with teachers around the world through online meeting and teleconferencing. Students can also attend webinars and seminars taking place around the world and gain knowledge from scholars and experts from different fields. It has also increased the digital literacy rate. Students

can now take as many online courses as they want. In addition, professors around the world have the capability to connect with each other. EdTech platforms have created a range of opportunities for students to learn various courses and prepare for higher education and competitive exams. The sharing of learning materials with the help of various apps and social media has also become very simple.

However, there are several students who are unable to access the internet or cannot afford computers. This lockdown has severely impacted low- and mid-income groups who may does not have sufficient or easy access to internet and e-learning. This may create a gap between rich and poor students. Digital learning is highly dependent on Internet and electricity which is still a problem for some of the tier 2 and tier 3 cities. Many students live in rural areas, so connectivity remains the issue. Interrupted learning during the pandemic will be an issue for many students who stay in rural areas. The teachers were unprepared of this situation and were not in a position to conduct the classes online as many teachers were not trained digitally. The study shows that students have e-readiness with digital devices (99 per cent) and financial support (80 per cent), but that there is a shortage of good Internet access, sufficient energy supply and home space. Just 35% of student teachers are found to have digital skills and most feel that online classes lack adequate teacher-student and student-student contact (Mohalik, 2020). Ability to acclimatise to online education is easier for English medium students and teachers due to the ready accessibility of tools or content. In regional languages, which dominate the Indian school education scene, the situation is opposite. Just a handful of Ed-tech companies have vernacular content. There is lot of comfort in learning at home. There are, however, some problems, such as lack of internet access and electricity, which can impede home learning. In addition, social networking sites and messaging apps, such as WhatsApp , Facebook , Instagram, and Snapchat, etc., can serve as distractions while learning from home (Powerhomebiz, 2020).

### ***Socio-Cultural Impact***

When educational institutes shut down, more youth are recruited into militias, sexual exploitation of girls and young women rises, teenage pregnancies become more common (Theleaflet, 2020) , and early marriages increase (WorldBank, 2020),.

Colleges/Universities are hubs of social activity and human interaction. When colleges close, youth miss out of on social contact that is essential to learning and development. 50 per cent youth population subjected to depression, anxiety due to social isolation (Times of India, 2020)

It is a challenge to ensure that young people return and remain in higher education as the

universities re-open following their closure. This is especially the case of extended closures and economic shocks that put pressure on young people to work and generate income for financially distressed families. National Testing Agency (NTA) received a total of 8,58,273 applications for the September edition of the examination compared to 9,21,261 applications for JEE (Main) January (EducationTimes, 2020). Same is the case of applications for IIM CAT 2020, this year CAT 2020 registration lowest since 2016 (The Indian Express, 2020).

### ***Initiatives of Govt. of India on education during Covid-19***

Together with the Union Government, almost all state governments have taken steps to ensure that the academic activities of colleges and universities are not hindered during the lockdown era. The government's digital vision for India is emerging as a critical tool for addressing the current crisis due to Covid-19. It is a fact that technology-based education is more accessible in all respects. Looking at this challenge of shutting down colleges and schools, the Government of India, as well as state governments and private players have taken appropriate initiatives. The Ministry of Human Resources Development (MHRD) has started variety of initiatives, including online portals and educational platforms via Direct to Home TV, Radios for students to continue learning. The MHRD ICT Initiative is a unique platform that incorporates all tools and techniques for online education (MHRD, 2020). The MHRD Modern Higher Education Initiatives during COVID-19 are described as follows:

Swayam is the national online education platform that hosts 1,900 courses covering both school and higher education in all fields. The special attribute is that it is combined with traditional education. Credit allocations for SWAYAM courses (max. 20%) are possible (MHRD, 2020).

Swayam Prabha has 32 DTH TV channels that broadcast educational content on a 24 x 7 basis. These channels are available for watching around the nation using the DD Free Dish Set Top Box and the satellite dish. The schedule of the channels and other information can be found on the portal. The networks cover both school education and higher education (MHRD, 2020).

The e-PG Pathshala is intended for postgraduate students. Postgraduate students can use this portal for e-books, study materials and online courses during this lock-down time. The benefit of this forum is that students can access these services without needing the Internet all day long (MHRD, 2020).

## 5 Conclusion

This study has outlined various impacts of Covid-19 on higher education in India. COVID-19 has impacted immensely to the education sector of India. Though it has created many challenges, various opportunities are also evolved. As we do not know how long the pandemic situation will continue, a gradual move towards the online/virtual education is the demand of the current crisis. UGC and MHRD have launched a range of online libraries, e-books, and other online teaching / learning platforms. India is not adequately prepared to ensure that education reaches all corners of the nation through digital platforms. It is time and time for educational institutions to improve their skills and information technology infrastructure in order to be able to tackle such situations as COVID-19. Faculties can create interactive projects which will allow students to interact with each other and work collaboratively with each other. With the increasing demand for digital learning programs, Faculty development programs are needed in order to increase the quality of education.

Students who are not fortunate as others will struggle as a result of the existing preference of digital channels. But universities and the Government of India are relentlessly trying to find a solution to this issue. The priority should be to use digital technologies to establish an advantageous place for millions of young students in India. Combining conventional technology

(radio, TV, landline) with mobile / web technologies to a single platform with all repositories will increase usability and versatility in education. This will include updating the service platform to allow students to meet the required amount of educational requirements. All service providers must also be empowered to ensure proper access to educational communication channels for disadvantaged population groups. Additionally, Government of India needs to provide rural areas with proper internet and electricity facilities, as well as proper infrastructure for low-and middle-income families, to help students continue their education during the pandemic.

The concept of “work from home” has greater relevance in such pandemic situation to reduce spread of COVID-19. India should develop creative strategies to ensure that all students must have sustainable access to learning during pandemic COVID-19. Virtual education is the most favoured method of education at this period of crisis due to the outbreak of Covid-19. As online training benefits students tremendously, it should be continued after the lockdown. This paper did not cover any statistical study of the effect of Covid-19 on higher education, but more in-depth studies with statistical research can also be conducted.

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## **Online Appearances of Rural Tourism Destinations Amid Pandemic Comparative Case Studies: Hollókő (Hungary) and Tinalah (Indonesia)**

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### *Abstract:*

*During the Covid-19 pandemic, many rural tourism destinations were closed. Optimism that the virus can be contained or partly by 2021 is making many tourist destinations around the world prepare to grab visitors. This study aims to determine the online appearance of tourist village in Hollókő (Hungary) and the tourist village of Tinalah (Indonesia). The method used is to audit the website and contents of each destination on the Google search engine. This research also audit the activities and social media content of its two destinations. From the data collected, it will be known how far the destination looks on the web and the possibility of improvement in the future. Result also shown that there are different characteristic between two villages regarding the business related to them.*

*Keywords: Tourism, Covid-19, rural tourism, online audit*

### **1. Introduction**

The tourism business is not new business anymore for rural communities. Almost all over the world who use tourism as one of their income have made villages as tourist destinations. Their ability to manage the village to become one of the tourism business entities is no longer in doubt regardless of the scale of the business achieved. Therefore, before the Covid-19 pandemic hit the world and made travel almost drop to zero visit, rural destination managed by villagers were one of the main destinations for vacation. Rural tourism areas as manmade destination, is a form of life order which hold spatial physical components as spatial and non-physical activities elements which has values of the accumulation of community activities as well (Vitasurya 2016). In general, activities related to tourism are carried out by rural communities is utilizing the various resources they have by individually or communally. Almost all countries in the world are trying to control the transmission of Covid-19 and tourism take a role in this issue. The first regions to hurt by the impact of COVID-19 are Asia and the Pacific. In the early half of 2020 its arrivals decreased by 72%. Europe got a 66% decrease, Americas was hit -55%, The Middle East and Africa got 57% decline (UNWTO 2020). Hungary and Indonesia are in no exception. Pessimism and optimism from many sides colour the handling of this pandemic. Some believe that by 2021 it will be contained or partly contained. This optimism appears from several countries that are starting to open their border

entrances for tourists. The chief of the WTFI or World Tourism Forum Institute whereas UK-based, BulutBagci believes the normalize of the globe after May 2021 and then the tourism industry gradually will be normal again by 2024(Ergöçün 2020). BIT International Travel Exhibition organised by Fiera Milano and scheduled to run from 7 to 9 February 2021 at Fieramilanocity thus starts the countdown to its next edition, positioning itself as a platform for discussion, so important for the sector during this delicate phase. A vehicle with which to recount and promote tourism during the post COVID-19 period, the exhibition considers the values that make up the offer as the world continues to seek its "new normality"(Karantzavelou 2020).After substantial progress in curbing the spread of the virus, Dubai recently announced its reopening to foreign visitors on 7 July. Crown Prince of Dubai His Highness Sheik Hamdan bin Mohammed bin Rashid Al Maktoum visited Dubai Airport and examined precautionary protocols and preparations to welcome tourists(Forum 2020).Furthermore,for 2021-2024 the extended schema shows a strong bounce in 2021 this is based on the hopes of reversing the evolution of the Covid-19, a significant increase in tourist confidence and the massive lifting of restriction in traveling by mid-year. Nonetheless, international arrivals will take 2½ to 4 years to return to 2019(UNWTO 2020).Iva Bahunek, the head of the Croatian Tourist Board in Los Angeles has not had the easiest of tasks since the pandemic began. Her appointment is a relatively recent one. Nevertheless, she has clearly done an excellent job of promoting Croatia as a destination for American tourists in 2021. She confirmed the trends are correct(Rowlands 2020). Iva Bahunek's answer implicitly stated that they would open the borders next year.Hungarian government's coordinated actions re-launched the 2020 domestic tourist season in May, the Hungarian Tourist Agency/ MTÜ reported, , and data shown the turnover may exceed in prior years. supported by HUF 300 million financial plan, MTÜ reached out to bolster rural tour guides for special schemes to pleasure domestic visitors in the next months - and keep them hired (Abouthungary.hu 2020).Deputy for Marketing of the Indonesian Ministry of Tourism and Creative Economy / Baparekraf, NiaNiscaya, in her statement, said that almost all tourist destinations in Indonesia have implemented health protocols. However, there needs to be cooperation with related stakeholders to publish the implementation of health protocols in these destinations. This needs to be done so that tourists know which tourist destinations have implemented health protocols well. This become hopes that this activity can increase interest and the trust of domestic and foreign tourists to revisit tourist destinations in Indonesia(Kemenparekraf 2020).In a press conference, Bali Governor WayanKoster announced that Bali would not be able to welcome foreign tourists until the end of the year. "The situation in Indonesia is not conducive to allowing international tourists to visit the country, including Bali," Koster said in a statement, according to Reuters. In contrast, for the remainder of 2020, Bali will focus on safe domestic tourism growth. According to Travel and Leisure, in addition, Australian tourists are also prohibited from traveling by the government, until 2021 (Cahyana 2020).Implicitly, in 2021 Bali will reopen for foreign tourist visit. Based on these facts, it cannot be denied that the optimism for the revival of the world of tourism in 2021 is making sense. Tourist destinations around the globe are certainly getting ready to regain the market. The rural tourism destinations are in no exception. Speaking nowadays strategy, marketing through online media has become part of act in introducing their products to potential visitors. This study seeks to see the online output made by the village of Hollókő in Hungary and the

village of Tinalah in Indonesia through Google search engine. The research was conducted using Google search audit of its online businesses carried out by the stake holders of each village.

### ***1.1 Literature Review***

Rural tourism proposes a potential solutions to some of the matter connected with opportunities which lose economic and the weaken in population that accompanies waning agriculture(Dashper 2014). Most of the tourist villages make activities in the natural landscape as part of the attraction. Euphoria occurs in the village community in response to the massive of tourism activities and the potential of nature that is considered to be developed as a tourist destination (Priatmoko 2018). Therefore, rural tourism enterprises integrated with many rurally characterised attractions and resources (Aslam and Awang 2015). The act of locality and immersed cultural proportions that should to be taken into account in administration and / or society initiatives to make sustainable cooperative outcomes and increase economic opportunities via rural tourism (Deuchar 2012). Basically, the existence of a rural tourism is one of the tourism activities based on the local community or Community Base Tourism/ CBT (Priatmoko 2017b).

The character of rural tourism outcomes, often requiring small-scale works and products based on culture or agriculture can be calculate to broad participation. Tourism can bring a variety of other advantages to rural areas as well, i.e. infrastructure development and additional business opportunities(Okech, Haghiri, and George 2012). Then between the village and tourism becomes a vice versa as well. In order to be effective, implementation of every tourism plan as a part of marketing needs to be follow-up and evaluate through mechanisms for continuing feedback. In that sense, they must be evaluated against the triple bottom line, as well as community participation and visitor satisfaction, because otherwise they can easily fail to be implemented, if implementation is not monitored and evaluated (Paunovic and Jovanovic 2017).In relation to the situation of unlimited virtual connections stated by Kotler(Phillip Kotler 2001), the role of the internet will be a main factor. evolving customer journey presents challenges for marketing through internet(Google 2020). This is because the internet offers radically new possibilities for directing business more efficiently (P Kotler and Armstrong 2003). The role of the internet in which there is any media contents are corroborated by Hudson's statement in Priatmoko(Priatmoko 2017b)that the internet moves marketers closer to individual marketing.It is notable for tourism areato expand a additional multi-faceted image of the destination that combines its gaming reputation, distinctive culture and heritage, worldwide festivals and sporting events and underline the importance of view the diversity of image representations of destinations on the website and the managing challenges and conveying desired online destination images(Choi, Lehto, and Morrison 2007). Results showed that the most important criteria are visibility and easiness to find and functionality and the first three criteria that also has the most weight (Soleymaninejad, Shadifar, and Karimi 2016). Effective tourism destination website should integrate the technology and marketing principle (Putra et al. 2018). Determination of the market to anyone would be targeted and communication dissemination of information on the local tourism product range also crucial as stated in MSP+DM analysis by Priatmoko(Priatmoko 2017a). The adaptive processes made possible by digital technology

create advantage in recent ways in the modern digital sphere. Institutions made possible by digital technology build basic capabilities to create that value together for customers and themselves (Kannan and Li 2017). An organization's online presence is not just an simple way to gain among the user goals but it might also be advantageous if the optimization is finished keeping in mind the target users as the cause that almost all the users are spending their time to search using the keywords they use (Jambhale 2019).

## **2. Data and Methods**

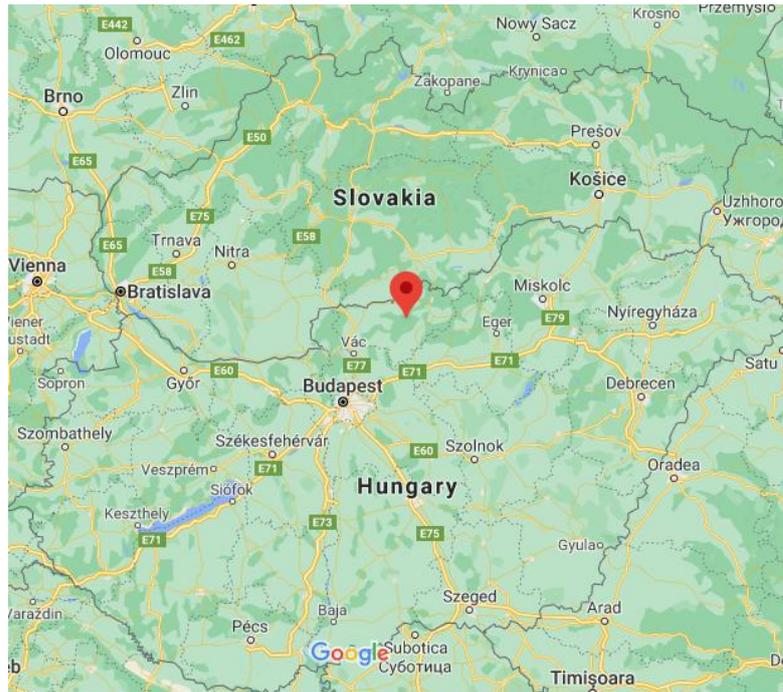
This study monitors online marketing appearances output carried out by two rural tourism destinations, namely Hollókő in Hungary and Tinalah in Indonesia. Researchers use Google search engine as a means of finding information on the existence of these tourist villages. It is important because visits through Google are also shown to be effective (Plaza 2011). Google has to select the top ten sites for certain keywords to appear on the first page. Being at the top of the rankings on Google search engine or others is the trump card which can make you have a lot of organic traffic for free (Iqbal 2015). The browser used to audit the appearance output is Google Chrome Version 86.0.4240.75 (Official Build) (64-bit) for windows. Google search setting: SafeSearch filters off, Number of hits per page 10 pages, Auto-complete with high-end searches, Top searches (including popular ones) in your area, Show popular search. The country region settings for "Hollókő" or Holloko search are Hungary (current location) and for the word "Tinalah" is Indonesia. To reduce recommendation that are possibly triggering bias from Google search engines, we clear all browsing history and cache every time start a new search. Google search audit conducted as Individual or team approach, Systematic review of online content (observation techniques), Focus on visibility when acting as a 'mystery tourist' ideally people who do not know the destination, Focus on performance and linkages to other sites, Focus on content fit with strategic goals (e.g. building the profile of local food, neighbourhoods etc.) and any other social media activities and travel or web application. We use English in our search mode for information about the tourist village. The data found is then displayed systematically. Various phenomena related to each of village online activities are not presented to look for the best. Otherwise, it is only to understand a phenomenon that occurs in a different place amid pandemic situation so that the benefits of tourism development may be taken.

## **3. Results and Discussion**

### ***3.1 Hollókő (Hungary) rural tourism destination***

According description of CC-BY-SA IGO 3.0 license provided, Hollókő is an excellent example of a traditional settlement that was deliberately preserved. The village, which flourished especially during the 17th and 18th centuries, is an example of rural life before the revolution of agricultural in the 20th century. The property is a protected monument below Act LXIV of 2001 on the Protection of cultural heritage (whc.unesco.org). Hollókő 's location can be seen on the map below.

**Figure 1: Hollókő location in Hungary (red dot mark)**



Source: Google map ©2009

The search was carried out with the keywords Hollókő and Holloko, the result was showed the same as well. Furthermore the search results on the Google search engine can be displayed in table 1 below.

**Table 1:Google Page One Result for Hollókő**

Ran k	Word(s)	Link destination	Description
1	Ravenstone - Ravenstone	<a href="https://www.Hollókő.hu/">https://www.Hollókő.hu/</a>	Hollókő Municipality Official website
2	Ravenstone - Wikipedia	<a href="https://hu.wikipedia.org/wiki/Hollókő">https://hu.wikipedia.org/wiki/Hollókő</a>	Wikipedia online encyclopedia
3	Hollókő attractions - 10 offers with reviews	<a href="https://szallas.hu/programok/Hollókő">https://szallas.hu/programok/Hollókő</a>	Online Travel Agency
4	Castellum Hotel Hollókő	<a href="https://hotelHollókő.hu/">https://hotelHollókő.hu/</a>	Hotel Business
5	Hollókő »Excursion Tips	<a href="https://kirandulastippek.hu/palocfold/Hollókő">https://kirandulastippek.hu/palocfold/Hollókő</a>	website related to travel activities
6	Sights in Hollókő - Palócút	<a href="http://www.palocut.hu/hu/Hollókő_latnivalok">http://www.palocut.hu/hu/Hollókő_latnivalok</a>	Palóc Route Cultural Tourism Cluster Association
7	Barn Garden - Hollókő	<a href="http://www.Hollókőtourism.hu/">http://www.Hollókőtourism.hu/</a>	the page under construction

8	Hollókő - funiQ	<a href="https://www.bnpi.hu/hu/reszletek/Hollókő-ofalu">https://www.bnpi.hu/hu/reszletek/Hollókő-ofalu</a>	National Park & old village preservation
9	Hollókőófalú - Details - Bükk National Park Directorate	<a href="https://funiq.hu/1719-hollókő">https://funiq.hu/1719-hollókő</a>	tourism digital map & service

Source: own editing, 2020

While in the search in the form of images that appear are shown in graph 2 below.

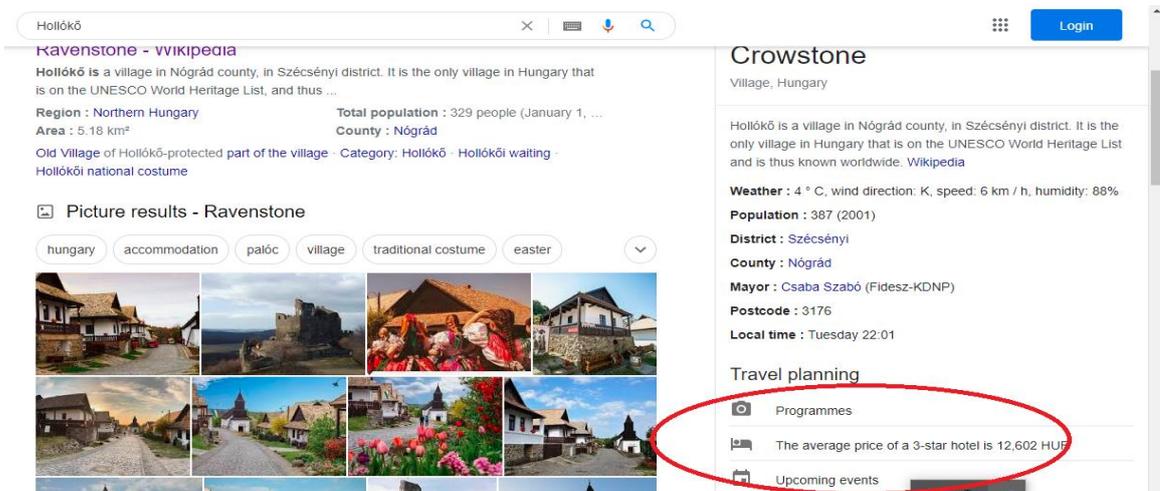
**Figure 2: Google Image Page One Result for Hollókő**



Source: Google, 2020

Another thing that was found on the first page of Google search was the emersion of other recommendations from Google. They are tourism business activities related to Hollókő rural tourism destination. These business activities are Program activities, Accommodations, and Upcoming events which all linked directly related to tourism in Hollókő. It is shown in red circle at graphic 3 below.

**Figure 3: Related Business in Hollókő**



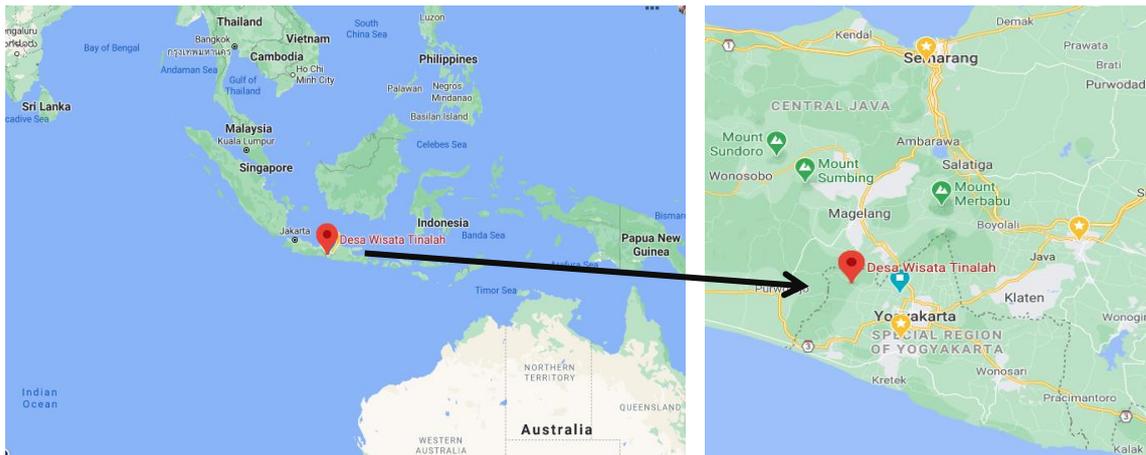
Source: Google, 2020, edited

On the Google's recommendation of accommodation which offers visitors are directed to the reservation website for some star hotels (120 hotels) around Hollókő.

### 3.2 Tinalah (Indonesia) rural tourism destination

The Tinalah tourism village, also known by the acronym "Dewi Tinalah", is located in Kulon Progo Regency, Yogyakarta Special Region, Indonesia. Its location at the foot of the hill and close to the river makes it as a tourist destination for camping ground. Tinalah location can be seen in the picture 4 and 5 below.

**Figure 4&5: Tinalah location in Indonesia (red dot mark)**



Source: Google map ©2000, edited

Furthermore, from a search on Google Search the results on the first page can be seen in table 2 below.

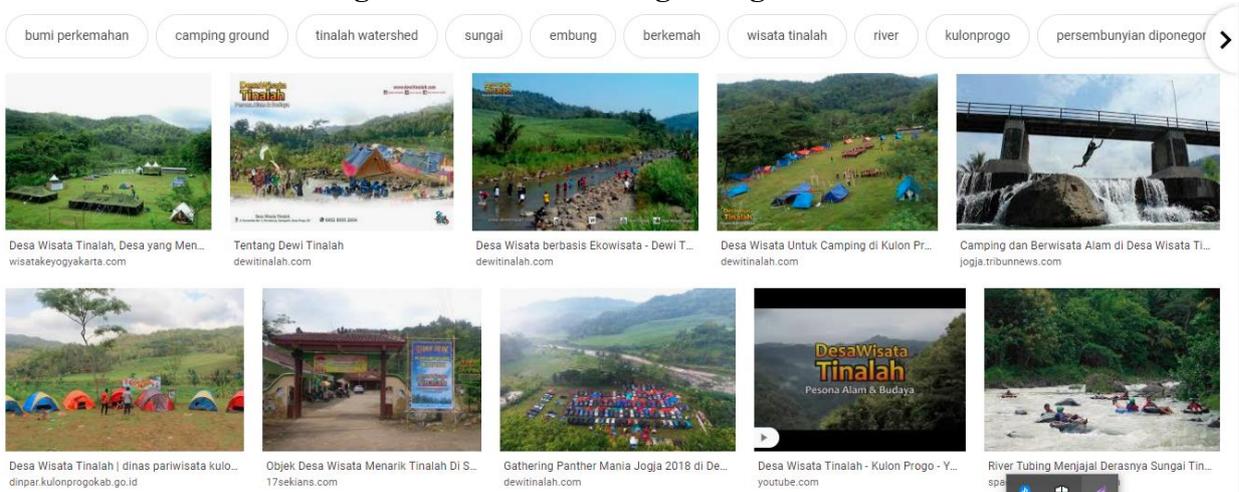
**Table 2: Google Page One Result for Tinalah**

Ran k	Word(s)	Link destination	Description and refer to
1	Tinalah Tourism Village	<a href="https://www.dewitinalah.com/">https://www.dewitinalah.com/</a>	official website of Tinalah
2	Kali Tinalah - Indonesian Wikipedia, the free encyclopedia	<a href="https://id.wikipedia.org/wiki/Kali_Tinalah">https://id.wikipedia.org/wiki/Kali_Tinalah</a>	Wikipedia online encyclopedia refer to a river name (not the site!)
3	Tinalah Tourism Village, A Village That Keeps Historical Traces ...	<a href="http://www.wisatakeyogyakarta.com">http://www.wisatakeyogyakarta.com</a>	local tour operator
4	Camping, Tubing and Outbound Tourism in Tinalah	<a href="https://wisata.harianjogja.com">https://wisata.harianjogja.com</a>	local news portal
5	Camping and Nature Tourism in Tinalah Tourism Village,	<a href="https://jogja.tribunnews.com">https://jogja.tribunnews.com</a>	local news portal
6	Dewi Tinalah Offers Camping, Tubing, Outbound	<a href="https://traveling.bisnis.com">https://traveling.bisnis.com</a>	national news portal
7	Tinalah Tourism Village (Kulon Progo, Indonesia) - Review	<a href="https://www.tripadvisor.co.id">https://www.tripadvisor.co.id</a>	Online Travel Agency
8	Panorama of Tinalah Tourist Village Objects in Samigaluh Kulon	<a href="https://ihategreenjello.com">https://ihategreenjello.com</a>	general tourism website

Source: own editing, 2020

Meanwhile on the search in the images form its appearance are shown on graph 6 below.

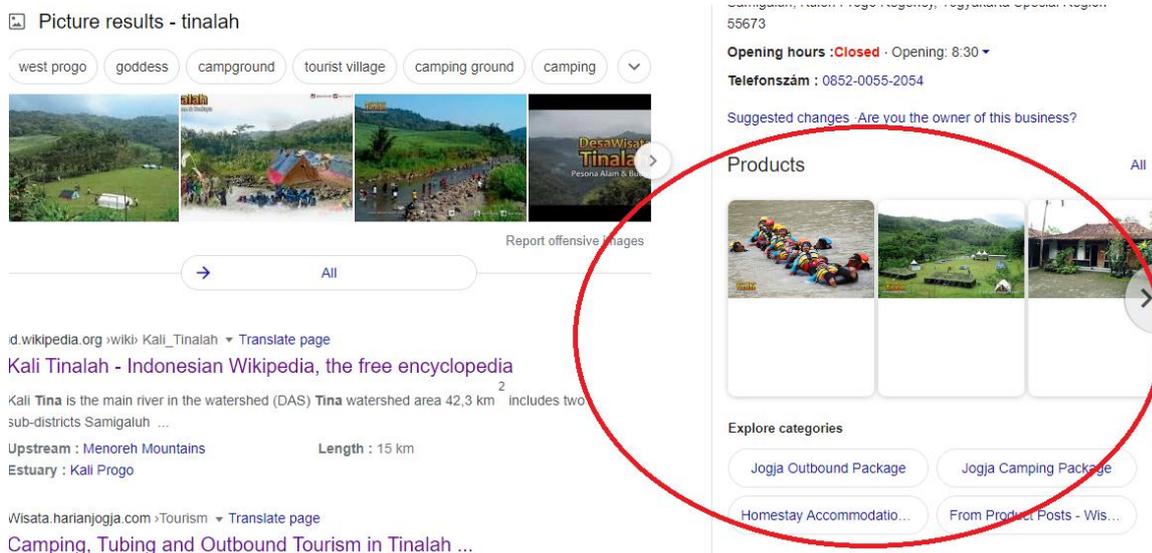
**Figure 6: Tinalah's GoogleImage Result**



Source: Google, 2020

On the first page of Google search, recommendations from Google regarding tourism business activities related to Tinalah, several activities appear. For accommodation recommendations shown are homestays owned by residents in Tinalah village, not star hotels. In paid activities, the whole shown is tourism activities managed by the tourism village organization. This can be seen in Figure 7 below.

**Figure 7: Related Business in Tinalah**



Source: Google, 2020, edited

From the findings on the two Google search appearances of the two tourist villages above, we can see some differences in the characteristics of the conditions of each destination. Each destination has a different positioning strategy to impress potential visitors. The content that is disseminated by the tourism village manager and amplified by other parties reflects their

appearances and characteristics. Hollókő brings a strong impression of the unique architecture of the building and the way of life of the villagers, while Tinalah describes itself as a dominant natural tourist spot and camping ground. Tinalah tourist village stakeholders work hard to sell their products in the form of outdoor activities, while Hollókő is helped by businesses managed by other parties i.e. stars hotels in a mutually beneficial relationship. Otherwise, Tinalah is helped by mass media coverage news, both local and national levels as well.

#### 4. Conclusion

In conditions of slowing down the movement of travellers due to the Covid-19 pandemic, stakeholders can prepare better to resurrect. Preparation and dissemination of internet content related to attractions in tourist villages will affect their appearance on the first page of Google. Its which is usually the important reference for potential visitors. Regardless of the content strategy for optimizing Google's display, what is captured on the first page of the Google search engine shows anyone a related tourism village business. It should also be noted that Hollókő turns out to be associated with various third-party business interests nexus to them, while Tinalah is related to news in the mass media. It is possibly the mass media is still considered important for the existence of this destination to gain better destination image. In further research, it is also necessary to know the valuation of each tourism village on the tourism activities surrounding which carry out on various parties. The goal is to know the distribution of local economic benefits and third parties business. Furthermore it can carriage for the rural tourism existence to gain a more equitable distribution of economic benefits

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## Analyzing the business strategy for pandemic situation: Extensive literature review and research direction

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### **Abstract**

*Every period resembles to encounter painful disruptions of normalcy, but the consequences of the COVID-19 pandemic on business were unprecedented. The ground practices shifted alike never before, some organizations failed, and several struggled to survive. Regrettably, scholarly research was not sufficiently able to offer organizations a full illustration of insights regarding how to deal with such a pandemic situation. Organizations wish to predict the future possibilities of their organization. The conceptualization of the strategic management may strengthen the wish of an organization to understand the future possibilities of their organizational strategic intent and implement the strategy in the way to achieve the highest success. The present study aims to develop a platform where organizations ready themselves for unavoidable circumstances such as the present pandemic situation. The Covid 19 enormously affects all the organization direct or indirectly. The global economy affected by the Covid19 pandemic situation. The COVID19 taught the various business units to understand the importance of digitalization. The digitalization may include digital customer engagement, digitalization of customer services, digitalization for brand building and at many other counterparts. Nevertheless, few organizations demonstrate their ability in regards to not only sustain their business but to grow in such conditions as well. To understand the strategic approach of such an organization is the core objective of this study—the systematic approach of the literature review analysis incorporated to achieve the objectives of the present research. The present study will provide a significant finding to the formulation of business strategy in the pandemic situation. Also, the present research will demonstrate the foundation for the future research direction in the view of the pandemic situation.*

**Keywords:** *Business, Business Strategy, digitalization, pandemic situation, literature review analysis*

**JEL Classification:** *L10, M10, M20, Z31*

### **1. Introduction**

The strategy is present as the plan of action to achieve the goal of the organisation, but the pandemic of Covid-19 change the scenario of thinking towards the strategic business perspective. The pandemic taught and still teaching many lessons to the corporate world. Firstly it shows that how important is the digitalisation in today's business environment. Secondly needs to ready for an unprecedented environmental factor which may directly or indirectly influence any business. Its need to understand why, how and at what level the Covid-19 affects the business world Amankwah-Amoah, Khan and Wood, 2020).

Also need to know how the business world can come out a form such environment. Today we are faced with emergency preparedness and the active response of individuals, governments as well as businesses at all levels to act quickly in anticipating the impact of Covid-19 pandemic on the economy as a whole. It starts with the earliest affected tourism sector where many tourists cancel the trips because some destinations had been closed by the local government. Then it was certainty followed by the transportation sector including land, sea, and air transportation which experienced a significant reduction in passengers, especially with the implementation of Work from Home (WFH) for employees in several private and government companies. SMEs will also be the most affected since they rely on supply chains that are now almost stopped, increases in raw materials and readiness to face changes in the way they do the transaction. When we talk of the strategy, the three things are key in firstly the formulation, implementation and evaluation of the strategy for particularly pandemic situations like Covid-19. For such pandemic situations, the organisations need to change their approach towards the forward and backward integration prospective. The organisation need to thought about how they can reduce the gap between the organisation and their customer with the help of forwarding integration while also need to ascertain that to reduce the gap between the vendor and organisation with the use of backwards integration. Considering today's fact about the Covid-19, the formulation of strategy is not easy the way it looks (Al-Mansour, and Al-Ajmi, 2020; Tawse and Tabesh, 2020).

The present study using the literature review analysis approach to understand the best business strategy for the pandemic situation. There are various studies available about the business strategy for the pandemic situation. The present study also focused on the four types of strategies, including product strategy, price strategy, distribution strategy and promotion strategy of the organisation during this pandemic.

## 2. Theory

When we think about the strategy, it is generally discussed the action taken by the entrepreneur, industrialist, and business unit to achieve their strategic intent which includes vision, mission aims and objective of the organisation. The use of the digital platform is immensely increased not only due to the unprecedented time that is the Covid19 situation but also its effect by the technological up-gradation in customers approach. Now today's consumers are well aware of the information they can get it from various sources, including digital platforms such as web search, various online store and various purchase app (Budd and Adrienne, 2020). Today's customers are technologically very sound as they know that before purchasing something what kind of information they need to evaluate their pre-purchase approach and which will definitely ensure they are getting the right product at the right price with the right time. It is not the world dealing with such situations first time, but the effect of the present situation is badly influencing the world economy as a whole. Many business units face unpredictable challenges suggest scarcity in the raw material, customers' behaviour approach and the customer attitude of perception towards the small business (street shops).

Covid-19 taught us the different approach of business and their strategies as well (Hall et al., 2020). Prior to the covid-19, the business units majorly talks about the consumer purchase experience and generally this kind of experience considered as live purchase experience from the customer site. But now the scenario is completely changed as customer expecting to avoid store visit, to experience the demo of the product and many other aspects of the live purchase experience. Instead of this customer expecting the digital delivery approach, the digital consumer purchase experience and so on. Following are the strategies which can incorporate the organisation during the pandemic situation.

### ***Stability:***

The stability strategies are useful when the organisation thinks that they need to maintain the current position on the market rather than changing their approaches, such as expansion or growth. There are various reasons when business unit feels that to maintain the current position is crucial as compare to another strategic approach. The reasons may be the decreasing in demand, increasing churn rate, technological upgrading in the market or negative customer perception (Wheelen et al., 2017). The stability strategies may be to stick with the present approach that no change in the strategy where the business unit feels that keep the all thing as it as it is doing well for them. Another way is to profit strategy where business unit aims to earn profit by scarifying some share of the organisation. The Proceed with Caution Strategy might be the other options for the business unit as a business unit may decide to wait and take the necessary change in the strategy if required, but all this change made cautiously (Hatten and Hatten, 1987; Kabanoff and Brown, 2008; Pellegrin-Boucher and Gurău, 2013).

### ***Retrenchment:***

Retrenchment considers as the most significant strategy when the business unit finds themself in a situation where they acquire a stable position in the market. With the use of Retrenchment strategy the business unit always seeks to reduce their one or more operations in the views that they will reduce the financial burden of the business unit (Barbero, Martínez and Moreno, 2018). Sometime in the Retrenchment the business units restructure their business operation or discontinued the aim to revitalise their financial positions. There are various strategies under the Retrenchment such as turnaround, divestment, liquidation and outsourcing. In turnaround strategy, business unit backing out, withdrawing or retreating from their decision that might be not appropriately received the success in the market. The divestment is also the possible way of Retrenchment with this the business unit liquidate the portion of business or major division of the business unit. The liquidation strategy is simply to close down the entire business unit by selling the firm with its entire assets. In outsourcing, the business unit takes the decision to outsource the things which are causing a huge financial burden on the organisation. Outsourcing is not always feasible as it affects the coordination between the business units immensely. There is various factors need to analysed before implementation of outsourcing strategies such as cost to the business unit for outsourcing, rapidly changing business needs, organisational culture and organisational structure (DeDee and Vorhies, 1998; Morrow, Johnson and Busenitz, 2004; Wenzel et al., 2020; Albers and Rundshagen, 2020).

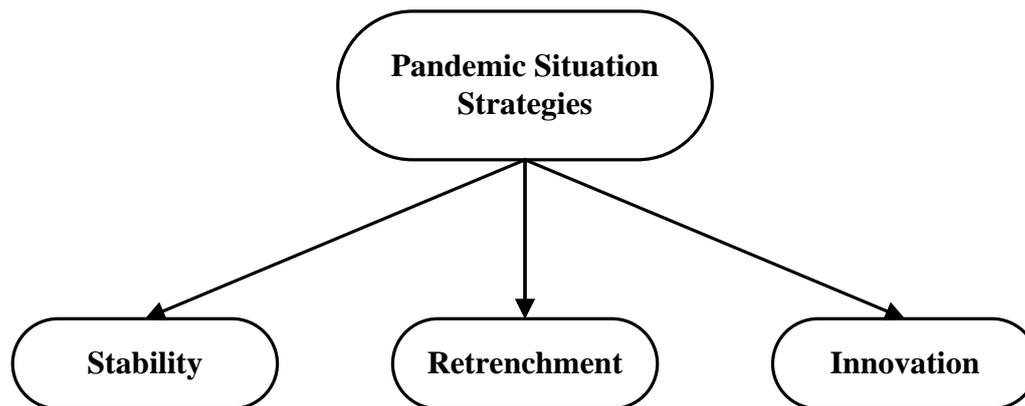
### ***Innovation:***

Research and Development strategy deals with product and process innovation and enhancement. It also deals with the correct mix of different types of Research and Development which might be at the basic level, product level, or process level. The innovation strategy always starts with the question of how new technology should be accessed—through internal development, external acquisition, or strategic alliances (Ahn, 2020). There are various studies which explicitly analyse the determinants of various innovation strategies including product, process, market and organisational innovations and various combinations of these four types of strategic innovation approach as well (Chen,

2017). Product innovation involves the creation of a new product with consideration of new product development process from the new stuff, i.e. totally new product or the modification of existing products to adhere customer satisfaction (Langley, Pals, & Ort, 2005; Wang & Ahmed, 2006). The process innovation is the method of reengineering and enhancing the inside operation of the business process (Cumming, 1998; Freeman, 2004; Azadegan, Napshin, & Oke, 2013). Market innovation administers with the market mix and market selection to fit the customer's buying preference (Hall & Jones, 1999).

**Theoretical Model**

On the basis of the above literature search, the following theoretical model presented to consider the best strategies during the pandemic situation.



**Figure 1: Theoretical Model of Pandemic Situation Strategies**

**3. Methods and Data**

Literature review analysis is a vital methodology, because some primary studies lack adequate power to achieve significant outcomes, and nearly all studies require the power for an accurate estimate of results (Lipsey & Wilson, 2001). By blending into a single outcome of the various findings of independent studies that bear on the corresponding connection of any initial study (Hunter & Schmidt, 2004). The study considered scholarly articles published on strategic management during Covid19. Majorly considered articles on strategic management published in the year 2020.

<b>Table 1: Literature Review Analysis</b>		
<b>Source</b>	<b>Strategy approach</b>	<b>Outcomes</b>
Foss, N. J. (2020). Behavioral Strategy and the COVID-19 Disruption. <i>Journal of Management</i> , 46(8), 1322–1329. <a href="https://doi.org/10.1177/0149206320945015">https://doi.org/10.1177/0149206320945015</a>	Behavioral Strategy	[15] Focused Attention and Situational Dependent Preferences
Seetharaman, P. (2020). Business models shifts: Impact of Covid-19. <i>International</i>	Digitalization Strategic Decision	[16] The opportunity created by the present pandemic

<p>Journal of Information Management, 54, 102173. <a href="https://doi.org/10.1016/j.ijinfomgt.2020.102173">https://doi.org/10.1016/j.ijinfomgt.2020.102173</a></p>	<p>Making</p>	<p>situation need to address digitalized way digitizes a business or identify a viable alternative business model to expand business horizons.</p>
<p>[17] Wenzel, M., Stanske, S., &amp; Lieberman, M. B. (2020). Strategic responses to crisis. Strategic Management Journal, V7–V18. <a href="https://doi.org/10.1002/smj.3161">https://doi.org/10.1002/smj.3161</a></p>	<p>[18] Retr enchantment Strategy</p>	<p>[19] Various approaches can use by the business unit according to their position in the Covid19 such as retrenchment, exit and innovation. Retrenchment is the apparent strategy reply to crises situation like Corona 19, even though it is usually used only for financially strong firms.</p>
<p>Albers, S., &amp; Rundshagen, V. (2020). European airlines' strategic responses to the COVID-19 pandemic (January-May, 2020). Journal of Air Transport Management, 87, 101863. <a href="https://doi.org/10.1016/j.jairtraman.2020.101863">https://doi.org/10.1016/j.jairtraman.2020.101863</a></p>	<p>Retrenchmen t Strategy</p>	<p>[20] Behind the short-term, industry-wide reaction, however, the airlines need to adopt the longer-term retrenchment action indicating heterogeneous perceptions of the late- or post-crisis state of the industry.</p>
<p>Amankwah-Amoah, J., Khan, Z., &amp; Wood, G. (2020). COVID-19 and business failures: The paradoxes of experience, scale, and scope for theory and practice. European Management Journal. <a href="https://doi.org/10.1016/j.emj.2020.09.002">https://doi.org/10.1016/j.emj.2020.09.002</a></p>	<p>[21] Strat egic misalignment</p>	<p>[22] Business failure in Covid 19 is claimed to originate from Strategic misalignment. The strategic misalignment is the unique resources and capabilities of the business, which were also the demands of the Covid-19 pandemic.</p>
<p>Budd, L., Ison, S., &amp; Adrienne, N. (2020). European airline response to the COVID-19 pandemic – Contraction, consolidation and future considerations for airline business and management. Research in Transportation Business &amp; Management, 100578. <a href="https://doi.org/10.1016/j.rtbm.2020.100578">https://doi.org/10.1016/j.rtbm.2020.100578</a></p>	<p>conventiona l airline business strategy</p>	<p>[23] The COVID pandemic affects the has presented to airlines have been exceptional in their scale and complexity. Airlines need to manage the operational implications resulting from specific national travel restrictions and border closures, and all these will also affect the also the financial level on airlines operation.</p>

#### 4. Results and Discussion

The Covid 19 effect and affecting the various business units, during this Covid 19 effect many firms struggle to sustain in the market even and many firms quit their business. It was an unknowing situation for the firms even during their life spam they pass through the enormous crises conditions. Such a scenario never predicted by any mode of research including medical science, and management domain too. Initially, organisation used the traditional approach to sustain and fight with the Covid 19 situations, but when it get realised that this situation may support for mere than the year, and need to think about an excellent strategy to handle such

pandemic situations. The organisation starts to use the fundamental approaches of strategic management but customers' way. Some organisation trust in their product innovation and add the different model of product delivery to their customer (e-logistics and digital promotion). Learning from the pandemic, it is like inherently to understand that the strategies mentioned in the theoretical model, including retrenchment, stability and innovation are the crucial strategies in the pandemic situation. Some time to maintain the current position in the market is quite difficult for the firm especially in a crises situation, and somewhat such problem happens during the Corona 19 pandemic (The International Institute for Strategic Studies, 2020). It shows that the retrenchment strategy is the best reply to the market in a pandemic situation, especially in the service industry (Albers and Rundshagen, 2020). Retrenchment is the immediate strategy answer, persevering is an alternative, although it has been used usually only for the economically strong organisation in crises of limited duration. It has also found that the "firms sources of internal and external may dry up at some point in the retrenchment" (Wenzel et al., 2020). It noted the firms which adopt the strategic innovation approachable to not only to sustain in the market but also to attract some success as well. The innovation strategies somehow help many organisations to maintain the satisfaction level of their customers. With the help of the present study, the marketers can utilised any mentioned strategic approach to fight with the pandemic situation.

For future research direction perspective, the researcher may extend this study with the use of the statistical method to build a reliable and valid statistical model. Also, it will be interesting to understand the effect of various strategies statistically during the covid19 situation. For future research scope, it will be interesting to test the present study theoretical model on the statistical ground to calculate the effect of stability, retrenchment and innovation on organisations success during the pandemic situation. The limitation of the present research includes, it was difficult to confirm the success of pandemic strategies as the data is very raw to measure its effect and continually the pandemic effect still affecting many business units.

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## Evolution of Agribusiness Company through corporate sustainability: A case study

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### **Abstract**

*In the process of achieving profits, the majority of firms exploit the natural resources and environment. On the contrary, some organisations were able to obtain profits by preserving and improving the natural habitats. However, the United Nations issued its directives for all the organizations to develop in purview of 17 sustainable development goals to achieve sustainable development. The profit-making organization are the key role players that can operationalise these SDGs through corporate sustainability. Hence, many researchers addressed corporate sustainability in recent years, and have presented their arguments on how an organization can prioritize its goals to achieve sustainable development. In this paper, we studied the literature on corporate sustainability that mainly focussed on improving the three pillars of sustainability namely economic, environmental and social. The major focus was to understand the disparities of corporate sustainability, and corporate responsibility in various organisations along with how it is applied and measured in practice. Through the case study of Agri Based firm, we tried to understand the role of corporate sustainability in the growth and expansion of the business. The study showed that for the success of an organization, inclusion of corporate sustainability is a must. This research aimed at finding the factors for successful implementation of corporate sustainability in small and large organizations to achieve sustainable development.*

**Keywords:** Corporate sustainability, Corporate entity theories, Sustainable development

**JEL Classification:** M1, M 10, M 14, M19

### • Introduction

COVID-19 has been one of the most unfortunate events that has pummelled the entire ecosystem. The exorbitant proliferation of economic activities and globalization were cornered to shield human lives. The spasmodic decisions have sent shockwaves to economies, which gave assiduity to the entangled systems around which human lives revolve. The prevailing situation of the healthcare system is apparent to proclaim the failure that led to the lives of people across the globe. From primary to tertiary implications of the pandemic can be noticed in all business sectors, even headedly.

Donaldson and Walsh (2015) opened their article with a compelling question. "Law is to justice, as medicine is to health, as business is to \_\_\_?". The statement raises the concern around the purpose of the business organization. One of the undeniable sanities over the establishment of the business organizations includes earning profit, but not restricted to. As organizations operate in the natural world, they are compelled to conserve the ecosystem for

the welfare of society. The United Nations in 2015 embraced the 17 interlinked goals (SDG), devised to benefit associates from diverse areas by 2030. Such goals urge the profit-making organizations to consider their operations to fight against the global challenges such as inequality, poverty and climate change etc and achieve a sustainable future. Table 1 (Naidoo & Fisher 2020) below summarizes the effect of the pandemic on SDGs.

**Table 1. COVID-19 Impacts on sustainable development goals**

SDG	Status	Example of target(s) affected
Goal 1: No poverty	Threatened* and mitigates†	Target 1.2: halve proportion of people living in poverty by 2030 Target 1.4: provide equal access to basic services
Goal 2: Zero hunger	Threatened	Target 2.3: double agricultural productivity and incomes of small-scale food producers
Goal 3: Good health and well-being	Threatened and mitigates	Target 3.8: achieve universal health coverage
Goal 4: Quality education	Threatened	Target 4.1: provide free, equitable and quality education for all children
Goal 5: Gender equality	Partially threatened‡	Target 5.4: value unpaid care and domestic work by providing public services and policies
Goal 6: Clean water and sanitation	Threatened	Target 6.1: give access to safe and affordable drinking water for all
Goal 7: Affordable and clean energy	Threatened	Target 7.3: double global rate of improvement in energy efficiency
Goal 8: Decent work and economic growth	Threatened	Target 8.1: sustain per capita economic growth
Goal 9: Industry, innovation and infrastructure	Threatened and aggravates§	Target 9.4: upgrade infrastructure and retrofit industries to make them sustainable
Goal 10: Reduced inequalities	Threatened	Target 10.1: sustain above-average income growth of the bottom 40% of the population
Goal 11: Sustainable cities and communities	Threatened	Target 11.2: give access to safe, affordable and sustainable transport systems for all
Goal 12: Responsible consumption and production	Partially threatened	Target 12.5: reduce waste generation through prevention, reduction, recycling and reuse
Goal 13: Climate action	Threatened	Target 13.A: mobilize US\$100 billion annually by 2020 for the Green Climate Fund to address the needs of developing countries
Goal 14: Life below water	Partially threatened	Target 14.1: by 2025, prevent marine pollution of all kinds
Goal 15: Life on land	Threatened and mitigates	Target 15.7: end poaching and trafficking of protected species and address demand and supply of illegal wildlife products
Goal 16: Peace, justice and strong institutions	Partially threatened	Target 16.1: reduce all forms of violence and related deaths everywhere
Goal 17: Partnerships for the goals	Partially threatened	Target 17.2: developed countries should commit at least 0.7% of gross national income in overseas aid for developing and 0.15% to least-developed nations

\*Most targets unachievable. †Achieving some targets would have helped prevent pandemic impacts. ‡Some targets affected.

§Achieving target would have made pandemic impacts worse.

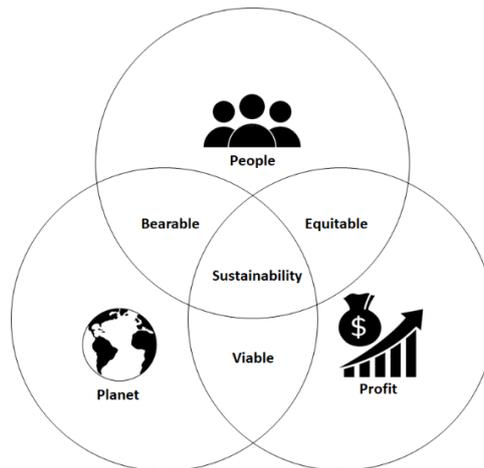
The COVID-19 pandemic exhibits that the SDGs as currently perceived are not resilient to such earthly stressors and draws attention to the concept of sustainability.

### ○ *Sustainability*

Sustainability is a complex abstraction which makes it onerous to accomplish. To actualize the notion of sustainability it becomes imperative to revisit the concept. One of the most prevalent definitions of sustainability which comes from the UN World Commission says that "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987). Sustainability scholars have concluded that human consumption and excessive industrial output lead to environmental imbalances that inevitably disrupt corporate and economic processes, but that the consequences are not inherently instant, measurable or predictable. These scholars drew insights from the natural sciences, including biology, ecology, engineering, and even physics (e.g., Gladwin et al., 1995; Meadows et al., 1972). The term sustainability and responsibility are frequently used interchangeably by researchers and business administrators, which indicates a lack of awareness of the term sustainability. Even the United Nations Global Compact, which self-proclaims to be "the world's largest corporate sustainability initiative" notes that "by committing to sustainability, business can take shared responsibility for achieving a better world". Sustainability includes the three dimensions i.e people, planet, and profit (Figure 1). In this research paper, we will concentrate on corporate sustainability from a company viewpoint that forms the foundation for the sustainability and development of the company by understanding the case of Farmer Producer Company Sahyadri farms.

### ○ *Corporate Sustainability*

The chairman of VNO-NCW, the Dutch Employers Association, Jacques Schraven, once claimed that "there is no uniform recipe: corporate sustainability is a custom process." In the last few decades, corporate sustainability (CS) has grown remarkably, as many researchers have focused their studies on corporate sustainability. The extensive research and understanding on corporate sustainability have attracted investors to converge their investments in the firms practising corporate sustainability. The definition of CS is a derivative of the study published in 1987 by the Brundtland Commission on Our Shared Future. This study illustrated the need for sustainable growth and led corporations to report on sustainability (Bhatia & Tuli, 2015). Economic growth can be done with less environmental degradation and less natural resource loss (Gallo & Christensen, 2011). Sustainable thought has now applied three aspects of sustainable sustainability: conservation of the environment, economic growth and social justice; used most by corporations (Lackmann et al., 2012). Van Marrewijk and Werre (2003) in a nutshell showed the means to evaluate the capability of a company for CS (Van Marrewijk, 2012). The word CS, however, is very much vague and there is little clarity among researchers, as demonstrated by studies undertaken in recent years (Montiel & Delgado-Ceballos, 2014). Bansal and Song (2017) investigated the background and drew a distinct line between corporate sustainability from responsibility. They concluded that this differentiation is important, since the problems of society are viewed like any other market problems when clubbed with current hypotheses.



**Figure 1. Pillars of sustainability**

- **Data and Methods**

This study aims to define the parameters of corporate sustainability, there can be multiple ways in attaining this. One of those can be extensive literature on corporate sustainability, the other can be through implementing old sustainability factors in a business, however this method is not viable in all the possible cases. Thereby, which leaves with only one more option that is, through historic analysis of case study research method. In this study, we took up this approach, where an agro based firm, Sahyadri farm was analysed using grounded theory. Grounded theory is an approach to analyse qualitative data of a context. Here we have broken down the situation into multiple possible instances, which will be further inferred to codes, which can be further integrated to generate theory. As the grounded theory is employed in case study to define a certain possible theory, and later through an abductive approach we have defined a set of norms that were utilized in the case study to achieve corporate sustainability.

- ***Organizations Practising Sustainability***

**Amul:** During the 4th Global Dairy Conference, held at the Salzburg Congress Centre, Austria, from 27 April to 29 April 2010, AMUL was awarded the best environmental initiative in the "sustainability category". AMUL has received the "Green Globe Foundation Award" at the 4th Green Globe Awards ceremony at the 12th Delhi Sustainable Growth Summit in 2012 (Nisa, 2015).

**Nestle:** In June 2005, in recognition of its achievements in developing the safe drinking water facilities, the Nestle India plant in Punjab was awarded the Punjab Government's "Environmental Excellence" award. For the contribution to environmental sustainability, Nestle was crowned the recipient of the 27th World Environment Center (WEC) Gold Star. The Organization has been lauded for its successes in sustainable international corporate growth, and its sustainability policies guided by its Developing Common Value programme (Nisa 2015).

**Sahyadri Farms:** In December 2018 the organization was awarded as a best organization in the category of "Sustainable Agriculture Produce Marketing Model" at the Outlook Agriculture Conclave and Innovation Awards. The company has been praised for its initiative to connect and transform the lives of marginal farmers. Recognizing the competency of the organization, it was invited for a dialogue with GOI to address methods to double the income of farmers and to make farming profitable for every Indian farmer.

○ **Case Analysis of Sahyadri farms**

The Farmer Producer Company (FPC) was founded in 2010, in the state of Maharashtra, India, popularly known as 'Sahyadri Farms.'The company works on the philosophy “of the farmers, by the farmers, for the farmers”, to support the farmer community in business. At present the company has an extended family of 8000 plus marginal farmers.The share of small and marginal farmers in land holdings is as high as 83 percent and with less than 1 hector, 63 percent of land holdings belong to marginal farmers. This shows that the future of sustainable growth in agriculture, food security and livelihoods in India depends on small and marginal farmers' success (Shinde &Khambaswadkar, 2017).

Vision: To be a leading Farmer Producer Company (FPC) with the power to bridge the gap between the rural and urban communities;

Mission: Sahyadri Farms to be a trusted, value driven and professionally managed Farmer Producer Company (FPC) has following objectives

1. Sahyadri Farms aims to make farming profitable and sustainable
2. Developing a robust supply chain, which promises traceable, safe, healthy, and affordable - farm produce and value-added products, from farm to plate.
3. Building respectful relationships with the environment, employees and all other stakeholders.

**Table 2. Three tier structure in farmer producer company (FPC) Sahyadri Farms**

<b>Farmers</b>	<b>Cropwise Farmer producing Company</b>	<b>Sahyadri Farmer producing Company Ltd</b>
<ul style="list-style-type: none"> <li>• Production</li> <li>• Productivity</li> <li>• Quality</li> </ul>	<ul style="list-style-type: none"> <li>• Technical support to farmers</li> <li>• Input Supply</li> <li>• Aggregation of Farm produce</li> <li>• Grading, sorting and packaging</li> <li>• Finance and Insurance</li> </ul>	<ul style="list-style-type: none"> <li>• Infrastructure for post harvest management</li> <li>• Distribution</li> <li>• Marketing</li> </ul>

The company's three level structure gives clarity towards corporate sustainability in Farmer Producing Company (Sahyadri Farms) as shown in Table. The structure incorporated by the organization focuses on access to the available market information and various marketing opportunities to boost the agriculture sector. Moreover, it also provides facilities such as agroadvisory, supply chain and cold storage facility with an aim to embrace sustainable agriculture and rural community development.

▪ *Impact of Sahyadri on Farmers*

Farmers affiliated with Sahyadri farms are of the view that accountability exists in the organisation's business processes and transactions. Marginal farmers also claim that, thanks to the vast network, they are able to enter the foreign market for their produce and gain higher returns relative to other agricultural export organisations.

▪ *Impact of Sahyadri on Customers*

The fresh produce from Sahyadri farms has altered the attitude of customers towards the fresh fruits and vegetables. Consumers found that, because of the fresh and excellent quality of items, they lasted longer relative to others.

- *Impact of Sahyadri on Environment*

Sahyadri farms' sustainable activities, such as the use of solar electricity, composting both vegetable and fruit waste as fertiliser, have helped them minimise their carbon footprints and focus on natural resources to fulfil their requirements for business operations. In addition, the practise of soil conservation and disease prediction has allowed the organisation to reduce the pollution.

- **Results and Discussion**

The study established that, through its specific paradigm, Sahyadri Farms adopted the three foundations of corporate sustainability that are social, economic and environmental. It was noted that the marginal farmer group was able to communicate with the company where they obtained a reasonable price for their produce by exploiting the advantages of firm business policy and facilities due to their farmer-centered approach. Through sustainable business practises, the large network of farmers enabled the company to acquire 15 percent of India's grape exports.

During the hard times of COVID, Sahyadri farms not only provided consumers with the essential's through their strong infrastructure when other businesses were struggling to survive but also leveraged the power of technology to bring transparency between the farmer and consumer to ensure the safe and healthy produce are delivered. We may also say that technology has affected the organisation's survival during the crisis by retaining confidence of customer.

The three pillars are important for achieving organisational sustainability, but we also need to articulate them and build optimistic expectations in the minds of stakeholders. Through implementing their farmer-centric model as a value proposition, Sahyadri has adopted this path to achieve corporate sustainability.

- **Conclusions**

The research demonstrated that the incorporation of corporate sustainability is a must for the success of an organisation. The case study of Sahyadri farms, Agribased Company, was discussed here, to understand the role of the organisation's model in business operations. Variables such as technology, culture and value added services were established as the core contributors to corporate sustainability in Sahyadri farms by applying the grounded theory. The organisation's farmer-centered environment helped to support the local partners and to create a positive reputation in the local market. The organisation's policies helped the region, through the agri-business organisation, to improve its economy. Since we have studied only one such case that achieved corporate sustainability, along with the 3 pillars, the resulting variables can not be the only elements that may influence sustainability. Likewise, in order to define all aspects of organisational sustainability, multiple case studies must be performed on multiple organisations.

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# Is Islamic Stock Index immune to COVID-19 Crisis? Evidence from Thomson Reuters Islamic global Indices

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## Abstract

*The spread of COVID-19 has not only endangered human life but is also a big threat for the global economy. Financial and capital markets were badly affected by this hazardous disease because of the closure of international borders, social distancing, and the decrease in the level of economic activities. Many scholars argued that Islamic stock markets have better immunity for the external crisis, but their research have only been published in a limited scope with respect to COVID-19 crisis. Using Event Study Methodology, this paper examined the empirical evidence of how Islamic Stock market Indices behaved in response to global health crisis (i.e. COVID-19). For this purpose, nine Islamic Stock Indices are selected for this study from Thomson Reuters Islamic Stock Indices. In a market model, this study uses short- (0, 15) and long-term (16, 43) window to capture the effect of COVID-19 outbreak on Islamic Stock Market Indices. The results suggest that in the short run, Islamic Australian Stock Index and Islamic GCC Stock Index remained stable after the first 15 days about the news of Pandemic. Whereas, Islamic Stock Index of Qatar, UAE, ASEAN, MENA, MENASA, and Bahrain were significantly affected by the outbreak in short term window. On the other hand, as the virus continued to spread globally, significant negative abnormal return is reflected in all selected Islamic stock indices in the long run.*

**Keywords:** Islamic Stock Index, COVID-19, Abnormal return.

**JEL Classification:** G14, G41, F65, I15, H12

## Introduction

COVID-19 has alarmed the world. Although the virus turned out to be fatal only for 2-3 percent of the affected people, but it proved to be highly contagious. On 30<sup>th</sup> December 2019, Wuhan Municipal Health Committee (WMHC) reported 4 patients of so-called pneumonia type disease in Wuhan, which could not be diagnosed in time (ProMED, 2019; Sohrabi et al., 2020). Although, WMHC advised all medical units to strengthen their multidisciplinary forces to deal with this unknown disease but the cases continued to rise by the mid of January 2020. WHO (2020) conducted a press conference on 14<sup>th</sup> of January 2020 and notified the potential human-to-human spread of novel coronavirus. Additionally, WHO formulated an IHR Emergency Committee (EC) with 15 international experts to give their opinion about virus outbreak in China. On 30<sup>th</sup> of January 2020, based on EC's recommendation, WHO declared the global health emergency since the outbreak reached outside China (Japan, UK, Vietnam, and Germany) (WHO, 2020). Further, WHO declared this outbreak as Pandemic on 11<sup>th</sup> March 2020 and by the end of the month it broke out up to 200 countries, which affected millions of people around the globe (Dunford et al., 2020). Also, the outbreak of COVID-19 caused lockdown of economic and social activities in the effected countries. However, the fatality rate of the viral outbreak might not be that destructive but rather the expected economic impact, which needs special attention and research (Smith, 2006).

### ***Economic Impact and Pandemics***

Disasters such as climate change, pandemics and nuclear wars have had the dreadful impact on the economy in the past. Similar to them, COVID-19 is expected to have an unprecedented impact on financial and stock markets globally, which needs to be well researched (Goodell, 2020). Likewise, growth of diabetes and HIV/AIDS pandemic have had severe impact on the economic cost and the development of affected countries (Haacker, 2004; Santaaulalia-Llopis, 2008; Yach, Stuckler, & Brownell, 2006). Lee and McKibbin (2004) estimated the global economic costs of viral infection of severe acute respiratory syndrome (SARS) by studying the consumption and investing behavior of the firms in affected countries. The authors argued that apart from life risks, SARS outbreak had severe impact on global economy due to economic interdependence. Moreover, similar results were supported by Siu and Wong (2004).

With respect to other diseases, Blake, Sinclair, and Sugiyarto (2003) quantified the economic and tourism impact of foot and mouth disease (FMD) in the UK. They asserted that tourism and several other sectors were indirectly affected by the outbreak, since policy makers must have assessed the overall economic impact of the disease. United Nations Development Programme (2014) laid down the socio-economic changes caused by the Ebola virus in west African countries. The report suggested that the aftereffects of viral infection will result in major economic and financial setbacks. Similarly, the information relating to Ebola virus outbreak coupled with intensive media coverage resulted in decrease in asset prices in the US (Marinč, 2016). Behavioral finance studies suggest that the stock market performance seems to be affected by the negative news. Since the risk associated with contagious disease stimulates the investor's sentiments and they react accordingly.

### ***Stock Market and Pandemic***

In general, stock markets convey information about the state of the certain economy, indicating whether the economy is in an upward or in a downturn phase. Price dynamics of the stock markets are influenced by the market agents' pricing and investment decisions. Most importantly, the risk of pandemic might affect stock markets since it drives the investor's sentiments directly (Smith, 2006). Burns, Peters, and Slovic (2012) asserted that negative emotions (stress, worry, anxiety) are directly associated with any given crisis, which eventually trigger the risk perception of the investor. Therefore, investors behave optimistically when the market is rising upward, while pessimist approach is observed when the risk perception is high (Burns et al., 2012). However, another important factor that caused crash of stock markets is the economic interdependence of among countries, which enhances the chances of market collapse (Siddiqui, 2009). Similarly, stock market had been hit badly by exogenous shocks/pandemic several times revealed by In, Kim, and Yoon (2002), Lee and McKibbin (2004) and Y. Liu (2020). According to Donadelli, Kizys, and Riedel (2017), disease related news promulgated by WHO charge a significant sentimental effect on investors choice. In that case, bad news coming from the global health regulatory organization regarding infectious disease would have detrimental effect on stock indices (Wang, Yang, & Chen, 2013).

In the recent outbreak of COVID-19, which started from Wuhan, there are more than 200 countries who got affected badly with the spread of Corona virus. As a result, to stop further transmission of virus, countries implemented lockdowns either at national or local level. A recent study showed that the spread of COVID-19 has manifested the negative abnormal returns of 21 stock markets of effected countries (Al-Awadhi, Al-Saifi, Al-Awadhi, & Alhamadi, 2020; H. Liu, Manzoor, Wang, Zhang, & Manzoor, 2020). The authors also stressed that the effect was more lethal in Asian stock markets as they have the least health

controls set up by their governments. In addition, B. N. Ashraf (2020) observed a considerably quick negative response of the stock market as the number of cases rise within 60 days of initial cases. Also, Phan and Narayan (2020) argued that stock market of 25 countries overreacted to the news concerning COVID-19. They further claimed that uncertain news about virus outbreak amplified the countries to respond proactively, hence resulted in travel bans, lockdown of economic activities and limited in-person movements. Since, according to the efficient market hypothesis (Fama, Fisher, Jensen, & Roll, 1969), every public or private news is reflected in the stock prices or in overall market indices. Although, countries tried to control the spread, but the transmission could not be stopped completely. In this connection, news related to COVID-19 triggered the investors to behave passively across the global, since it turned out as the global crisis. There are many studies which have been conducted to capture the effects how the stock market behaved in response to corona virus. For instance, Mazur, Dang, and Vega (2020) argued an unpredictable reaction of different sectors in response to COVID-19, some showed resilience while some remained precarious. The recent studies authored by Zhang, Hu, and Ji (2020), Topcu and Gulal (2020) and B. N. Ashraf (2020) showed that with the increase of virus affected cases the stock market became volatile and market return went down proactively.

### ***Islamic Stock Market and Pandemic***

Islamic finance appeared to be a substantial part of financial and capital market with innovative alternatives. The exponential growth in Islamic finance assets is remarkable, and still expanding progressively (Paltrinieri, Floreani, Kappen, Mitchell, & Chawla, 2019). Financing activities based on Islamic principles comes under the definition of Islamic finance. Further, it prohibits dealing in interest, speculation, gambling, and uncertain transactions. Apart from permissible business activity, stocks must comply strict screening criteria in order to consider them in Islamic index. Since, a company must have a very low or zero interest income, lower debt ratio and a little cash holdings (El-Gamal, 2000). Most importantly, the portfolio is backed by real economic activities and it help to produce real assets, which supports Islamic stocks to be less risky than conventional stocks (Raza, Ibrahimy, Ali, & Ali, 2016).

Less volatile nature of Islamic instruments makes this market more resilient to external shocks and bad news. Furthermore, several studies have been conducted to support the stability and soundness of Islamic stock indices (Erdogan, Gedikli, & Çevik, 2020; Kenourgios, Naifar, & Dimitriou, 2016; Paltrinieri et al., 2019). According to previous studies Islamic Stocks are considered invulnerable to external shocks, hence the reaction of Islamic Index with respect to COVID-19 pandemic need to be studied.

### ***Research Question***

In the recent global health crisis, stock markets have been hit badly globally with the growth in confirmed cases. Though, there are very few studies that provides evidence of how Islamic stock index reacted to COVID-19 pandemic. However, mixed opinion persists in literature so far about Islamic index performance during COVID pandemic. Such as, D. Ashraf, Rizwan, and Ahmad (2020) asserted that Islamic stocks acted naturally as a hedging tool to absorb the shocks, hence it outperformed in the first quarter of 2020. On the contrary, Sherif (2020) is of the view that the reaction of Islamic stock index is over and above the same compared to conventional stock market.

However, there is conspicuous lack of research that capture the effect of COVID-19 on Islamic stock market around the globe. This paper aims to identify how global Islamic stock market reacted to current pandemic (COVID-19) in short and long term. Using event study

methodology, the study will have implication in two ways. It will add empirical evidence to the literature of Islamic finance concerning post-COVID effects on Global Islamic stock index. Secondly, using short and long terms event windows, the paper will discuss about the how market behaved after the news broke out from China. Furthermore, the research will answer the phenomenon whether Islamic stocks are immune to market sentiments on negative news or is it the same as conventional stock market.

## Data and Methods

Thomson Reuter introduced IdealRatings (IR) Islamic index in April 2009. These indices include the Islamic Australia Index, Islamic BRIC Index, Islamic MENA, MENASA, GCC, Bahrain, Malaysia, Kuwait, Oman, Qatar, Turkey, Emerging Markets, and ASEAN indices. According to Thomson Reuter's screening criteria, stocks must be in conformity with AAOIFI (Accounting and Auditing Organization for Islamic Financial Institutions) standards to be considered for relevant Index. Table 1 shows the list of Thomson Reuters Islamic Indices which are included in this study.

**Table 1: Selected Islamic Index**

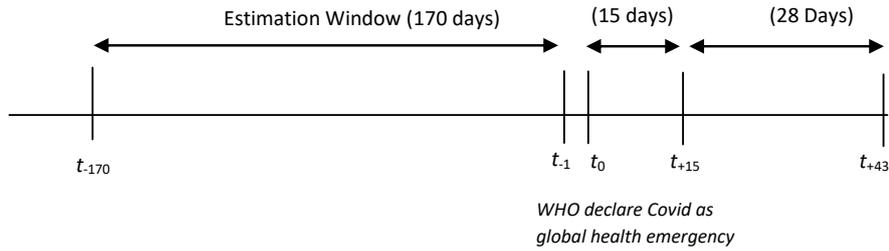
Indices	Abbreviation	Country/Region
Thomson Reuters IdealRatings Islamic Australia Index	ISAUSX	Australia
Thomson Reuters IdealRatings Islamic Qatar Index	ISQAX	Qatar
Thomson Reuters IdealRatings Islamic UAE Index	ISUX	United Arab Emirates
Thomson Reuters IdealRatings Islamic ASEAN Index	ISASEANX	ASEAN region
Thomson Reuters IdealRatings Islamic BRIC Index	ISBRICX	BRIC countries
Thomson Reuters IdealRatings Islamic GCC Index	ISGCCX	GCC
Thomson Reuters IdealRatings Islamic MENA Index	ISMENAX	MENA Countries
Thomson Reuters IdealRatings Islamic MENASA Index	ISMENSASX	MENASA Countries
Thomson Reuters IdealRatings Islamic Bahrain Index	ISBAHX	Bahrain

Thomson Reuters' IdealRatings Islamic Global Index is considered as market reflection. Further it is used a benchmark and to estimate the expected and abnormal return of selected indices. Data is collected from Thomson Reuters Eikon DataStream. Daily closing value of selected Islamic stock indices was collected from June 2019 to end of March 2020 from the mentioned source. The data is divided into three windows i.e. estimation window, event window and post event window or long-term window.

### Methodology

To capture the effect of COVID-19 on Islamic stock market, Event study methodology is used in this paper. According to the Efficient Market hypothesis, if the market is efficient the stock index will reflect the real change in value corresponding to a particular event or information disclosure (Fama et al., 1969; MacKinlay, 1997). Market model is implemented on the selected data set, further data is divided into three windows i.e. estimation window (-1, -170), event window (0, 15) and post event window or long-term window (16, 43).

The day when WHO declared corona virus as global health crisis is selected as the event date i.e. 30<sup>th</sup> Jan 2020. A short-term event window is selected from 31<sup>st</sup> Jan 2020 to 15<sup>th</sup> Feb 2020. Second event window with larger length is selected from 16<sup>th</sup> Feb to 31<sup>st</sup> March 2020. However, length of second window is selected based on fact that COVID-19 reached to up to 200 countries by the end of March 2020. Also, length of estimation window is recommended from 100 to 250 trading days (Carow & Kane, 2002; Cox & Peterson, 1994; MacKinlay, 1997).



The study used t-test to estimate the level of significance of abnormal return on and from event date. Further, significance of the abnormal returns is measured for short- and long-term event window to examine the outcome pace of the crisis. Cumulative Abnormal Returns (CARs) and Cumulative Averaged Abnormal Returns (CAARs) are calculated for both windows (short and long) and from the day of event till 31<sup>st</sup> March 2020 to see how worse the situation existed after the pandemic.

The Islamic stock index actual returns are being calculated by using equation (A). Whereas, expected returns are calculated using Market Model, which is based on OLS regression represented in equation (B)

$$R_{i,t} = \ln\left(\frac{P_{i,t}}{P_{i,(t-1)}}\right) \text{-----}(A)$$

$R_{i,t}$  denotes the actual return of Islamic stock  $i$ , at time  $t$ . Whereas  $P_{i,t}$  shows the value of stock index  $i$ , at time  $t$ .

$$\hat{R}_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t} \text{-----}(B)$$

$\hat{R}_{i,t}$  is the expected return of Islamic index  $i$  at time  $t$ .  $\alpha_i$  is the intercept of each Index while  $\beta_i$  is the slope of  $i$  index with respect to market return i.e.  $R_{m,t}$ . Abnormal return is calculated through the difference of Actual return and expected return, which is shown in (C).

$$AR_{i,t} = R_{i,t} - \hat{R}_{i,t} \text{-----}(C)$$

Average abnormal return is calculated using equation (D). Whereas CAR and CAAR is calculated using equation (E) and (F).

$$AAR_i = \frac{1}{N} \sum_{i=1}^N AR_{i,t} \text{-----}(D)$$

$$CAR_i(t_0, t_{15 \& 43}) = \sum_{t=0}^{t(15,43)} AR_{i,t} \text{---}(E)$$

$$CAAR_i(t_0, t_{15 \& 43}) = \sum_{t=0}^{t(15,43)} AAR_t \text{---}(F)$$

Cumulative averaged abnormal returns are calculated for short (0, 15) and long (16, 43) windows. To measure the significance t-test using given formula.

$$t_{stat} = \frac{CAR_i}{Standard\ Error}$$

T-test is calculated on daily, short term and long-term window basis to test the significance of abnormal returns of all selected indices.

### Results and Discussion:

Table 2 shows the descriptive statistics of the data in two groups (Pre and Post event groups). According to the mean and standard deviation of Pre-event period (170 trading days before the date of event) of all selected Indices, it is evident that mean is positive except Islamic Bahrain Index (ISBAHX) i.e. -0.00011 with St. Dev. 0.01138. However, the return of all indices except that of ISBAHX, does not deviate much from the mean. Since, the minimum dispersion is observed in Islamic Stock GCC Index with Standard deviation of 0.0048016 and mean value of 0.0002638. Whereas maximum mean deviation in pre-event group is witnessed in Islamic Stock Australia index (i.e. 0.0078075). Mean return from the event date till 31<sup>st</sup> March 2020 (43<sup>rd</sup> day post event day) appeared as negative mean with considerably higher mean dispersion compared with pre-event statistics. The negative mean implies that negative return occurred in all the selected Islamic Stock markets globally. The least percentage decrease has happened in MENA region with 514% decrease in the mean value from Pre to Post event periods.

**Table 2: Differences in mean returns of sample indices**

Index	Number of trading days	Event Group's Mean	Event Group's Std. Dev.
<b>Pre-Event Mean and St Deviation</b>			
ISAUSX	170	0.0007256	0.0078075
ISQAX	170	0.0001377	0.0058417
ISUX	170	0.0006340	0.0065815
ISASEANX	170	0.0000580	0.0057301
ISBRICX	170	0.0005383	0.0071615
ISGCCX	170	0.0002638	0.0048016
ISMENAX	170	0.0012610	0.0067716
ISMENSASX	170	0.0005640	0.0070897
ISBAHX	170	-0.0001084	0.0113779
<b>Post-Event Mean and St Deviation</b>			
ISAUSX	43	-0.0067100	0.0338354
ISQAX	43	-0.0056606	0.0179975
ISUX	43	-0.0072819	0.0279628
ISASEANX	43	-0.0073088	0.0283365
ISBRICX	43	-0.0077999	0.0325505
ISGCCX	43	-0.0062069	0.0203694
ISMENAX	43	-0.0064802	0.0245493
ISMENSASX	43	-0.0065939	0.0285932
ISBAHX	43	-0.0030143	0.0115678

Table 2 represent the Abnormal returns of all the indices on the event day, 1 day after, and 2 day after the event day represented as  $t_0$ ,  $t_{+1}$ , and  $t_{+2}$  respectively. On 30<sup>th</sup> Jan 2020, as the news broke out of china, Islamic Stock indices of Australia, UAE, ASEAN region, BRIC, GCC, MENA, MENASA, Bahrain reflected negative return on the first day. Qatar was the only country who remained stable in terms of Islamic stock market. However, on the next day, market reacted in a mixed manner with a growth in Islamic Index of Australia at 0.4%, UAE at 0.12%, MENA at 0.1%. On the contrary, there was -1.2% negative return on ASEAN Islamic Stock market. On the second day after WHO announced Covid-19 global emergency, Islamic Stock market dropped by 1.3%, 1.0%, 0.8%, 0.77%, 1.8%, 0.4%, and 0.1% in Australia, Qatar, UAE, ASEAN region, GCC, MENA, MENASA, and Bahrain respectively.

**Table 3: Abnormal Return on Event date and one day after**

Index	Abnormal Return		
	Event Day ( $t_0$ )	1 Day after Event Day ( $t_{+1}$ )	2 Day after Event Day ( $t_{+2}$ )
ISAUSX	-0.010132	0.0041283	-0.013052
ISQAX	0.000824	-0.0075182	-0.010005
ISUX	-0.001733	0.0012622	-0.008031
ISASEANX	-0.007600	-0.0119230	-0.013882
ISBRICX	-0.015357	-0.0033379	0.001944
ISGCCX	-0.000879	-0.0045449	-0.007769
ISMENAX	-0.001935	0.0010754	-0.018196
ISMENSASX	-0.008148	-0.0005587	-0.004396
ISBAHX	-0.004781	0.0037524	-0.001025

Figure 1 represent the graphical plot of Abnormal returns(AR) of selected indices. The graph shows the daily Abnormal return from -11 days to 43 day to the event. Furthermore, the returns proved to be more volatile and disperse after the first short event window. The reason for more disperse AR is the spread of virus in almost all regions of the world including GCC, MENA, ASEAN, and other countries as well. Australia was one of the countries where the first case appeared on 25<sup>th</sup> January 2020. Whereas, according to WHO situation report – 71, by the start of March, COVID-19 cases started to grow exponentially in more than 200 countries. Consequently, its effect started to come out in terms of negative and fluctuated abnormal returns in all Islamic stock markets around the globe. The better picture of COVID19 crisis is shown in figure 2. Where, CAR from -11 day to 43 days represents how quickly market declined around the globe. From the day 0 to 31<sup>st</sup> March, Islamic stock Index of Australia, MENA, BRIC, MENASA, UAE, and ASEAN dropped by 27.32%, 31.53%, 23.7%, 26.16%, 29.18%, and 26.16% respectively. However, the market return for Bahrain Index proved to be most stable among the rest of Islamic indices. The reason behind this stability is a smaller number of cases till 31<sup>st</sup> March 2020. In Bahrain, there were only 569 total cases infected with COVID-19 by the end of March. Further, Islamic Stock Bahrain Index was least affected by COVID-19 pandemic.

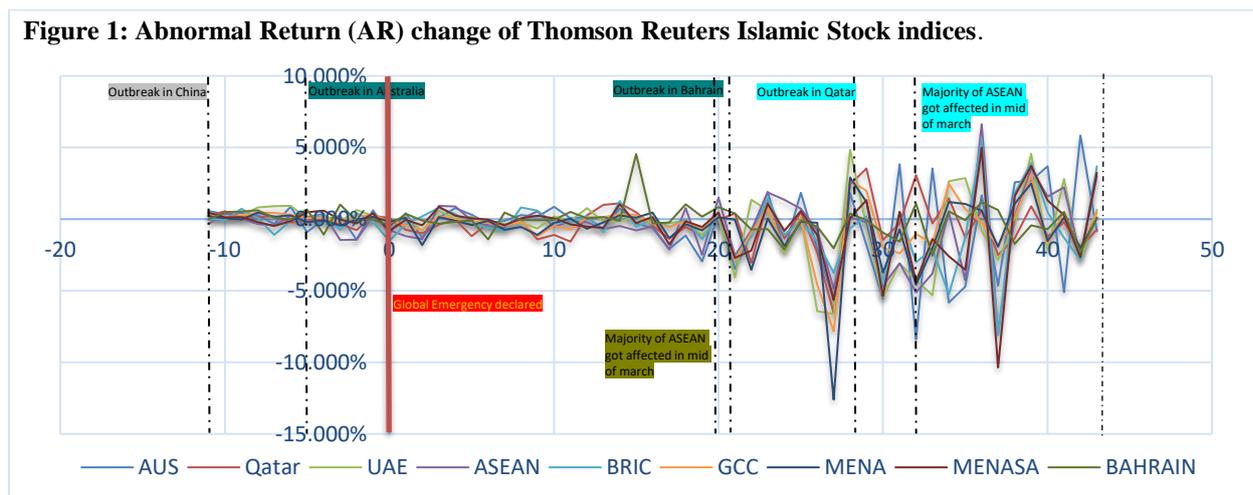


Figure 2 represents the cumulative abnormal returns (CAR) of all selected Thomson Reuters Islamic indices. We could draw the conclusion that in most of the countries or regions the outbreak of pandemic had occurred in the post mid of Feb or the start of March 2020. However, the market responded accordingly soon after the first confirmed corona case appeared. Furthermore, Islamic stock Indices from MENA, MENASA and BRIC produced

negative returns after the short-term window. The outbreak in the region of MENA, MENASA and BRIC happened as early as 31 Dec 2019 in China and as late as 1<sup>st</sup> April in Yemen. As a result, the news related to COVID-19 directly affect the investor's sentiments and hence the market reaction.

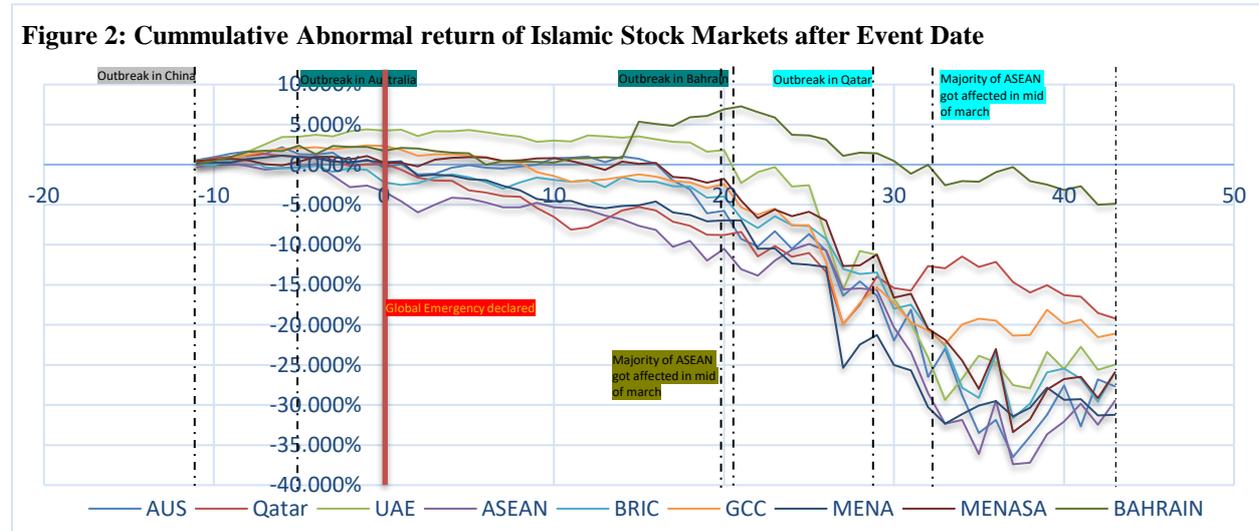


Table 3 and 4 shows the cumulative abnormal returns (CAR) and their level of significance in the short term and long-termevent window, respectively. The results show that CAR of Islamic Australia Index is positive and insignificant. Whereas CAR of Islamic GCC Index is insignificant and negative, which refers that in the short run ISGCCX and ISAUSX was not significantly affected by COVID-19. Although the value of CAR is negative but not statistically significant. On the contrary, CAR of Islamic Qatar Index is -0.0415 significant at 1%, which shows asudden downturn affects soon after the pandemic broke out. On the contrary, CAR of UAE, MENASA, Bahrain were significantly positive in the short event window (0, 15) at 1% level of significance. During this time (0, 15), Arab and MENASA (Middle East, North Africa, South Asia) region was not much stressed by COVID-19 cases.

**Table 4: Cumulative Abnormal Return (CAR) in Short term window**

Index	CAR i (0 - 15)	T test	P value
ISAUSX	0.000318	0.173740	0.38561
ISQAX	-0.041527***	-6.369190	0.00001
ISUX	0.036755***	28.28225	0.00000
ISASEANX	-0.052906***	-19.31174	0.00000
ISBRICX	-0.020585***	-16.40324	0.00000
ISGCCX	-0.000365	-0.093530	0.39006
ISMENAX	-0.029548***	-5.734720	0.00005
ISMENSASX	0.003908***	3.341920	0.00482
ISBAHX	0.012797***	3.897810	0.00158

Note: \* significant at 10% \*\* significant at 5% \*\*\* significant at 1%

The Islamic Stock portfolio of ASEAN, BRIC, GCC, MENA showed significantly negative CAR of -0.052906 (at 1% level), -0.020585 (at 1% level), -0.000365 (at 1% level), and -0.029548 (at 1% level) respectively. The results suggest that 5 out of 9 selected Islamic stock indices reacted immediately on the news of pandemic in short event window (0, 15). The moment when COVID-19 spread out to almost every country, the Islamic Stock Market reacted the same way as the conventional markets does. Our finding are consistent with Sherif (2020), which asserted that Islamic stock market reacted the same way as the conventional market does. However, Islamic Bahrain index was least affected by the crises (CAR of 0.012 at 10% significance). As shown in figure 1 and 2, a decline is observed after the first case appeared in Bahrain on 21<sup>st</sup> Feb 2020. Even then the respective Islamic index remained stable

as compared other indices. Whereas, CAR of Islamic Index of Australia is recorded as -0.18635 (1% level), Qatar at -0.13019 (1% level), UAE at -0.13788 (1% level), ASEAN at -0.21474 (1% level), BRIC at -0.16267 (1% level), GCC at -0.13901 (1% level), MENA at -0.20721 (1% level), and MENASA at -0.15415 (1% level) in the long term event window (16, 43). By this time, the whole world was encountered with the COVID-19 crisis. The results of this paper are consistent with findings of Sherif (2020).

**Table 5: Cumulative Abnormal Return in Long term window**

Index	CAR i (16 - 43)	T test	P value
ISAUSX	-0.18635***	-8.736905	0.00000
ISQAX	-0.13019***	-18.31115	0.00000
ISUX	-0.13788***	-6.127440	0.00000
ISASEANX	-0.21474***	-10.92122	0.00000
ISBRICX	-0.16267***	-8.544995	0.00000
ISGCCX	-0.13901***	-9.612810	0.00000
ISMENAX	-0.20721***	-10.65706	0.00000
ISMENSASX	-0.15415***	-7.466293	0.00000
ISBAHX	0.01209*	1.674035	0.09919

Note: \* significant at 10% \*\* significant at 5% \*\*\* significant at 1%

To see overall market reaction on post event date Cumulative Averaged abnormal returns (CAARs) are calculated across all 9 selected indices. The value of daily CAAR and its significance is given on table 5 from day 0 to day 43. On the event day CAAR is positive and significant at 10%, it remained positive but insignificant at day 1 as well. It is evident that Islamic stock market did remain stable on the day when WHO declared COVID19 as health emergency. However, negative CAAR of -0.68% significant at 1% is observed on day 2 of the event, which went to the highest value of -26% (significant at 1%) on day 37 and ended to -23% (significant at 1%) on 43th day of the event. However, previous literature concerning the immunity of Islamic Stocks from external crisis (Erdogan et al., 2020; Kenourgios et al., 2016; Paltrinieri et al., 2019) is not supported with our results. Meanwhile, this pandemic forcibly required countries to halt their economic activities, set up lock downs, closure of the borders, limit the social or business meetings. Additionally, the essence of Islamic stock index is based on the real economic output, if the economic activity is barred due to lock down then producing a positive return is almost impractical.

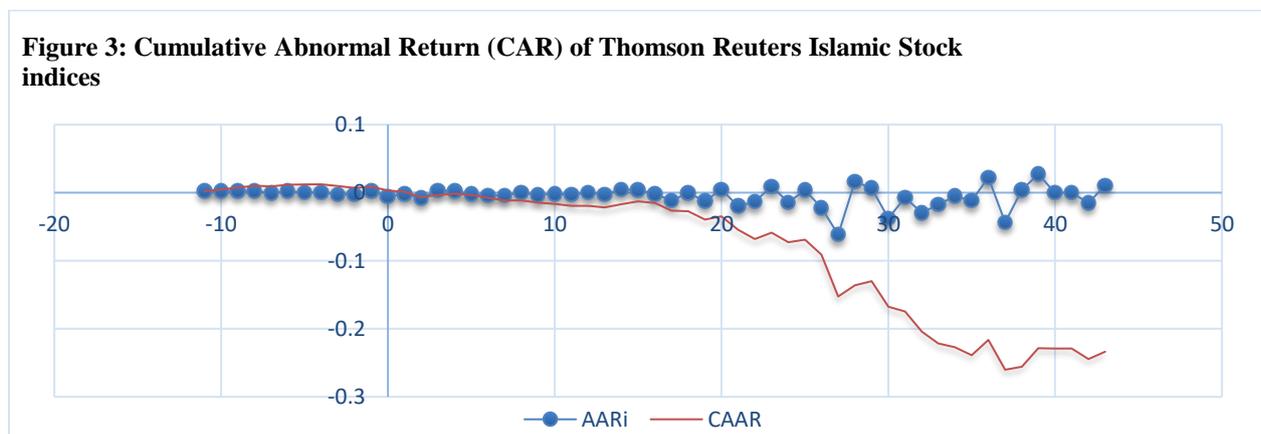
**Table 6: Daily Cumulative Average Abnormal Return across all indices**

Days	CAAR i	Standard Error	T test	P Value
0	0.0033826*	0.0017432	1.940466	0.0681627
1	0.0014199	0.0017873	0.794469	0.2747653
2	-0.0068481***	0.0021345	-3.20833	0.0093531
3	-0.0035903**	0.0016491	-2.17717	0.0476438
4	-0.0014455	0.0012659	-1.14183	0.1960254
5	-0.0034744**	0.0014604	-2.37899	0.0348184
6	-0.0076390***	0.0013770	-5.54759	0.0003182
7	-0.0115065***	0.0012619	-9.11863	0.0000068
8	-0.0114626***	0.0012636	-9.07148	0.0000071
9	-0.0146429***	0.0025900	-5.65373	0.0002778
10	-0.0164659***	0.0018106	-9.0944	0.0000069
11	-0.0192872***	0.0019527	-9.87701	0.0000035
12	-0.0191818***	0.0014481	-13.2464	0.0000003
13	-0.0214271***	0.0019748	-10.8505	0.0000016
14	-0.0169623***	0.0020662	-8.20936	0.0000160
15	-0.0129189**	0.0053492	-2.41509	0.0329005
16	-0.0150705***	0.0011641	-12.9465	0.0000004
17	-0.0265622***	0.0025144	-10.5639	0.0000020
18	-0.0272463***	0.0021805	-12.4954	0.0000005
19	-0.0394527***	0.0032276	-12.2235	0.0000006

20	-0.0350165***	0.0015826	-22.1255	0.0000000
21	-0.0546280***	0.0057587	-9.48623	0.0000049
22	-0.0680509***	0.0048014	-14.1733	0.0000002
23	-0.0587685***	0.0028459	-20.6506	0.0000000
24	-0.0727474***	0.0038696	-18.7999	0.0000000
25	-0.0690403***	0.0021239	-32.5069	0.0000000
26	-0.0909494***	0.0068329	-13.3106	0.0000003
27	-0.1526415***	0.0098334	-15.5228	0.0000001
28	-0.1363462***	0.0058960	-23.1252	0.0000000
29	-0.1300864***	0.0052406	-24.8228	0.0000000
30	-0.1675507***	0.0060601	-27.648	0.0000000
31	-0.1745849***	0.0073140	-23.8701	0.0000000
32	-0.2041388***	0.0115921	-17.6101	0.0000000
33	-0.2215211***	0.0081623	-27.1397	0.0000000
34	-0.2269641***	0.0107216	-21.1689	0.0000000
35	-0.2386984***	0.0086336	-27.6477	0.0000000
36	-0.2162802***	0.0091355	-23.6746	0.0000000
37	-0.2601621***	0.0121061	-21.4901	0.0000000
38	-0.2558072***	0.0048530	-52.7113	0.0000000
39	-0.2285964***	0.0052595	-43.4634	0.0000000
40	-0.2288837***	0.0064537	-35.4653	0.0000000
41	-0.2291141***	0.0075576	-30.3157	0.0000000
42	-0.2444069***	0.0092781	-26.3424	0.0000000
43	-0.2336771***	0.0058530	-39.9243	0.0000000

Note: \*significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%

Moreover, averaged abnormal returns (AARs) and cumulative averaged abnormal returns (CAARs) of 9 selected indices is displayed in figure 3. Until the 15<sup>th</sup> day of the event, the market's AAR remained stable. Although, there is a gradual downturn in the outcome of CAAR since the disease broke out, but significant decline is evident from mid of Feb 2020. Consequently, the volatility of AAR is much higher in the long-term window (16, 43) and hence there is a drastic decline in CAAR from 0.68% to -23.3%.



### Conclusion:

This research aimed at examining how COVID-19 affected Islamic Stock markets around the globe. Using Thomson Reuters Islamic Stock Index of Australia, Qatar, Bahrain, UAE, MENA, MENASA, BRIC and GCC, this study captured the response of all selected indices in Short- and long-term event window. Previous studies on Islamic stock index suggested that Islamic stock market is more resilient and less volatile to external shocks. Therefore, the overall stock market is more likely to absorb exogenous outrages. To analyze the fact whether Islamic stock markets are immune to recent pandemic, Event Study Methodology is employed

in this paper using market model and the significance of cumulative abnormal returns of respected Islamic Index is calculated on daily return basis accordingly.

The results suggest that in the short run the Islamic Stock markets' price movements have diverged throughout the period under consideration. That is, Islamic stock index of Australia, UAE, MENASA, and Bahrain remained stable in the first 15 days of the declaration of COVID-19 as pandemic. Bahrain and Australia were least affected by the crisis till the mid of Feb 2020. However, investors from GCC, MENA, BRIC, Qatar, and ASEAN reacted in a rather pessimistic manner after first pandemic news. The market showed a significant downturn even in the short-term window, though the CAR of GCC index is negative but insignificant. It is also evident that the spread of virus was not abrupt among all the countries till mid of Feb 2020. Whereas the news tends to play its role to drive investor's sentiments across the globe, which lead to the significant downturn in the market index. The research further finds the long-term effect of this pandemic using long term event window (16, 43). According to WHO, the virus encountered more than 200 countries by the end of March 2020. Therefore, it is evident that all the Islamic stock Index were significantly affected in the long-term window by the crisis. At the same time, Islamic stock index of Bahrain regained a positively significant cumulative return in the long-term window. The reason behind this recovery is least number of confirmed COVID-19 cases until 31st March 2020.

Together with our findings, overall global Islamic stock market reaction appeared to be significantly negative from day 2 to day 43. Most importantly, the market did not appear to be completely immune to the pandemic even in short run (0, 15). However, the market was drastically affected by COVID-19. Finally, it is concluded that due to severity of pandemic the economic activities were affected badly due to lock down situation. Consequently, the natural ability of Islamic stocks to absorb external shocks suffered a lot due to limitation imposed due to lock downs in every country.

The results of this paper would have the implication to policy makers and investors in two ways. Firstly, policy makers should have been signaling their confidence more in the economy turning back to its normal path. Also, the role of media and the news agencies should be under strict compliance by the government to avoid panic situation among investors. Media could have played a significant role to control the panic situation in across a country. Secondly, investors should be more vigilant and need to spread their risk in a healthy portfolio to deal with such uncertainties.

In this paper, only the short- and long-term event effect is measured of Islamic stock indices. However, there is a considerable room to study about the investor's sentiments with respect to Islamic Stock markets. Also, a study of risk and volatility of Islamic index after COVID-19 pandemic should be undertaken in near future.

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# The Prediction of The Development of The Craft Beer Industry in Slovakia in an "Ideal" COVID-19-free Market

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## **Abstract**

*During the recent years, the beer industry has been characterized by two main actions: leading the market by a few large multinational companies and spreading of local craft breweries. As opposed to the giant breweries, microbreweries are independent, traditional and they offer their differentiated products locally. Since the craft beer revolution has been present in Slovakia, as well, the aim of the research paper is to analyse the possible outcome of the development of craft beer industry in Slovakia. Based on the collected primary data, statistical prediction is introduced in the case of an "ideal", COVID-19-free market situation. The results of the statistical prediction are gathered viatrend in time series analysis. The predicted results are compared to the actual conditions affected by the global pandemic in the research paper. As the pandemic is present relatively a short time, its consequences cannot be precisely identified, yet. In fact, it clearly slowed down the development of the industry of microbreweries that is explained in the results of this research paper.*

**Keywords:** craft breweries, microbreweries, craft beer revolution, COVID-19

**JEL Classification:** F60, L10, L66

## **1. Introduction**

During the last decades, the beer industry is going through significant changes globally and regionally, as well. The segment is experiencing "craft beer revolution" that can be lead back to the 1970's USA, where based on mass-production and standardization consumers started to prefer traditional, tastier beers with higher quality produced by small producers (Fastigi et al., 2016). Since there has been cultural differences, historical events and structural changes in the Central European countries, the craft beer revolution started to evolve later at this continent. Since 1989, the noteworthy economic development caused new possibilities of international trade, emphasized the importance of direct investments, and greeted the inflow of foreign capital, that resulted in the increase of consumption and economic activities. These factors caused the highest growth of beer consumption in Europe (Poelmans & Swinnen, 2011). The economic background was very promising to the large brewing companies such as Heineken, SAB Miller, AB InBev, or Carlsberg, that decided to follow the strategies of modernization, restructuring and consolidation of breweries. These structural changes enabled them to maximize profit and reduce costs, that led to an oligopolistic market regulated by multinational corporations (Hunculak, 2004). When it comes to the craft beer revolution in Central Europe, it started around 2010, when new types of beer started to appear on the market locally, especially in Poland. This trend was followed by other neighbouring countries, as well (Wojtyra et al., 2020). In fact, the Slovak market also followed this trend, since the establishment of microbreweries is considered as a promising business opportunity with available technology, existing know-how, accessible inputs, government support for brewery start-ups and cooperation between craft beer producers (Swinnen, Garavaglia, 2018).

Consequently, the objectives of the research paper are to provide a brief overview of the craft beer revolution in Central- Europe, to predict the total number of existing craft and contract breweries in Slovakia, Czech Republic and Poland in 2020 and to emphasize the consequences of COVID-19 on the craft beer industry in Slovakia.

### ***1.1 Changes in the structure of breweries***

Since the earliest production of beer can be conducted back to over 6000 years (Toussaint-Samat, 1997), it has transformed from a gift to the gods, remedy for the sick or tool of salary into a beloved global diversified commodity. When it comes to the history of the evolution of beer production in Northern Europe, a significant switch from wine consumption into beer consumption happened, mainly because of economic factors, around the second half of the 14<sup>th</sup> century in Brabant (Aerts, 2001). A significant contribution to the development of beer, as itself was provided by Germany between the 14 – 16<sup>th</sup> centuries by adding hop in the process of beer production and introducing the technique of low-fermentation (CBB, 2001c). A turning point in beer production can be related to the industrial revolution, the development of steam engines, water and rail transportation and other significant innovations, that enabled to the Whitbread Brewery in London to become the first brewery in the world that achieved a yearly production of 200 000 hl barrels during the second half of the 18<sup>th</sup> century. This was followed by the introduction of a new production method, “*lagering*” a more stable low-fermented beer in Munich. Therefore in 1842, the first light coloured “*lager*” was produced in Pilsen. It was a major development in beer production since the product kept its light colour based on the low-protein barley and low limestone grade of water in Pilsen that is still a significant advantage for the beer production location. Furthermore, other countries, such as Germany, were inspired by the Czech lager production. Since those times, the brewing industry in Central- Europe went through major changes (Glover, 1997). Even though beer was considered as a local product the globalization has led to the dominance of four multinational companies: AB InBev, SABMiller, Carlsberg, and Heineken, all with a headquarter in Western Europe. Approximately half of the global sales were under the control of these four giants, that creates nearly a monopoly (Ascher, 2012). In the case of Slovakia, until 2016 the greatest players on the market were the giants, Heineken, and SABMiller. In 2016 significant structural changes were done in the brewing industry, since the Japanese Asahi Breweries acquired SABMiller’s Western European operations (Gaspar and Massa, 2019). Therefore, currently the most powerful players are Heineken and Asahi Breweries, who dominantly control the market.

When it comes to the craft beer revolution, it can be related mainly to the USA where standardization and mass-production led consumers to require tastier beers based on traditional recipes and high quality (Fastigi et al., 2016). Since 1989, the economic structural changes in Central Europe has enabled the expansion of international trade, foreign direct investments, and the growth of inflow of foreign capital. All the mentioned led to higher standard of living and therefore to higher beer consumption in Europe (Howard, 2014). Therefore, this historic period of growth is characterized by businesses establishing new breweries with creative and innovative means (Smith et al., 2017). What may seem surprising, there was a sharp increase in the growth of craft breweries also in Italy and Spain, that are considered as non-traditional beer-drinking countries (Garavaglia and Pezzoni, 2013).

## 1.2 Craft Beer Industry

First, craft breweries can be characterized by their size, independence, and traditional production process, where the size is measured based on the annual total number of barrels (Brewers Association, 2017). In contrary to industrial beer, beer produced by microbreweries is mostly unfiltered and unpasteurized, that ensures the full taste and special color of the selected products. In addition, these beers contain a great amount of healthy ingredients (Kozák, 2017). As contrasted to large or midsize breweries microbreweries distribute their products mostly regionally (Flack, 1997). Microbreweries are represented by the craft beer industry, that can be divided into several categories, such as microbreweries, brewpubs or restaurant breweries, contract breweries and regional craft breweries (Carr, 2017). Because of the conspicuity in the industry, microbreweries strategically deploy their form of identities. Similarly as in the case of social movements, the identity is a form of education to confront the typical mainstream consumers' views on beer as a product and to criticize the strategies of the dominant multinational firms that lead the industry expressively (Bernstein, 1997). Considering the Slovak legislation, the expression "*microbrewery*" is a business entity or a cooperation of producers that does not exceed the total yearly production of 200 000 l of beer (Slovak Association of Beer and Malt Producers, 2018).

Secondly, there are restaurant breweries or brewpubs, that were present even before the craft beer revolution. These are mainly enterprises that focus on hospitality and besides, they produce their own beer that is most of the time sold for the restaurant's guests or locally (Kozák, 2017). Besides other factors, the producers and consumers of craft products mostly consider themselves as a self-conscious community, that includes many homebrewers (Bradford, 2000). The quality of the beer is an important factor for brewpubs, as well. If microbreweries have no complete control over this phase, the business can experience considerable complications. In the case of brewpubs and restaurant breweries this aspect is far more manageable since the managers can simply remove the product from the menu. Another advantage of microbreweries in form of restaurant breweries is the minimal transport of the product, that minimal number of elements that could pollute the beer, such as bacteria, oxygen, or light (Cabras, 2016).

Another type of microbreweries is a contract brewery, that is a form of cooperation in the production phase of the business activities. This arrangement allows the brewer to brew, to get advice and pack beer with a technology that is not their own. These can be various arrangements, from a distant agreement to a very close cooperation. Most of the cases, the host brewery can provide anything, even the recipe, to the brewer depending on the agreement. When the contracting brewer provides just a little input, it can be considered as a marketing firm, that deals with the product identity, marketing, and sales. Conversely, there can be arrangements when the contract brewer ensures their own ingredients, yeast strains, provide the exact recipe, provides the specific production process and packaging (Tomski, Menderak 2019). When it comes to the legal terms, contract brewing takes different forms. In a simple contract agreement, the contract brewery takes possession of the product just after the host brewer purchases all the ingredients and brews the beer. There is another situation when the contract brewery rents time on the innovative equipment that is owned by the host brewery. In this case all the ingredients, the know-how and all the production process is managed by the contract brewery (Garret, 2019). The increase of the agreement-based beer production and regional excess capacity the beer industry is continuously evolving (Strauss et al., 2018).

In the case of regional breweries, it is not easy to decide if they are regional or industrial, since most of the time one of the multinational corporations takes them over (Kozák, 2016). Every country has its own legislation and in the case of Czech Republic, regional breweries are those that produce yearly between 200,000 – 500,000 hl of beer (Verhoef, 2003). On the other hand,

based on the Slovak legislation there are only two categories of beer producer companies (Slovak Association of Beer and Malt Producers, 2018) based on the reduced rate and the basic rate: small breweries with the yearly production of beer below 200,000 hl and large breweries with the yearly production above 200,000 hl of beer. In this case regional breweries, together with restaurant breweries, brewpubs, and microbreweries, are listed among small breweries in Slovakia (Wojtyra et al., 2020)

## 2. Data and Methods

In order to gain reliable theoretical background, literature review was used as the primary research methodology. Based on the literature it can be divided into two types: a stand-alone piece and a background for empirical study (Tempier and Paré, 2015). The stand-alone review is characterised as a grouped information of existing literature through interpretation or integration of existing research (Rousseau, Manning and Denyer, 2008). On the other hand, background reviews provide theoretical context or reveal a gap the actual research tries to fill (Tempier and Paré, 2015).

After studying the theoretical background of the craft beer industry, we focus on the analysis of primary data. In the research paper, we provide the results of the polynomial regression analysis through figures and tables. First, the data is selected for the period 2010-2019 and distributed into groups based on categories: small, regional, and large breweries. In the second part of the analysis the categories are the following: small and contract breweries. Therefore, in the research paper we provide information on the general development of breweries in Slovakia, the Czech Republic and Poland for the period 2010-2019. Based on the polynomial regression analysis we provide the prediction of the number of existing small and contract breweries in the mentioned countries for the year 2020. At the end of the research, we compare the predicted results from our analysis with the real data for the year 2020, that was collected until August 2020, in Slovakia both for small and contract breweries.

## 3. Results

Based on the information gathered from the literature and the collected primary data, our research paper is focusing on two main aspects of the development of the craft beer industry in Slovakia: the prediction of the total number of small breweries in 2020 and the prediction of the total number of contract breweries in 2020. After interpreting the outcomes, we compare the predicted statistical results with the real collected data that is highly affected by the pandemic.

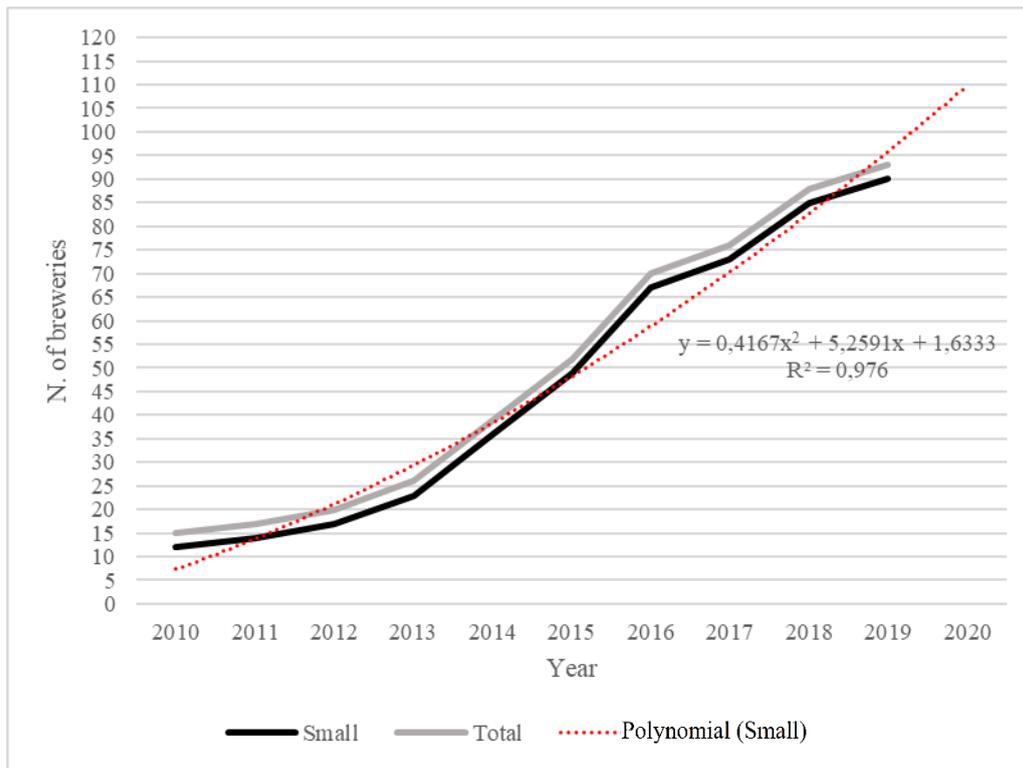
### A. Prediction of the development of small breweries in 2020

In the first part of the analysis the research paper is focusing on the development of breweries in Slovakia with the primary focus on the development of craft breweries (small). Since in Slovakia the craft beer revolution can be noted approximately from the year 2010, the main goal of the research paper is to analyse the development of beer industry in Slovakia, especially the expansion of craft breweries for the last decade. In order to emphasize the importance of the segment there is data provided from other V4 countries, from the Czech Republic and Poland. While there is different legislation and categorization of the size or type of breweries in every country, breweries were divided into 3 main groups - small, regional, and large, based on the Slovak classification. To reach reliable results for the year 2020 we used for the statistical prediction the analysis of *polynomial regression model analysis*:

$$y = b_0 + b_1x_1 + b_2x_1^2 + \dots + b_nx_1^n \quad (1)$$

Where “y” is the dependent variable, “x<sub>1</sub>” is the independent variable, “b<sub>0</sub> ... b<sub>n</sub>” are the units of increase or decrease and “n” is the number of observations. Based on the equation of polynomial regression model analysis we calculated the predicted results for the year 2020 in the case of Slovakia, Czech Republic, and Poland. Therefore, we assume that there is an increase in the number of existing craft breweries for the year 2020 in Slovakia, the Czech Republic and Poland, as well.

**Figure 1: The Prediction of The Development of Small Breweries in Slovakia**



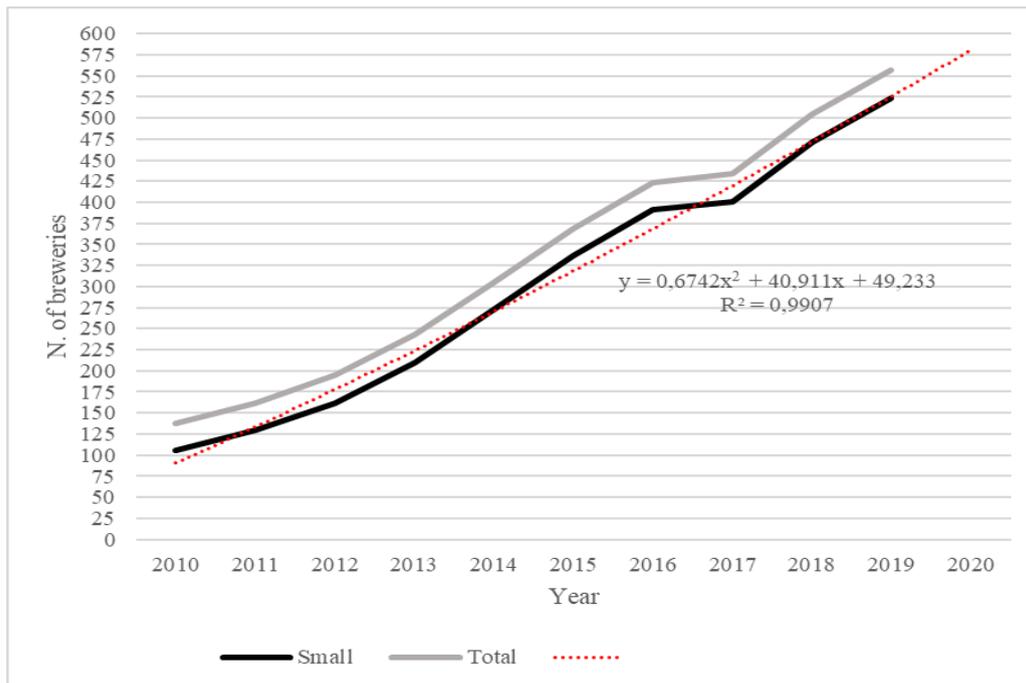
Source: Own elaboration according to Wojtyra et al. (2020)

Based on the analysis, we accept our assumption since there has been a significant increase (Figure 1.) in terms of the quantity of existing craft breweries during the observed period in Slovakia. Total represents the total number of existing breweries in Slovakia, including small, regional, and large breweries. The number of regional breweries is constant and is currently represented by one Slovak company that is not owned by a multinational corporation but is close to the yearly production of 200,000 l of beer. Moreover, the number of large breweries is constant since the market is still controlled by two multinational corporations Heineken and Asahi Group. The total number of existing breweries went from 15 to 93 in nine years and the rise was caused by the rapid expansion of craft breweries. Based on the polynomial linear regression analysis ( $y = 0,4167x^2 + 5,2591x + 1,6333$ ) the predicted total number of small breweries for the year 2020 (Figure 1.) in a COVID19-free market is 110, more precisely 20 new craft breweries are established ( $R^2=0,976$ ).

On the other hand, the pandemic caused a global falloff that affected the beer industry, as well. While the year 2020 has not ended yet, there is no definite data neither, but there has been already changes in the industry of craft beer production. One of the biggest struggles were experienced by restaurant breweries, that are covered by the category of small breweries, which must have slowed down the production or end it for this year. According to our data, until the end of August 2020 there were 3 new small breweries set up and 11 already existing small breweries ended the production which results in total of 82 small breweries in 2020 in Slovakia.

This could be caused by several factors resulting from the pandemic. First, the consumer behaviour has changed, and consumers are spending less money for luxury products, Slovak craft beers were not as available as usually and consumers were more careful about their purchases. Furthermore, new potential businesses decided to postpone the launch of new craft beer businesses because of the pandemic. The mentioned and other factors have led some of the Slovak craft breweries to temporary closure or even to bankruptcy, as well. On the other hand, the complete data will be available after the end of the year 2020, where slightly different results can be provided.

**Figure 2: The Prediction of The Development of Small Breweries in The Czech Republic**



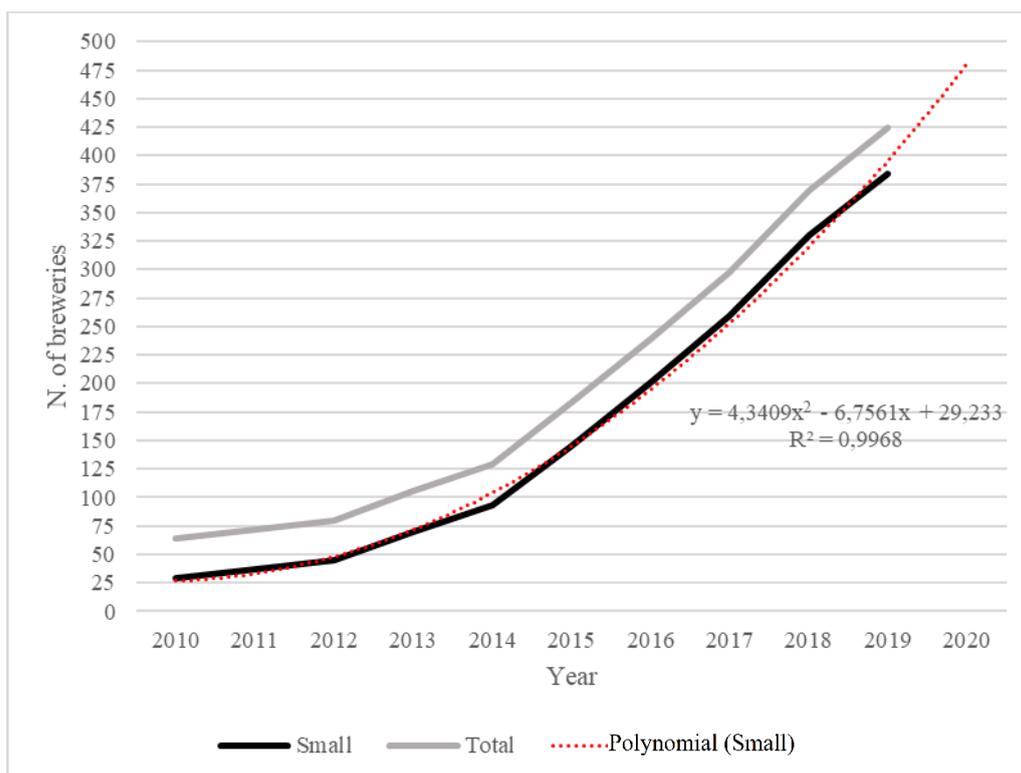
Source: Own elaboration according to Wojtyra et al. (2020)

Polynomial (Small)

We accept our second assumption since there has been a significant increase (Figure 2.) in terms of the quantity of existing craft breweries during the observed period in the Czech Republic. Total represents the total number of existing breweries in the Czech Republic, including small, regional, and large breweries. The number of regional breweries is constant for the observed period and was classified based on the Slovak categorization. Moreover, the number of large breweries remained constant, as well. The total number of existing breweries went from 138 to 557 in nine years and the rise was caused by the rapid expansion of craft breweries (Figure 2.). Based on the polynomial linear regression analysis ( $y = 0,6742x^2 + 40,911x + 49,233$ ) the predicted total number of small breweries for the year 2020 (Figure 2.) in a COVID19-free market is 581, more precisely there are 24 new craft breweries ( $R_2=0,9907$ ).

Contrarily, we can guess that there will be a slightly different result of the total number of existing small breweries in the Czech Republic after the end of the year 2020.

**Figure 3: The Prediction of The Development of Small Breweries in Poland**



Source: Own elaboration according to Wojtyra et al. (2020)

We accept our third assumption since there has been a significant increase (Figure 3.) in terms of the quantity of existing craft breweries during the observed period in Poland. Total represents the total number of existing breweries in Poland, including small, regional, and large breweries. The number of regional breweries went through a small increase over the observed period and was classified based on the Slovak categorization. Moreover, the number of large breweries remained constant in the case of Poland, as well. The total number of existing breweries went from 64 to 424 in nine years and the rise was caused by the rapid expansion of craft breweries (Figure 3.). Based on the polynomial linear regression analysis ( $y = 4,3409x^2 - 6,7561x + 29,233$ ) the predicted total number of small breweries for the year 2020 (Figure 3.) in a COVID19-free market is 480, more precisely there are 96 new craft breweries ( $R^2=0,9968$ ).

On the other hand, we can guess that there will be a slightly different result of the total number of existing small breweries in Poland after the end of the year 2020.

**Table 1: The Predicted N. of Existing Small Breweries in 2020 in The Case of COVID-19-free Market**

	Slovakia	Czech Republic	Poland
<b>Result</b>	109,90	580,83	480,17
<b>Prediction</b>	110	581	480

Source: Own elaboration according to Wojtyra et al. (2020)

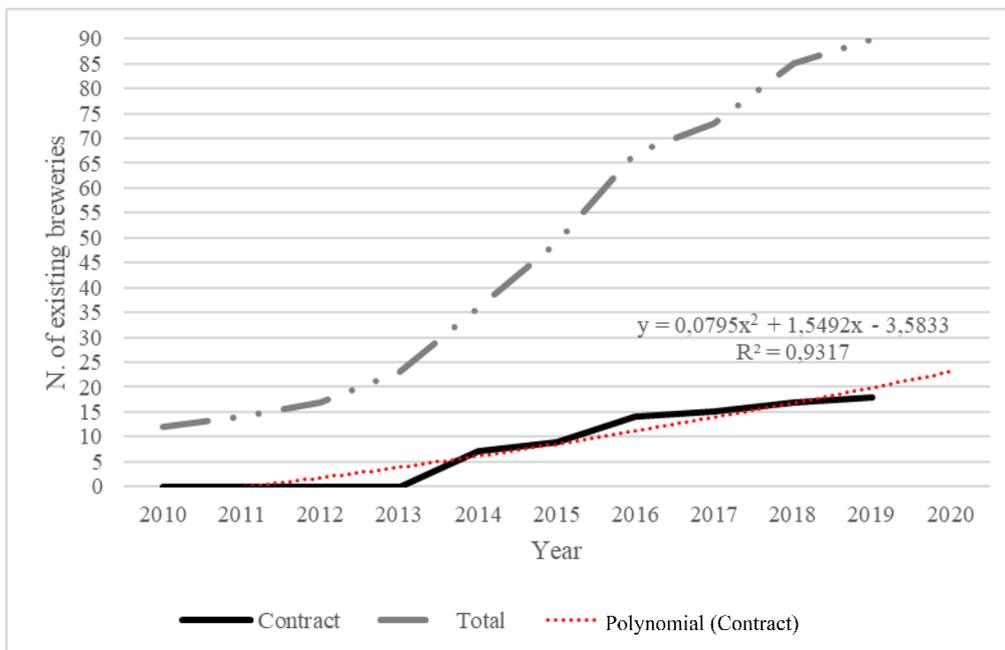
Based on the analysis the predicted total number of existing small breweries (Table 1.) in Slovakia is 110, in the Czech Republic 581 and in Poland 480. In fact, the real data revealed after the end of the year 2020 will be probably slightly different. On the other hand, our assumptions can be accepted since there is an increase in the number of existing craft breweries for the year 2020 in Slovakia, the Czech Republic and Poland, relating to our polynomial regression analysis.

## B. Prediction of the development of contract breweries in 2020

In the second part of the analysis we focused on the development of contract breweries in Slovakia. During the first analysis (A. Prediction of the development of small breweries in 2020) contract breweries were listed to the category of small breweries. In this case, we split them into a separate group, so we provide more understandable view of the development of the craft beer industry. Additionally, we analysed the development of contract breweries in the Czech Republic and in Poland, that gives us a sharper overview of the industry of craft beer production in the centre of Europe. Therefore, in the second part of the analysis we also used the polynomial regression model, where the same conditions were set.

Based on the equation of polynomial regression model analysis we calculated the predicted results for the year 2020 in the case of Slovakia, Czech Republic, and Poland. Consequently, we assume that there is an increase in the number of existing contract breweries for the year 2020 in Slovakia, the Czech Republic and Poland, as well.

**Figure 4: The Prediction of The Development of Contract Breweries in Slovakia**



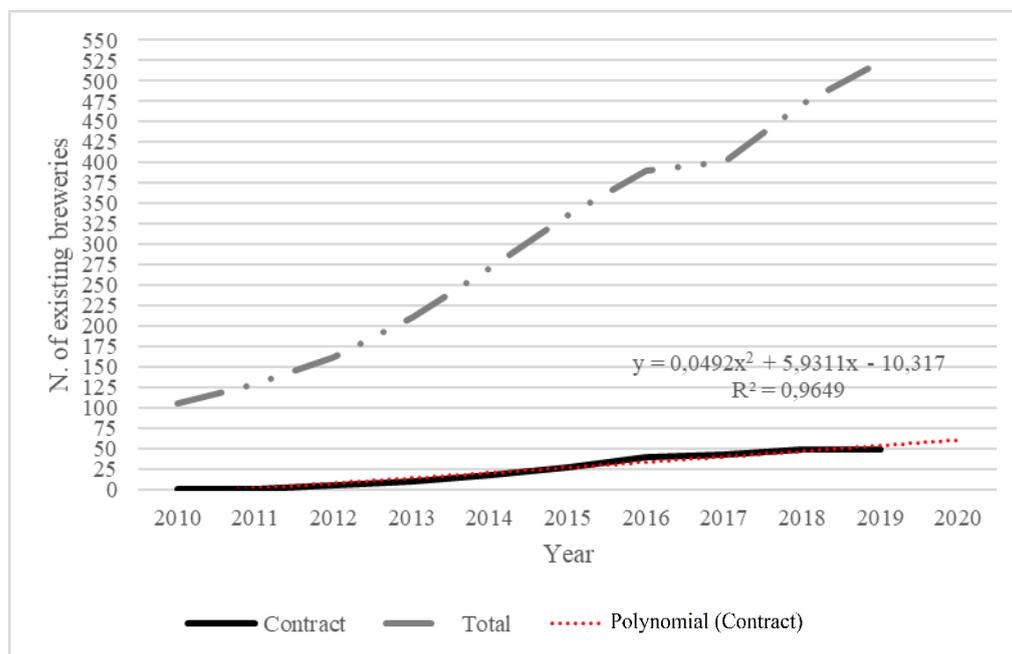
Source: Own elaboration according to Wojtyra et al. (2020)

Based on the analysis, we accept our assumption since there has been a significant increase (Figure 4.) in terms of the quantity of existing contract breweries during the observed period in Slovakia. Total represents the total number of small and contract breweries in Slovakia during the observed period. The total number of existing contract breweries went from 0 to 18 in nine years and the rise was caused by the rapid expansion of craft breweries (Figure 4.) because those provide the technology and know-how to the contract breweries. Based on the polynomial linear regression analysis ( $y = 0,0795x^2 + 1,5492x - 3,5833$ ) the predicted total number of contract breweries for the year 2020 (Figure 4.) in a COVID19-free market is 23, there is an increase in the number of existing contract breweries by 5 new enterprises ( $R_2=0,9317$ ).

Contrarily, the pandemic caused a global falloff in the case of contract breweries, as well. While the year 2020 has not ended yet, there is no definite data neither, but there has been already changes in the industry of contract breweries. According to our data, until the end of August 2020 there were 2 new contract breweries set up and 5 already existing contract breweries ended

the production which results in total of 15 contract breweries in 2020 in Slovakia. This could be caused by several factors resulting from the pandemic. First, the consumer behaviour has changed, and consumers are spending less money for luxury products, Slovak craft beers were not as available as usually and consumers were more careful about their purchases. Furthermore, new potential businesses decided to postpone the launch of new craft beer businesses because of the pandemic. The mentioned and also other factors have led some of the Slovak craft and contract breweries to temporary closure or even to bankruptcy. On the other hand, the complete data will be available after the end of the year 2020, where slightly different results can be provided.

**Figure 5: The Prediction of The Development of Contract Breweries in The Czech Republic**

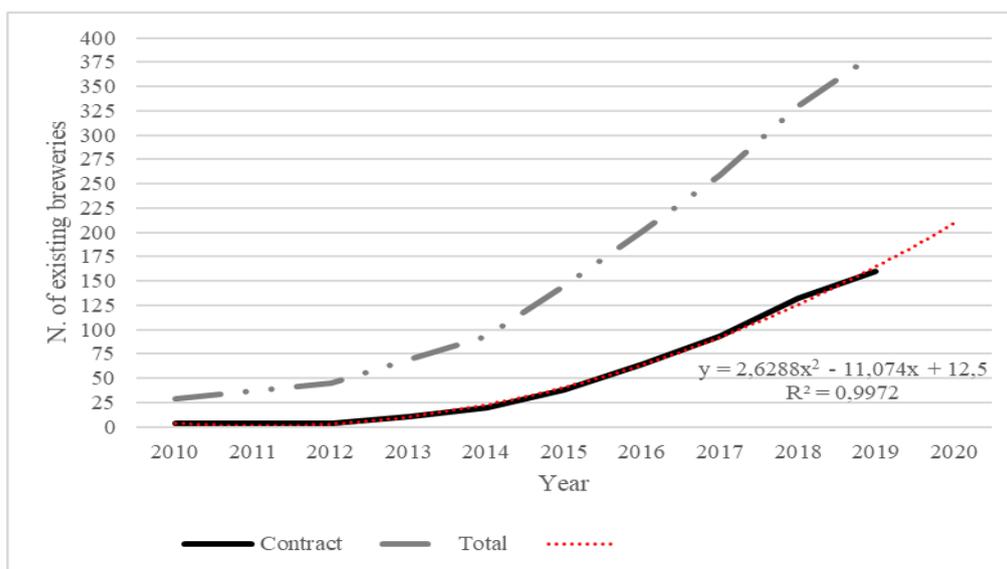


Source: Own elaboration according to Wojtyra et al. (2020)

When it comes to our second assumption, we accept it since there has been a slight increase (Figure 5.) in terms of the quantity of existing contract breweries during the observed period in the Czech Republic. Total represents the total number of small and contract breweries in the Czech Republic during the observed period. The total number of existing contract breweries went from 0 to 49 in nine years and the rise was caused by the rapid expansion of the craft beer industry (Figure 5.) that enables innovative technology and know-how to the craft brewer even without the use of own production process. Based on the polynomial linear regression analysis ( $y = 0,0492x^2 + 5,9311x - 10,317$ ) the predicted total number of contract breweries for the year 2020 (Figure 5.) in a COVID19-free market is 61, more precisely there are 12 new contract breweries ( $R^2=0,9649$ ).

Contrarily, we can guess that there will be a slightly different result of the total number of existing contract breweries in the Czech Republic after the end of the year 2020.

**Figure 6: The Prediction of The Development of Contract Breweries in Poland**



Source: Own elaboration according to Wojtyra et al. (2020) Polynomial (Contract)

In the case of our last assumption, we also accept it since there has been a significant increase (Figure 6.) in terms of the quantity of existing contract breweries during the observed period in Poland. Total represents the total number of small and contract breweries in Poland during the observed period. The total number of existing contract breweries went from 3 to 160 in nine years and the rise was caused by the rapid expansion of the craft beer industry (Figure 6.) that enables innovative technology and know-how to the craft brewers even without the use of own production process. Based on the polynomial linear regression analysis ( $y = 2,6288x^2 - 11,074x + 12,7$ ) the predicted total number of contract breweries for the year 2020 (Figure 6.) in a COVID19-free market is 209, more precisely there are 49 new contract breweries ( $R_2=0,9972$ ).

Contrarily, we can guess that there will be a slightly different result of the total number of existing contract breweries in Poland after the end of the year 2020.

**Table 2: The Predicted N. of Existing Contract Breweries in 2020 in The Case of COVID-19-free Market**

	Slovakia	Czech Republic	Poland
<b>Result</b>	23,0774	60,8783	208,7708
<b>Prediction</b>	23	61	209

Source: Own elaboration according to Wojtyra et al. (2020)

Based on the analysis the predicted total number of existing contract breweries (Table 2.) in Slovakia is 23, in the Czech Republic 61 and in Poland 209. Even if the real data revealed after the end of the year 2020 will be probably slightly different. On the other hand, our assumptions

can be accepted since there is an increase in the number of existing contract breweries for the year 2020 in Slovakia, the Czech Republic and Poland, relating to our polynomial regression analysis.

#### 4. Conclusion

Considering all the information, brewing has been an important industry since early times in our history and in these modern days it is undergoing through a significant comeback, as well. Even though the giant multinational corporations, such as Heineken, Carlsberg, AB InBev or Asahi Breweries, are still the dominant leaders on the market, small breweries are being established with traditional recipes and unique diversified beer types in Central-Europe and around the world, as well. This trend can be referred as the “craft beer revolution” that started in the USA back in 1970’s. In Central-European countries, such as Slovakia, Poland and the Czech Republic, the revolution started to spread around 2010. Since then the number of existing microbreweries went through a rapid growth that can be referred to the available technology, existing know-how and government support. In our research paper, we observed the number of existing breweries for the period of 2010-2019 in Slovakia, the Czech Republic and Poland. Based on the observations, we assumed that there will be a significant increase in the number of existing small and contract breweries in all three countries for the year 2020. Based on the trend in time series analysis we predicted, that in all the three cases there will be a significant increase in the number of existing small and contract breweries for the year 2020. In the case of Slovakia, we compared the results from the analysis with the actual data collected for the year 2020 (until August). As it is explained in the research paper, these two results are different which is not surprising, at all. The pandemic caused a global falloff, that has a significant impact on the beer industry, especially on microbreweries, as well. Since the consumer behaviour has changed, the purchases were more considered, and the sales have decreased. In some cases, businesses had no choice than to temporarily close or even to go bankrupt. Furthermore, new potential businesses decided to postpone the launch of new craft breweries because of the consequences of COVID-19. Even though the year 2020 has not ended yet, it is probable that our assumptions, that there will be an increase in the number of existing small and contract breweries in Slovakia, the Czech Republic and Poland in 2020, will be not correct. Furthermore, based on the data until August 2020, it is probable that there could be even a decrease in the number of existing small and contract breweries in the observed countries for the selected year. On the other hand, when it comes to the long-term perception of the development of craft beer industry in Central-Europe, further technological innovations and governmental help can be expected, since traditional, craft food and beverage products are going through a significant comeback. Therefore, we remain optimistic and believe that after dealing with the economic issues of the global pandemic, our assumptions will be correct in a long run, after all.

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# **Influence of face mask on perceived dominance and trustworthiness in times of COVID-19**

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## ***Abstract***

*In times of COVID-19 pandemic, many measures were taken to contain the virus. In Germany, the wearing of face masks to prevent the transmission of the disease COVID-19 has been mandatory in many buildings and public of risk areas. Also many companies have decided to also draw the necessity for the employees to use face masks in their daily work. Wearing the face mask can change the perception of the person. The faces reveals a lot of information about the person, e.g. the mood, visual information as age or sex and also judge the face to attributes like honesty or intelligence (Bruce & Young, 1986). The perception of the person can be distinguished to the dimension dominance and trustworthiness (Oosterhof & Todorov, 2008). This study examines how the face mask influences the perception of dominance and trust.*

*The following research question was answered: Is there a change in the person's perception of dominance and trustworthiness influenced by a face mask?*

*An online survey using a face database was conducted, in which three different emotions (happy, angry and neutral) was used. For the evaluation of the results a multiple linear regression was applied. With this study a contribution to the perception of the counterpart was made. As a result, wearing masks distorts the perception of dominance and trustworthiness significantly, which influences the relationship between people in times of COVID-19. Furthermore, there is a gender effect on the perception of dominance and trustworthiness.*

**Keywords:** *dominance, face mask, perception, trustworthiness*

**JEL Classification:** *Econometrics, Globalization, Health Behaviour*

## **1. Introduction**

The COVID-19 pandemic is the worldwide outbreak of the new respiratory disease COVID-19. In many countries around the world, the pandemic is causing massive cuts in the public and private lives of many citizens. In times of COVID-19 pandemic (Corona virus disease 2019), many measures were taken to contain the virus all over the world. In Germany, the wearing of face masks to prevent the transmission of the disease COVID-19 has been mandatory in many buildings and public of risk areas. Also many companies have decided to also draw the necessity for the employees to use face masks in their daily work. Wearing the face mask can change the perception of the person.

This phenomenon is already known through relevant research results. Using sanitary-masks can change the perception of attractiveness (Miyazaki & Kawahara, 2016), it also makes it even more difficult to recognize emotions (Carbon, 2020). Also the identification of a happy face show high reliance on the

mouth region (Wegrzyn et al., 2017). Other studies have been conducted to investigate the influence of the person's perception when covering different parts of the mouth, for e.g. by a scarf (Kret & de Gelder, 2012) or a niqab (Fischer et al., 2012). In east Asian countries, the facial mask is already common and was used for a long time to prevent the inhalation of pollution (Hansstein & Echegaray, 2018). Since the obligation to wear a face mask was introduced in western countries in 2020 due to COVID-19 pandemic, the question arises how these will influence the perception of people.

Oosterhof & Todorov (2008) has distinguished the facial perception of a person to the dimensions dominance and trustworthiness. These impressions are made within 0.1s and with increasing time, more impressions coming through like likeability, competence and aggressiveness (Willis & Todorov, 2006). Dominance is expressed by intense eye contact (Strongman & Champness, 1968) and angry emotions (Hareli et al., 2009). It also has an positive effect on competence and correlates negatively with likeability, while trustworthiness correlates positively with likeability and competence(Chen et al., 2014). Trustworthy faces, which express happiness are perceived also happier than untrustworthy faces, while untrustworthy faces who express anger were perceived as angrier than trustworthy faces (Oosterhof & Todorov, 2009).

These correlations show how important the face can influence the perception of people. This phenomenon also plays a big role in the industry. Relationships between employees and supervisor can change, if the perception also changes. If face masks distort these perceptions, they will have an influence on the relationships between employees and their supervisors in times of COVID-19.

Our study will focus on these perception dimensions with the influence of wearing a face mask. The following research question will be investigated: **Is there a change in the person's perception of dominance and trustworthiness influenced by a face mask?** Based on the research question we have made the following hypotheses:

H1: By wearing a mask the perception of dominance increase

H2: By wearing a mask the perception of trustworthiness decreases

H3: There is no gender effect in the perception of dominance and trust when wearing a mask

The hypothesis were decided due to past research. If wearing a mask distorts the perception of a person's emotions (Carbon, 2020), it also affects the perception of dominance and trustworthiness. In social behavior, the perception of the dominance of the other is essential(Fink et al., 2007; Jones, DeBruine, et al., 2010; Jones, Feinberg, et al., 2010; Oosterhof & Todorov, 2008; Sell et al., 2009). Dominance should increase, because by wearing a mask, the eyes are more in focus. This can result to a more intense eye contact, which leads to increasing dominance (Strongman & Champness, 1968). Also emerging anger wrinkles are caused by an angry look that is not covered by the mask, because they appear on the upper half of the face. This would also lead to increasing dominance (Hareli et al., 2009).

In the theory, trustworthiness should decrease by wearing a mask. The mouth region is a significant indicator for happy faces (Wegrzyn et al., 2017). If masks cover the mouth region, the perception of happy people can be distorted. This could lead into decreasing trustworthiness as trustworthiness correlates with happy emotion (Oosterhof & Todorov, 2009). People with masks also appear more anonymous, which could also have an influence on trustworthiness.

H3 was put forward, because face structures influence the perception of dominance and trustworthiness. Female faces are perceived as more trustworthy, while masculine faces are perceived as more dominant(Alexander Todorov et al., 2013). In the theory, wearing a mask covers the mouth and nose

area, blurring the perception of dominance and trust between men and women. Under these circumstances, we formulate our hypothesis that when wearing a mask, no gender effect in the perception of dominance and trustworthiness can be made.

Applying these hypothesis to industry sector, this could have consequences for the perception of employees and their supervisors. High dominant people are significantly more likely to emerge as leaders than their low-dominant counterparts (Lips & Keener, 2007). If the wearing masks eliminate gender effects on perception of dominance and trustworthiness, this could lead to an improvement of gender equality.

**Figure 1: Examples of faces with and without a face mask**



Source: Face mask added into faces from a face database (Ebner et al., 2010)

## 2. Methodology

### 2.1 Participants

We conducted an online survey with a total sample size  $N=140$ . To ensure data quality, we excluded from the study those participants who have stopped the study prematurely. Due to that 46 people were excluded, resulting in 94 completed reliable questionnaires.

The sample size is sufficient for the study, because with previous calculation a minimum a priori sample size  $N=89$  participants ( $\alpha = 0.05$ ;  $f^2 = 0.15$ ) using G\*Power 3.1 was calculated (Faul et al., 2009).

**Table 1: Demographic data of participants**

Gender		Age in percent mean: Standard deviation:		Highest education in percent	
Total	94 (100%)				
Male	41 (43,6%)	< 21	2 (2,2%)	Secondary school	8 (8,5%)
Female	53 (56,4%)	21 – 30	60 (63,8%)	High School	25 (26,6%)
Other	0 (0%)	31 – 40	19 (20,2%)	Bachelor	38 (40,4%)

41 – 50	3 (3,2%)	Master	17 (18,1%)
51 - 60	9 (9,6%)	PhD	3 (3,2%)
> 60	1 (1,0%)	Other	3 (3,2%)

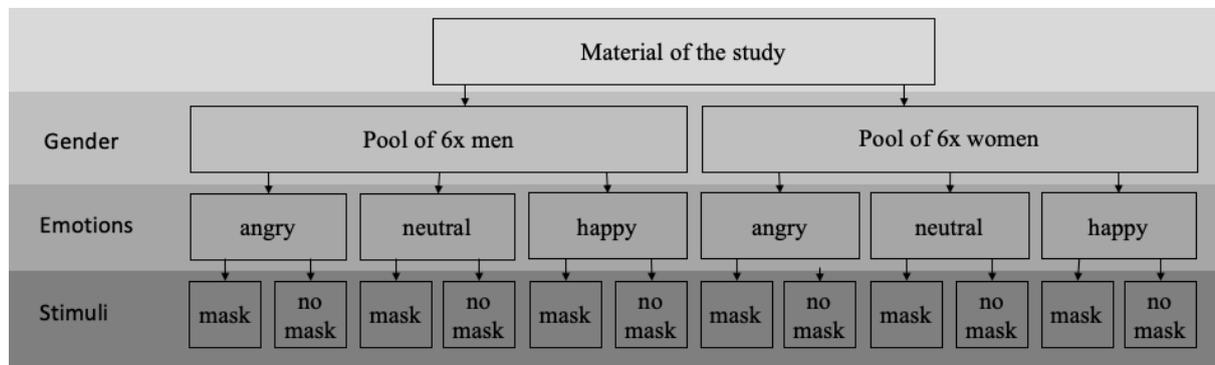
Source: Own illustration

The majority of the participants ( $Mean_{age} = 30.62$  years [18-87 years]) were higher educated. We attribute this slight imbalance in demographic data due to the fact that the data is collected through an online portal (SurveyCircle, 2020) that is mainly used by students and researcher for their theses and empirical studies.

## 2.2 Material

We use a face database from the Max Planck Institute for Human Development to retrieve the faces (Ebner et al., 2010). We used 12 people, which includes six men and six women. All the people were middle age. Each of the people had three different emotions: happiness, anger and neutral. For each of the emotions, we added another version with a sanitary mask (see Figure 1). In total we had 3 (emotions) x 2 (face gender) x 2 (no sanitary mask vs sanitary mask) = 12 stimuli. These stimuli were randomized on six men and six women, which multiplies up to an entire image pool of 72 pictures. To create the pictures with the sanitary mask, we used GIMP 2.10.18 in order to add the masks.

**Figure 2: Distribution of the images for evaluation based on dominance and trust-worthiness**



Source: Own illustration

## 2.3 Procedure

We created the survey on SoSciSurvey to collect the data. All the participants took part in the study between 21<sup>st</sup> of October 2020 and the 25<sup>th</sup> of October 2020 during the COVID-19 pandemic. Before starting the study, all participants had to accept the declaration of consent. Within the survey the participants had to rate a total of 12 stimuli (see figure 1). The following criteria were necessary for the 12 stimuli: Each emotion must occur once with and without a mask for a woman and for a man. From the pool of six women and six men, the images were randomized, with the man and the woman counterbalanced to ensure equal distribution. The items were additionally rotated within the study in order to avoid primacy and recency effects (Deese & Kaufman, 1957) and order bias (Blankenship, 1942).

The participants had to rate dominance on a two-sided slider with a scale from 1 (not dominant at all) to 10 (very dominant). The same query was also made for trustworthiness. There was no time limit for giving an answer.

### 2.4 Linear Mixed Model (LMM)

For analyzing the impact of wearing a mask on the perceived dominance and perceived trustworthiness, we used a linear mixed model with the perceived dominance or perceived trustworthiness as dependent and the presence of a mask as independent variable (hypothesis 1 and hypothesis 2). To evaluate the impact of the gender on the perceived dominance and trustworthiness, we add the independent variable "gender" into the mixed linear model and thus distinguish between men and women (hypothesis 3).

### 3. Results

The following analysis was conducted using Matlab, R2020b. At the beginning of our evaluation, we start by analyzing the descriptive statistics. For the perceived dominance, we found that the sample mean for persons with a mask (5.64) is higher than for people without a mask (5.15) and thus the resulting difference is 0.59. We made the same observation in a more differentiated view when we analyze the perceived dominance with pictures of men (difference: 0.45) and women (difference: 0.72). As we can see that the perceived dominance with pictures of men is higher than for pictures with women. For that, the difference between women with and without a mask is higher.

We found similar results for the perceived trustworthiness. So, the sample mean for trustworthiness is higher for persons with a mask (5.64) than for people without a mask (5.15).

The overall trustworthiness with pictures of women is higher than with pictures of men.

To perform unbiased parameter estimates of the linear mixed model, we additionally perform a Levene's test to evaluate whether the variances of the subsamples of perceived dominance and trustworthiness (pictures with and without mask) are equal.

The null hypotheses, that the variance of the perceived dominance for persons with a mask is equal to the variance of persons without a mask could not be rejected (Levene's statistic = 0.562,  $p = 0.454$ ). The same procedure, we have done for the perceived trustworthiness. Here the null hypothesis could not be rejected on a 5% (Levene's statistic = 3.679,  $p = 0.055$ ). So, for both subsamples, the null hypothesis could not be rejected, so homoscedasticity is ensured.

**Table 2: Descriptive statistics for perceived dominance**

Perception of dominance	Total observation	Sample mean	Sample std.
Persons with mask	564	5.63	5.54
Persons without mask	564	5.04	5.66
Men with mask	282	5.95	5.88

Men without mask	282	5.50	5.65
Women with mask	282	5.31	5.01
Woman without mask	282	4.59	5.27

Source: Own data from survey

**Table 3: Descriptive statistics for perceived trustworthiness**

Perception of trustworthiness	Total obs.	Sample mean	Sample std.
Persons with mask	564	5.64	5.20
Persons without mask	564	5.15	5.64
Men with mask	282	5.46	5.29
Men without mask	282	4.78	5.56
Women with mask	282	5.82	5.07
Woman without mask	282	5.52	5.47

Source: Own data from survey

### **3.1 Hypothesis 1: By wearing a mask the perception of dominance increase**

We analyzed the impact of wearing a mask on the perceived dominance ( $Y_{Dominance}$ ) by fitting a linear mixed model onto the two parameters,  $\beta_1$  (intercept) and  $\beta_2$ , the parameter of the predictor variable "Mask". The variable is equal to zero if the displayed person doesn't wear a mask and equal to one if the person wears a mask.

We found that wearing a mask has a positive impact on the perceived dominance of a person ( $\hat{\beta}_2 = 0.5851$ ). This was also shown by the descriptive statistics (see above). The null hypothesis that the estimated parameters are equal to zero where rejected by the t-test on a 1% confidence level. So, the impact of wearing a mask on the perceived dominance of a person is statistically significant. The overall significance of the parameters and thus the model superiority was also tested by an F-test. The null hypothesis that all parameters where equal to zero could be rejected on a 1% confidence level ( $F$ -test statistics = 17.3,  $p < 0.0001$ ). Thus, the first hypothesis, that wearing a mask has a positive impact on the perceived dominance can be confirmed empirically by the present sample.

**Table 4: Estimated linear mixed model for perceived dominance caused by wearing a mask for all persons(mask vs. no mask)**

Perceived dominance	Estimate	SE	tStat	$p$

<b>Intercept (<math>\hat{\beta}_1</math>)</b>	5.0443	0.0996	50.64	< 0.0001
<b>Mask (<math>\hat{\beta}_2</math>)</b>	0.5851	0.1409	4.1534	< 0.0001

Source: Own data from survey.

### 3.2 Hypothesis 2: By wearing a mask the perception of trustworthiness decreases

We repeated the procedure and analysed the impact of wearing a mask on the perceived trustworthiness. Contrary to our assumption and hypothesis, we found a positive impact of the independent variable „Mask“ on the dependent variable  $Y_{Trust}$ . The t-test (tStat) shows that the estimated parameter  $\hat{\beta}_2$  (= 0.4876) is statistically significant on a 1% confidence level. The overall significance of the model was also approved ( $F$ -test statistics = 12.4,  $p$  = 0.004). So, the hypothesis that wearing a mask has a negative impact on the perceived hypothesis could not be confirmed empirically by the present sample. Trustworthiness statistical significantly increases when wearing a mask.

**Table 5: Estimated linear mixed model for perceived trustworthiness caused by wearing a mask for all persons(mask vs. no mask)**

<b>Perceived Trustworthiness</b>	<b>Estimate</b>	<b>SE</b>	<b>tStat</b>	<b><math>p</math></b>
<b>Intercept (<math>\hat{\beta}_1</math>)</b>	5.1525	0.0980	52.552	< 0.0001
<b>Mask (<math>\hat{\beta}_2</math>)</b>	0.4876	0.1387	3.5165	0.0005

Source: Own data from survey.

### 3.3 Hypothesis 3: There is no gender effect in the perception of dominance and trust when wearing a mask

To test the gender effect on perceived dominance and trustworthiness we extend the used linear mixed model by the additional independent variable “Gender” and fitted it to the three parameters  $\beta_1, \beta_2$  and  $\beta_3$ . The variable “Gender” is equal to zero if the displayed person is a woman and equal to one if the displayed person is a man.

We found a positive impact of the gender ( $\hat{\beta}_3 = 0.7730$ ) on the perceived dominance ( $Y_{Dominance}$ ). This result can be interpreted as follows. If the displayed person is a man, the perceived dominance increases by 0.7730. This is also shown in the sample statistics above. The t-test confirmed the statistically significance of the variable “Gender” (tStat = 5.56,  $p$  < 0.0001). The perceived dominance is also increased by the variable “Mask” ( $\hat{\beta}_2 = 0.5851$ ). Furthermore, the impact of the variable “Gender” is higher than the impact of the variable “Mask”. The overall parameter significance was also confirmed by rejecting the null hypothesis of the associated  $F$ -test ( $F$ -test statistics = 24.3,  $p$  < 0.0001). Thus, for the perceived dominance, the hypothesis that there is no gender effect, could not be confirmed empirically by the present sample.

**Table 6: Estimated linear mixed model for perceived dominance and trustworthiness caused by wearing a mask (mask vs. no mask) and gender (women vs. men)**

PerceivedDominance	Estimate	SE	tStat	<i>p</i>
Intercept( $\hat{\beta}_1$ )	4.6578	0.1204	38.683	< 0.0001
Mask( $\hat{\beta}_2$ )	0.5851	0.1390	4.2083	< 0.0001
Gender( $\hat{\beta}_3$ )	0.7730	0.1390	5.56	< 0.0001
PerceivedTrustworthiness				
Intercept( $\hat{\beta}_1$ )	5.4246	0.1193	45.467	< 0.0001
Mask( $\hat{\beta}_2$ )	0.4876	0.1377	3.5392	0.0004
Gender( $\hat{\beta}_3$ )	-0.5443	0.1377	-3.9511	< 0.0001

Source: Own data from survey.

For the perceived trustworthiness we found a negative impact of the independent variable „Gender“ on the dependent variable  $Y_{Trust}$  ( $\hat{\beta}_3 = -0.5443$ ). This can be interpreted as that if the displayed person is a man, the perceived trustworthiness of this person decreases. This result also shown at the descriptive statistics above. The sample mean of the perceived trustworthiness is 5.82 for women (with a mask) and 5.52 (without a mask). For men the sample mean is 5.46 (with a mask) and 4.78 (without a mask). So, women are perceived more trustworthy in our present sample than men. The t-test show that the estimated parameter is statistically significant on a confidence level of 1% (tStat = -3.9511,  $p < 0.0001$ ). The impact of the two independent variables, estimated by the parameters are almost equal. Overall significance of the estimated parameters and superiority of the model was tested ( $F$ -test statistics = 14.1,  $p < 0.0001$ )

In summary, we found that the displayed gender has an impact on perceived dominance and trustworthiness. Our present sample show that men are perceived more dominant, while women are perceived more trustworthy. This particular effect is further enhanced if the person depicted wearing a mask. So, the hypothesis could not be confirmed empirically.

**Table 7: Linear mixed model on subsample (men vs. women) on dominance and trustworthiness**

PerceivedDominance		Estimate	SE	tStat	<i>p</i>
Men	Intercept( $\hat{\beta}_1$ )	5.4965	0.1429	38.455	< 0.0001
	Mask( $\hat{\beta}_2$ )	0.4539	0.2021	2.2455	0.0251
Women	Intercept( $\hat{\beta}_1$ )	4.5922	0.1350	34.005	< 0.0001
	Mask( $\hat{\beta}_2$ )	0.7163	0.1910	3.7507	0.0002

Perceived Trustworthiness					
Men	Intercept( $\hat{\beta}_1$ )	4.7837	0.1386	34.495	< 0.0001
	Mask( $\hat{\beta}_2$ )	0.6809	0.1961	3.4716	0.0005
Women	Intercept( $\hat{\beta}_1$ )	5.5213	0.1367	40.381	< 0.0001
	Mask( $\hat{\beta}_2$ )	0.2943	0.1934	1.5221	0.1285

Source: Own data from survey.

We further divided our sample so that only images of male faces and images of female faces appear. Using linear regression, we found, in addition to the confirmation that men are perceived to be more dominant than women ( $\hat{\beta}_{1Men} = 5.4965$  vs.  $\hat{\beta}_{1Women} = 4.5922$ ), that the increase in trustworthiness due to the mask among women faces is not significant ( $p = 0.1285$ ).

#### 4. Discussion

Overall results for the perceptions of dominance and trustworthiness was remarkable. The first hypothesis (H1) was confirmed. People with masks are perceived significantly more dominant than people without a mask ( $p < 0.0001$ ). The results underline previous studies that an intense eye contact increases dominance (Strongman & Champness, 1968). With regard to the industry, individuals with high dominance personality tend to emerge as leaders (Smith & Foti, 1998). Therefore, when wearing a mask, the individual should note that they appear more dominant than usual. Depending on their intentions, they should adjust the conversation with the counterpart, e.g. the customer, employee or supervisor.

Contrary to our second hypothesis (H2), people with masks were also considered more trustworthy ( $p < 0.0001$ ). Therefore H2 is rejected. This could be caused by the time of data collection. The data collection took place in October, 7 months had already passed since the COVID-19 respiratory disease was declared a pandemic. We assume that on this point, the public opinion towards face masks already changed: During current situation, everyone who wears a face mask shows solidarity towards the others and takes part in preventing further spreading of the corona virus. In contrast to this, people who do not wear a mask endanger their environment and seem less trustable. Under these assumptions, individuals in the industry in times of the COVID-19 pandemic should wear a mask in order to create trust.

To answer the third hypothesis (H3), our study shows there is a gender effect on dominance ( $p > 0.001$ ) and trustworthiness ( $p < 0.0001$ ). While there is a positive impact of being a man a mask (men are perceived more dominant than women), there is a negative impact of being a man on perceived trustworthiness (women are perceived more trustworthy). Therefore H3 is rejected. One possible justification for this could be that male facial characteristics are associated with male dominance, including measurements of physical strength (Fink et al., 2007; Sell et al., 2009; Undurraga et al., 2010). Other studies have been reported masculinized version of men's faces are perceived more dominant than feminized versions (Boothroyd et al., 2007; Jones, DeBruine, et al., 2010; Perrett et al., 1998). Our results support Todorov's (2013) research findings that female faces are perceived as more trustworthy, while male faces are perceived as more dominant.

We found out that wearing a mask has a higher influence on the trustworthiness on pictures with men than on pictures women. While the influence on trustworthiness on pictures of men is significant ( $p < 0.0001$ ), there is no statistical significance for women ( $p = 0.1285$ ). We assume as women are perceived

more trustworthy than men in general (Alexander Todorov et al., 2013), the further increase by wearing a mask has a weakening effect due to response bias of Likert scales. The fact that the average educational level of our participants is very high means that the response bias on the Likert scale tends to be central rather than extreme (Meisenberg & Williams, 2008).

Our study points to other possible research directions. First, different ethnicities can be applied in order to have an examination of the perception of different cultures, because people recognize faces from their own ethnic group more easily (Birkás et al., 2014). Second, also other personality traits could be evaluated on the stimuli with mask. Personality traits, such as extraversion, amiability or emotional stability play a role on face characteristics (Penton-Voak et al., 2006; A. Todorov, 2005). Thinking of stimuli, we only used happy, angry and a neutral faces for our survey. More stimuli, such as pride, fear, insecurity and enthusiasm should be also conducted to analyze the perception with and without mask. Future studies should also investigate the distinction of emotions on trustworthiness and dominance.

The study also contains some limitations. In our study, we used 12 stimuli with a pool of 6 different faces. The same person can be shown twice or more with different stimuli, because randomization of six persons is equally distributed. This can distort the rating, as the recognition of the person could impact the dominance and trustworthiness more than the stimuli.

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## Appendix

The Linear Mixed Model:

$$Y_{\text{Dominance}} = \beta_1 + \beta_2 X_{\text{Mask}} + \epsilon \quad (1)$$

For the perceived trustworthiness we used a similar approach:

$$Y_{\text{Trust}} = \beta_1 + \beta_2 X_{\text{Mask}} + \epsilon \quad (2)$$

To find evidence for the third hypotheses (H3) we add the variable of gender to the used model above:

$$Y_{\text{Dominance}} = \beta_1 + \beta_2 X_{\text{Mask}} + \beta_3 X_{\text{Gender}} + \epsilon \quad (3)$$

$$Y_{\text{Trust}} = \beta_1 + \beta_2 X_{\text{Mask}} + \beta_3 X_{\text{Gender}} + \epsilon \quad (4)$$

where:

$Y_{\text{Dominance}}$  is the dependant vector of the observed dominance of all participants in the study

$Y_{\text{Trust}}$  is the dependant vector of the observed trustworthiness of all participants in the study

$X_{\text{Mask}}$  is the independant variable vector which contains zeros (no mask) and ones (mask)

$X_{\text{Gender}}$  is the independant variable vector which contains zeros (women) and ones (men)

$\beta_1, \beta_2, \beta_3$  are the coefficients of the linear model

$\epsilon \sim N(\mu, \sigma^2)$  is the vector of errors which are assumed to be normal distributed.

# Rural economy and impact of agricultural sector in Colombia

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## **Abstract**

*In Colombia, as many countries, agriculture is associated with rural areas, its activities define the characteristics of life in the rural population, there are other sectors as industrialization and oil extraction, located in rural regions, but a long of history agriculture have influenced Colombian rural economy and social culture. Nowadays, still influences in a strong way this region, and with the pandemic situation was reflected the strong importance of this sector to guarantee food security and as source of employment in times of crisis. For that reason, is necessary to understand the dynamic of agriculture sector in Colombia and recognize general aspects of current rural conditions.*

*The paper presents an overview description of the current agriculture context in the country, addressing social condition of rural inhabitants, land distribution and the use of it, likewise economic contribution of this sector, balance trade of agriculture commodities, to finally analyze the impact of agriculture, rural economy, and propose aspects to improve the contribution of this sector.*

**Keywords:** 3-5 keywords, Times New Roman 11pt, Italic, Block-aligned, in alphabetical order, separated by commas

**JEL Classification:** 3-5 JEL codes, Times New Roman 11pt, Italic, Block-aligned, separated by commas

## **1. Introduction**

Agricultural sector, in 2019, generated 6,74% of total GDP, despite of the constant reduction of participation in the GDP, agriculture's contribution to national economy is important, for aspects as agriculture employment, which in 2019 contributed around 16,45%, according with World Bank data base. Considering that agriculture is the main activity to rural inhabitants, these percentages are low contribution of this sector taking into account the high potential of production in rural areas.

To give a view of the agriculture employment situation, in 1991 the share generated by agriculture attained 26,72% of national contribution, and went down until 2007 (18,38%) when was stabilized for some years but in 2013 (16,63%) continued the trend of decreasing until these days.

Rural population has had a decreasing trend in the last decades, for several causes as internal conflict, migration to cities looking for better opportunities and incomes, and other. By 2019, according with data of the National Department of Statistic DANE and information of the World Bank, rural population was near to 9'512.141inhabitants, 19, 02% of the population in Colombia.

In 2015, 23.6 %of national population lived in rural areas (IFAD, 2016),about their social condition, in these year, more than 7 million citizens were poor and 2 million lived in extreme poverty. Many of them have been displaced from their land and have lost their assets as a result

of violence (IFAD, 2016), According with data of the same institution there is a wide gap between urban and rural areas, while the incidence of poverty is 27.8% in national population, 40.3 % of rural people live in poverty.

National Agricultural Census of 2014 shows another indicator, called Multidimensional Index of Poverty (MPI) related with education conditions, housing and access to public services, according with this, 45,7% of rural inhabitants are in poverty condition and 54,3% are not in poverty conditions, comparing these results with the same data in 2005, there is a national trend of decreasing poverty, however there is not a unification concept about poverty and the way of measure it, because different institution use their own indicator and this could generate troubles with interpretation of reality. However, something that is common in the different diagnostics is than the main problem of population in rural areas is lack of sanitation conditions and access to high education.

## **2. Data and Methods**

The collect of information was focus on secondary data, first was consulted international sources as World Bank database, UN Comtrade databases of United Nation, specifically Atlas.cid.harvard, for economic indicators, agricultural commodities trade and statistics of rural population.

Data related with land use in Colombia, distribution of crops production and national agricultural policy where gather from databases of national institution as Ministry of agriculture, Codazzi geographic institute and the National Agricultural Census of the Statistic Department (DANE).

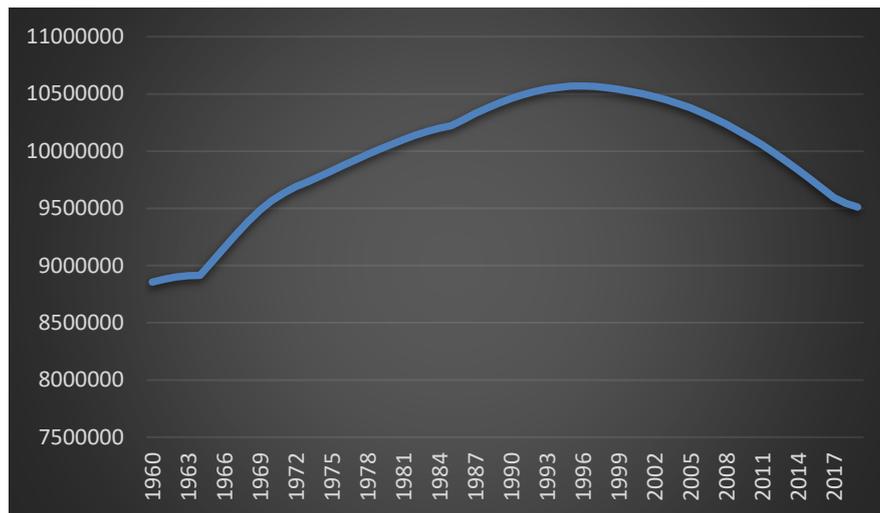
For the description and analysis of the current agricultural policy was used data from the Ministry of Agriculture, regarding the last policy for the period 2018-2022.

## **3. Results and Discussion**

### **Rural population in Colombia:**

At this days the total population in the country is around 50 million people, but rural population in 2019 was only near to 9'512.141 people, 18, 9% of the population in Colombia, according with data of the national institute of statistic DANE and information of the World Bank, alarming situation considering the extensive rural areas in the national territory and the uncontrolled growth in the biggest cities, furthermore the problem to guarantee the food security of the people, because with less farmers in rural areas the country depends more of import food, raw materials, services, to solve the local demand.

### **Figure 1. Rural population in Colombia**



Source: adaptation of World Bank database.

By 2000's the urbanization rate in Colombia was one of the fastest in Latin America, with 75% of the population living in cities, which offer better quality of life, opportunities, access to technology, education, transportation and less danger than rural area.

There are several factors for the rural situation reflected in the previous figure, one of the most important is the political conflict for long time between the 2 traditional parties, the guerrillas conflict, these contributed with decline of population in the middle of the century XX, but other aspects like the economic system of in 1960's and 1970's focus on big exports of products like coffee let many farmer families working in rural areas. In 90's the drug trafficking of illegal groups (paramilitaries, guerrillas and criminal gangs) and the opening economy in 1991 caused displacement to cities, people looking for better conditions, because despite of the huge contribution of the rural areas to the economy of the country investment there is low and have not improve the condition to get more productivity, development and livelihood.

### **Location aspects of rural areas:**

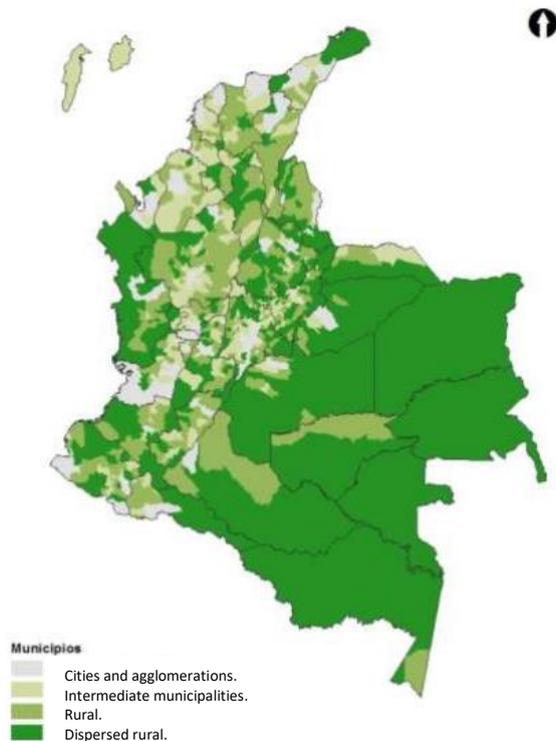
The concept used but the institution DNP for Colombian rural municipality is: center of settlements with less than 25.000 inhabitants and population density between 10 inhab./km<sup>2</sup> and 100 inhab./km<sup>2</sup>, and for dispersed rural are: municipalities and areas without this category which have a small center of settlements and low population density (less than 50 inhab./km<sup>2</sup>).

In Colombia, the characterization of rural is done taking into account aspects such as: population density, lack of basic services in housing, school attendance, value tax added, the offer of public and private institutions to supply the needs of the community, and percentage of the population employed in the agricultural sector.

About the distribution of rural population and rural areas in the territory, the Figure.2 exhibits the location of the cities, intermediate municipalities and rural areas, and is visible the concentrations of population in the country are in the west-center and part of the north, one of the reason is because Bogota, the capital and the most important economic and politic point of the country, is located in the center of the territory, therefore there are economic and social development around it. Moreover, the Caribbean coast in the north with 3 biggest coast cities with harbor trade, and in the Pacific coast 1 harbor trade in the south, thus the development and investment focused in this part of the territory, also is appreciable better infrastructure and connectivity (roads).

Part of the north, but mainly the east side of the country has the majority extension of rural areas, with less concentration of population and land dedicated to agriculture activities, cattle and natural protect areas. In the case of the east side, there are a huge natural protect area in the south that is part of the Amazonas, is not allow settlements and other activities. On the other hand illegal groups like guerrillas were located for many years in this west areas, industries and some communities avoid settlements there by that time, furthermore the limited roads to connect municipalities.

**Figure 2. Rurality classification in Colombia**



Is appreciable the huge extension of rural areas, 111,5 million of hectares, number of DANE,2014. That difficult to public authorities the correct management and control over all territory, furthermore is complicate the access to some regions, is only possible by plane, added to other factors increase the cost of monitoring and control.

Source: DNP. 2014. Framework of mission to transformation of countryside

### **Land use**

The agriculture policy called Colombia sows “Colombia siembra” , had an aim of developing an agriculture zoning map, to identified the use of land in different regions of the country, and the vocation of land, referring to the productive suitability according to the condition of each land. This was an important step because gave data to make a characterization of current situation and location of agriculture activities, in addition, is useful to make decisions by governmental authorities and design the future policy and programs to optimize the use of land.

Were several years without this useful information, finally in 2016, after years of data recompilation, the National Geographic Institute Agustin Codazzi (IGAC) and the unit of rural agriculture planning of Ministry of agriculture, published the information “soil and land of Colombia”, which shows data about land use capacity, coverage and use of land, conflict of land use and agro ecological zoning.

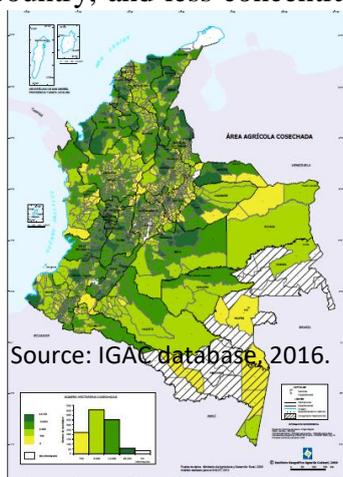
Some of the most important results of this geographic data are: identification of 114 million of hectares with agriculture, forestry and cattle potential, and 35 million could generate more production.

Currently, the 67,7% of this land has suitable use and 28,7% of territory present wrong use of land because of agricultural overload, besides factors such as erosion, depletion of nutrients, salinization, compaction, loss of organic carbon and chemical contamination endanger soils.

### Figure 3. Harvested agricultural area

The figure 3. is one of the published maps with the distribution of land use, related with harvest area in Colombia, which shows with green dark color areas with higher concentration of harvest and green light and yellow those ones with less harvest extension.

Is possible appreciate the location of this activity in north coast and central region of the country, and less concentration in east areas near to Amazonas region and natural protect area, despite of that, currently, there are harvests in that region and other activities as mining.



On the other hand, the last National Agricultural Census, in 2014, got data about the distribution of activities in the current 111,5million hectares identified as rural areas, the participation correspond to:

- 56,7% are natural forest, (63,2 millions of hectares)
- 38, 6 % is used for agricultural activities (7,1 millions of hectares are to crops and 34,4 millions of hectares are to cattle).
- 2,2 % not agricultural use. (2,5 millions of hectares)
- 2,5% designate to other use. (2,8 millions of hectares)

The agriculture activities are concentrated in 20 departments or counties of the total 32 that Colombia has, and the most productive counties are located in central territory mainly mountain region. As was mentioned before, currently cattle use near to 35 millions of hectares, but with the data of the agriculture zoning map was identified Colombia has just 15 millions of hectares with land to cattle vocation, by comparison, crops activities are using just 7,1millions of hectares and there are 22 millions of potential hectares for these activities, this situation must behandelled urgently, planning of use of land.

### Colombian crops

In relation with the type of crops, in Colombia there is an agriculture inventory of the most harvest food for local markets and to export, these crops are organized in 5 categories, described in the following table.

**Table 1. Agricultural inventory**

Agricultural inventory	detail
Fruits	Banana, citric, pineapple
Tuber and plantains	Yucca, plantain, potatoes
agro industrial	Coffe, cocoa, panelera cane, oil palm, cotton, sugar cane.
Cereals	Yellow corn, white corn, rice
Vegetables and	

legumes	
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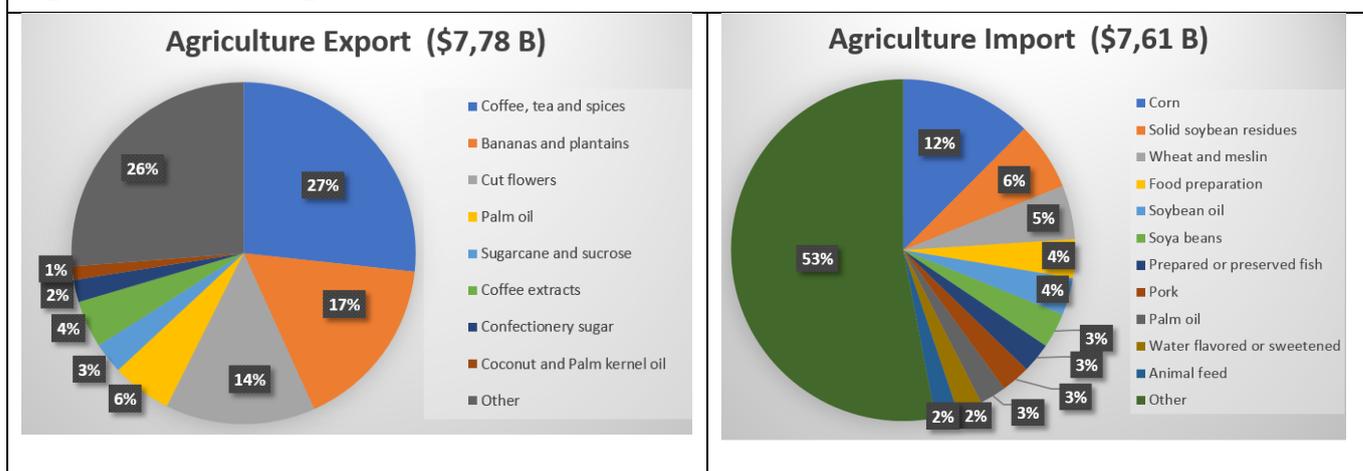
Source: adaptation of National Agricultural Census 2014.DANE

For industrial crops, 22,3% are tubers and bananas; 16% cereals; 14,6% fruits; 6,8% forest plantations; 4,2% vegetables and legumes; 0,8% to aromatic and medicinal plants; and 0,2% to flowers and foliage. In the case of husbandry sector, in 2014 were 21,5 millions of bovines, 5 millions of swine (pigs) and 720.368 birds. Other subsectors are milk products, buffalos and goats.

### Colombian agricultural trade

Information about agriculture trade in Colombia of 2018, let appreciated the balance between export and import, in terms of amount of money and kind of products, the export of agriculture products were 7,78 billion dollars and import 7,61 billion dollars, there is a close balance of trade in this sector, not a big gap between export and import.

**Figure 4. Colombian agriculture trade in 2018**



Source: Adaptation of data from atlas.cid.harvard.edu

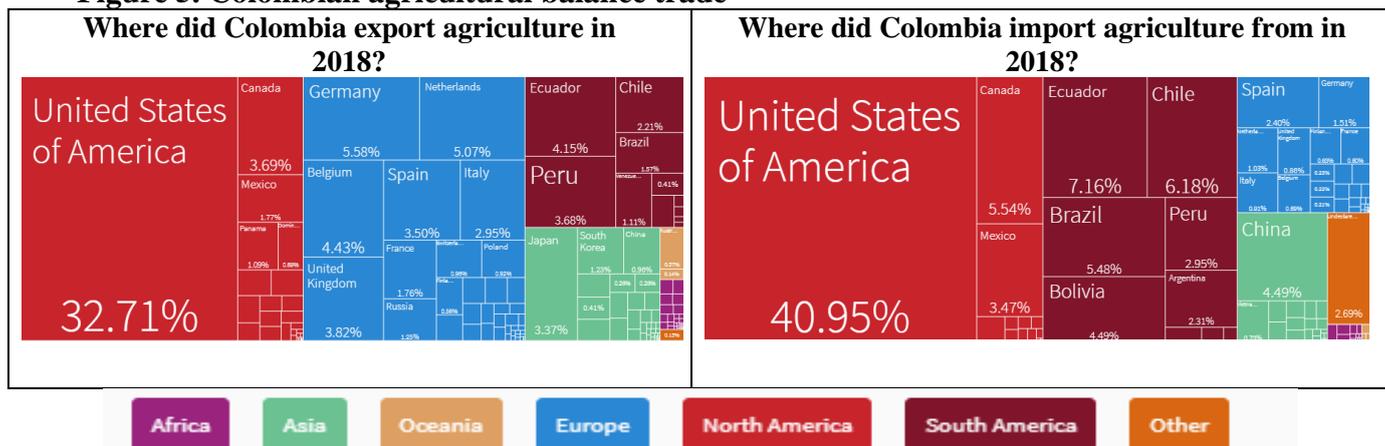
Related with the trade of products, the main agriculture products that Colombia export are 2 categories, those gathered 47% of total agricultural export.

- Coffee, tea and spices
- Bananas and plantains, fresh or dried.

In plants category with 14% there is cut flowers, followed by palm oil sugar cane and sucrose. On the other hand, agriculture imports is led by corn with 12 %, solid soybean residues, wheat, food preparation in the third category with 5%; food preparation and soybean oil.

Also is important to recognize where are the final export destinations and the provenance of the agriculture products arrive in the country, there is information on the database Atlas of Economic Complexity, about the countries, which Colombia traded in 2018, the following figure shows the countries that participated in this balance trade. United States led both, as the first destination of Colombian agriculture products and the big seller of products of the same sector. About the export trade, is followed by European Union, with around 13 importer countries, which gather approximately 28,94% of Colombian agriculture exports, less proportion to South America and Asia.

**Figure 5. Colombian agricultural balance trade**



Source: [The Atlas of Economic Complexity 2.3](#). HCID.

In the case of imports, the trade with 6 countries from South America increase (Ecuador, Chile, Brazil, Bolivia, Peru and Argentina), attained near to 28,57% of total agriculture products imports, and trade with countries of European Union was around 9%, with Spain, Germany, Netherland, United Kingdom, Italy, France and Belgium. Again trade with Asia or other continents is low, could be an important fact that Colombia has free trade agreements with United States, Canada, European Union and countries of Latin America.

**Contribution to GDP**

As was mentioned before the last register GDP participation of agriculture sector, according with data of World Bank, in 2019 the contribution of this sector was 6,74%, and has been a downward trend since 1969, for that year the participation of agriculture in GDP was 29,31%, by 1999 was around 13%, presented a strong decrease by 2000 to 8,3%, and had been keeping that trend currently.

In contrast there are other economic sectors as oil extraction and mining that started to increase by the decades of 70’s and 80’s, and has been pointed as one of the causes of agriculture situation, because government became to focus more on the revenues of those sectors and the national economy became dependent of them, even in these days give the highest contribution to Colombian GDP.

Just to consider some numbers, the production of petroleum by 1980 was 132.000 barrels/day and in 2017 attained 872.580 barrils/day, the biggest production was in 2014 with 1.021.900 barrils/day, according with databases of World Bank. Is the same behavior for coal production and exports, by 1983 the coal export approximately 1.800.000 short tons, and in 2017 was around 90 million short tons of coal.

The importance of these 2 economic activities could be identify in the contribution to the total balance of trade of Colombia, as in 2018 when the Minerals sector, that gather coal, petroleum oils crude and refined, contributed with 43% of total exports of the country that year. With Colombian exports value of \$53 billion dollars and imports value of \$62,5 Billion dollars.

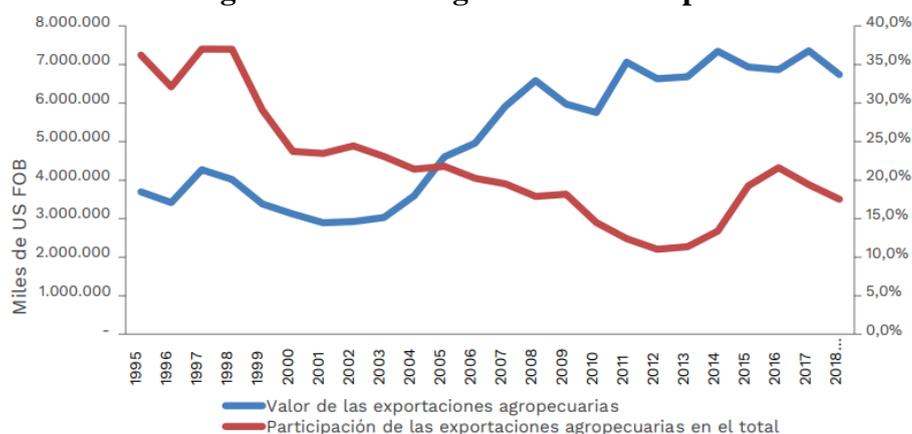
The balance trade of Colombia have been trending negative since 2014, because of the rise of good and services imports, in the case of agricultural sector, it has not deficit between export

and imports for few, there is trade surplus, but the trade deficit is present in other sectors as petroleum, oil, services, machinery, among other.

The Figure 6. Performance of agricultural and agro-industrial exports 1995-2017, shows how has been the behavior of agricultural sector in the last years, the value of the exports in this sector (blue line) and the share of its exports for the country (red line). Could be observed the reduction, for a long time, of the agricultural participation in Colombian exports, despite of the characteristics of land and rural conditions outlined previously.

That performance is not a good signal of the effectiveness of previous national agricultural policies, to improve and encourage this sector with economic and social measures and programs. The value of the export could increase but is not directly proportional to the participation in the national economy.

**Figure 6. Performance of agricultural and agro-industrial exports 1995-2017**



Source: Ministry of Agriculture and rural Development. National agricultural policy 2018 - 2022

Colombia mainly trade raw materials as coal, oil not refined, fruits, vegetable and other without added value, generating less income to national products and have to import final processed products. Government try to develop programs and projects to encourage the transformation of products but have not been enough, is necessary long term strategies and frequent orientation in trade activities to producers and traders. For this is essential clear policies than oriented public investment and defined the objectives and route in different sectors.

Was evident the rupture of decreasing trend in agriculture exports between 2014 and 2017, even with same conditions of previous years as focus on raw material, reduction of rural population and less investment. Therefore, the current Agriculture and Rural Development National Policy (2018-2022) has a big challenge to encourage the rise of exports, strength national production, diversification of products, access to land and improve living standard in rural regions, mainly aspects recognized as priority for the Colombian rural sector.

The policy for the period 2018-2022 focus on 3 pillars: Rural development, with programs on social and productive structuring of land, investment on goods and public services, and revenue generation from agricultural employment and entrepreneurship.

The second pillar is Productivity + Profitability = Competitiveness, specifically with actions on transformation and agricultural production structuring, risk management in phytosanitary conditions, and agrifood quality, financing and integral management of risk. The last pillar is the modern and technical institutionalism.

## 4. Conclusion

- Is observed difference between the types of agriculture products that Colombia trade, export is based, mainly, on products without transformation, as the fruit category, except of some coffee products with added value. And imports include cereals, waxes, animal fodders and edible fats.
- Agriculture policy in Colombian have been focus on overcome social and economic problems of rural population as poverty, access to basic services, inequality and an important aspect for the country that is the formalization of rural property, furthermore to guarantee food safety and encourage competitiveness.
- There was great progress on identification of land use and distribution of activities in rural land with the agriculture-zoning map, and is necessary implement planning and management strategies to modify the situation with the land use potential for cattle and crops.
- The participation of agriculture sector in Colombian GDP has been decreasing since 4 decades ago, with a little growth between 2014 and 2017, among other because national economy focus on sectors like oil extraction and coal, and fewer people were linked with agriculture activities. However is important to boost the potential of this sector, since is one of the employment ways of rural population and is necessary for the national food safety.
- The last National Agricultural Census was developed in 2014, since that time some of indicators have data with projections, was not identify in the current policy and investment project making a new census, however is urgent to take decisions with reliable and update data.
- Previous agricultural policies had the component of Rural Youth and Gender Participation, the current policy has not an specific pillar or program, but try to include these as transversal aspect in the pillars.  
Is essential promote these 2 components to guarantee an inclusive policy, with rural youth that have access to training on technical and entrepreneurial capabilities, invest on generational replacement, and offer the process of land restitution to rural communities.
- Colombian rural sector has passed for many conflicts, develop of extraction activities, displaced of population and other negative situations, but the opportunities after post-conflict are huge, to reconciliation, economic development, reduce inequality and improve quality of life.

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# **Analytics of competitiveness management of Ukrainian agrarian higher education institutions**

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## ***Abstract***

*Competitiveness on the market of educational services has become vitally important for Ukrainian agrarian higher education institutions. Ensuring competitiveness is a continuous process of management decisions modeling and introducing steps for their implementation. An institution competitiveness can not be ensured without sustainable quality management system and a clearly defined process model of quality management, which must be consistent with the institution mission and strategy. It is possible to ensure compliance with these requirements by carrying out high-quality analysis of the institution's activities and the market of educational services.*

*The paper deals with the agrarian higher education institutions analysis and the approaches to establishing the leaders and potential competitors. The main criteria of competitiveness of agrarian higher education institutions were determined, the main directions of strategic plans development were analyzed. The model of agrarian higher education institutions management was supplemented and detailed.*

*Based on the results of the study, possible components of the SWOT-analysis of agrarian higher education institutions were proposed: the evaluation criteria were determined; the capabilities of the institution if the criterion is a strength; threats to the institution if the criterion is a weakness; mutual influence of various criteria.*

*For the period 2020-2025, agrarian higher education institutions consider international activity, internationalization, scientific and educational activities quality, changes in the management system, the institution branding as the primary vectors of its development.*

*Having analyzed the market of educational services, agrarian higher education institutions envisage a reduction in the contingent of applicants for higher education. In this regard, strategic development plans involve reorientation and expansion of educational services, including increased number of foreign students, the introduction of distance and dual forms of education, establishing retraining and advanced training programs. In addition, the development of additional new sources of funding such as the commercialization of research, participation in international projects and grant programs, partnerships with industrial and agricultural enterprises are considered in the strategic development plans.*

*Methods of analysis, generalization, modelling, as well as the principle of statistical information processing were used during the study*

**Keywords:** *analytics, competitiveness management, criteria of competitiveness, higher education institution, SWOT-analytics.*

**JEL Classification:** *M1, I21, C81.*

## **1. Introduction**

Nowadays, the issue of higher education institutions competitiveness is very relevant not only in Ukraine but in the world as well. The changes that take place in management are based not only on the principles of administrative management, but also on knowledge on the market economy, labor market, the needs of employers. Strengthening the institutional mission of universities due to ensuring a high level of teaching, training and research shall be the ultimate goal of management [1-2]. University management needs determining the competitive advantages and

reorganizing the management structure in order not only to remain in the market of educational services, but to be successful as well. The competitiveness of the organization can not be ensured without a real permanent quality management system and a clearly defined process model of quality management, which must be consistent with the mission and strategy of the institution. It is possible to ensure the fulfillment of these requirements through carrying out high-quality analysis of the institution's activities and the market of educational services.

In Ukraine, the study of competition and competitiveness was not conducted until the 90s of the twentieth century due to lack of need while in modern conditions of tough competition, these economic categories are quite relevant [3]. The issues of competition and competitiveness in the goods and services market are highlighted in the papers of famous economists [4-8] and they still cause a lot of controversy among modern scientists due to the lack of a clear definition of these categories. However, it should be noted that the economic categories "competition" and "competitiveness" are not identical concepts.

In the modern context, competition is a mechanism of market economy, which requires constant market analysis in order to cost-effectively manage the competitiveness of the organization. Unlike competition, which is an uncontrolled factor affecting the activities of the organization and which can not be managed, the competitiveness of the organization arises in the presence of competition between organizations or manufacturers - it can and should be managed. It is worth pointing out that the availability of competitive products does not guarantee the desired economic effect. It is the management of the competitiveness of the organization can provide a worthy place in the market of a particular industry, provided a quality competition policy. Thus, to be successful, you need not to fight, but to analyze and change, i.e. to be ready for constant change in accordance with the challenges of time and consumer needs.

Despite the relevance of this topic, scientists have neither defined methodology for analyzing the institution competitiveness nor common opinion on the evaluation criteria and sources of information. There are methods of products competitiveness assessing while no universal method of the organization competitiveness comprehensive assessment has been developed yet [9-11].

## **2. Data and Methods**

The article used data from the "Top-200 Ukraine" and Webometrics rating systems, documents on strategic development plans of Ukrainian agricultural higher education institutions, monitoring reports of various agricultural higher education institutions, State Statistics Service of Ukraine data, "Agricultural education" Scientific and Methodological Center for Higher and Professional Higher Education. During the study, the method of analysis, in particular the method of SWOT-analysis, was used along with the methods of generalization and modeling, as well as the principle of statistical information processing.

Analytics of higher education institution competitiveness management includes certain stages of research, the results of which can be a base for making a conclusion on the effectiveness of management decisions. The first stage of the analysis should involve the study of the educational services market and determine the needs of consumers of different groups of stakeholders, the latter can be carried out in the form of questionnaires and monitoring reports. According to the Standard of Social Responsibility ISO 26000 [12], the category of stakeholders implies a person or a group of people interested in decisions or activities of the organization. The main stakeholders of agricultural higher education institutions are: entrants, students, their parents, research and teaching staff, graduates, employers, the state. Table 1 highlights the main criteria for the competitiveness of higher education institutions formed according to different

groups of stakeholders and based on monitoring research reports of various agricultural universities.

**Table 1: Basic criteria of competitiveness according to various agrarian universities stakeholders groups**

№ s/n	Agrarian universities stakeholders groups						
	Entrants	Parents	Students	Graduates	Employers	Teaching staff	State
1	Quality of education	Quality of education	Quality of education	Quality of education	Quality of education	Quality of education	Quality of education
2	Institution reputation	Institution reputation	Institution reputation	Institution reputation	Institution reputation	Material and technical resources	Science and research base
3	Possibility of training abroad	Possibility of training abroad	Possibility of training abroad		University partnership programs	• University - industry partnerships	• University -industry partnerships
4	Job placement	Job placement					International activity

The second stage of the analysis involves determining the leaders in the market of educational services and the value of their competitiveness criteria. The existing rating systems can be used to assess the performance of higher education institutions. Consider two rating systems: "Top-200 Ukraine" and Webometrics with their main criteria and specific coefficients (Table 2-3).

**Table 2: Criteria, indicators and specific coefficients of the "Top-200 Ukraine" rating (source [13])**

№	Criterion	Specific coefficient
1	Faculty potential quality	[0-50 %]
2	Quality of education	[0-30%]
3	International reputation	[0-20%]

**Table 3: Criteria, indicators and specific coefficients of the Webometrics rating (source [14])**

№	Criterion	Specific coefficient
1	Visibility	[0-50 %]
2	Activity	
2.1	Presense	[0-10 %]
2.2	Openness, Transparency	[0-10 %]
2.3	Excellence	[0-30 %]

These rating systems enables to identify leaders and potential competitors. Focusing on the consolidated rating of agrarian institutions is advisable while determining the place of an agrarian university in the market of educational services. The information can be supplemented with the data that will determine the currently relevant competitiveness criteria. Such information can be provided directly by consumers of educational services.

Drawing up a report of the institution self-analysis is an important stage in the analysis of the agrarian university management. Until now, each university analyzed efficiency once a year according to criteria determined at its own discretion. Since the National Agency for Higher Education Quality Assurance in (NAQA) introduced the procedure for educational programs accreditation, the reporting is mandatory and it is carried out regularly in accordance with certain criteria and sub-criteria, as well as in terms of educational programs. The main criteria

are defined as follows [15]: 1. Designing and objectives of the educational program (EP). 2. The structure and content of the EP. 3. Accessibility of the EP and determination of learning outcomes. 4. Training and teaching for the EP. 5. Students control and evaluation, academic integrity. 6. Human resources. 7. Educational environment and material resources. 8. The EP internal quality assurance. 9. Transparency and publicity. 10. Learning through research. The experts, followed by the NAQA industry experts the take a decision on the program accreditation for 5 years, conditional accreditation for 1 year, or a decide to refuse the accreditation on the grounds of the EP meeting the requirements of the first 9 criteria. Criterium 10 is added to the accreditation. This analysis allows to identify the weaknesses and strengths of the institution and to formulate management decisions aimed at increasing the competitiveness of the agrarian university. The decisions are formulated in the strategic plan for the development of agrarian for 5 or 10 years.

The self-analysis report is often supplemented with the SWOT analysis components. This method of assessment allows to identify weaknesses and strengths of the internal environment and to formulate opportunities and threats taking into account the external environment.

### 3. Results and Discussion

The situation on the market of educational services intensifies competition between universities and contributes to the growth of consumer demands for the quality of educational services. Educational services quality can be ensured through its reorienting from the functional activities of educational institutions to the process management and building a management system based on close cooperation with applicants, students and employers as the main customers of higher education institutions services [16]. Table 4 suggests possible components of SWOT-analysis for an agrarian university.

**Table 4: Possible components of SWOT-analysis of an agrarian university** (proposed by the author) [17]

<b>№</b>	<b>Assessment criterium</b>	<b>Possibilities for the strength</b>	<b>Threats for weaknesses</b>
1	Faculty quality	- human resources for scientific innovative projects	- lack of human resources for scientific innovative projects
2	Education quality	- positive image of the agrarian university - increased contingent of students	- negative image of the agrarian university - decreased contingent of students
3	International recognition	- international cooperation geography extension - increased contingent foreign students	- decreased number of agreements on international cooperation - decreased contingent foreign students
4	System of quality internal assurance	- improved education services quality	- degradation of education services quality
5	Branding	- development and strengthening the positive image of the agrarian university - increased contingent of students	- decrease decreased contingent of students
6	Material and technical resources	- R&D development; - scientific developments commercialization	- degradation of education services quality
7	Participating in international projects and contests	- participating in grant programs - academic and scientific mobility extension	- decreased academic and scientific mobility
8	Cooperation with employers	- improved EP - partner ship with industrial and agrarian enterprises	- degradation of EP - failure to provide partner ship with industrial and agrarian enterprises
9	Information environmente-learning system	- extended assortment of educational services	- reduced assortment of educational services

		- conditions for retraining and advanced training	-lack of conditions for retraining and advanced training
10	Improvement of agriculture machines park	- increased crops productivity	- decreased crops productivity

We compared the criteria of different rating systems for universities and modern models of competitiveness management assessment taking into account changes on the market of educational services and identified the main factors of competitiveness:

- number of entrants;
- the number of graduates employed in the specialty;
- number of publications and citation rate of the faculty scientific papers in the Scopus system;
- number of foreign students;
- the amount of state funding;
- the number of additional sources of funding;
- material and technical support;
- teaching aids provision;
- availability of modern laboratories and clinics;
- agreements on practical training in the manufacturing environment.

**Table 5: Assessment of changes in the market of educational services as of 2019 and their impact on the formation of criteria for the agrarian universities competitiveness** (formed by the author)

No	Changes on the educational services market	Impact on the formation of criteria for the competitiveness	Criteria for the competitiveness	Management decisions directions	Source
1	The importance of the university's place in the market of educational services, according to international and national ratings, has increased	Much attention is paid to the development of efficiency indicators according to international and national ratings	1) demand for the university graduates on the labor market in Ukraine and abroad 2) citation rate of the faculty scientific papers in the Scopus system	- to ensure the quality of student training - to ensure the quality of scientific research and their publication in scientific and metric databases - to ensure the relationship with the economy and society - to ensure the introduction of innovative technologies in the educational process - to develop cooperation with foreign universities - to promote participation in the EU educational and research programs - to ensure information accessibility and improve the information resources maintainance	[18]
2	Shifting the dissonance in supply and demand to the predominance of supply	The number of graduates exceeds the number of entrants, the competition between the universities increases	3) the number of entrants	- to intensify career guidance work	[19-22]
3	Demographic fluctuations and intersettlement migration. Decrease in birth rate and balance of the young	Increase of vacancies on the agro-industrial complex labor market	4) level of the specialty graduates employment	- to study information on the graduates employment number - to study the degree level of employers satisfaction with university graduates	[23]

	contingent on the sex basis				
4	Growing demand for educational services in Ukraine among foreign students	The number of foreign students increases	5) number of foreign students	- to develop cooperation with foreign students - initiate international accreditation of training programs - ensure the quality of education for foreign students	[24]
5	Growing demand for educational services abroad among Ukrainian citizens	Decreased number of Ukrainian universities entrants	6) the quality of higher education	- to ensure the quality of higher education - to promote the national education	[25-26]
6	Problems in higher education financing	Cutting the state funding	7) level of self-financing	- to develop sources of self-financing	[27]

Therefore, the analysis of agrarian universities competitiveness management can be made with the technique that implies implementation of the algorithm with the following stages:

1. Studying the educational services market and defining the needs of various groups of stakeholders consumers.
2. Identification of leaders on the educational servicesmarket.
3. Establishing the strengths and weaknesses of competitors.
4. Self-analysis of the university activities aimed to identify its strengths and weaknesses.
5. Differentiation of services in order to create a uniqueone.

The final stage of the analysis involves the development of a competitive strategy taking into account the needs of all groups of stakeholders.

#### 4. Conclusion

The analysis of the agrarian universities educational services market reveals the tendency of decreased contingent of the students. In this regard, strategic development plans involve reorientation and expansion of educational services, including increasing the number of foreign students, introduction of distance and dual forms of education, starting the retraining and advanced training programs. In addition, the development of additional new sources of funding - the commercialization of research, participation in international projects and grant programs, partnerships with industrial and agricultural enterprises- is involved.

The main vectors of the agrarian universities development for the period 2020-2025 are defined: international activity development, internationalization, quality of scientific and educational activity, changes in the management system, the institution branding and image promotion.

The method of an agrarian university competitiveness management analysis is offered. Higher education institutions should constantly analyze the criteria, indicators, the university rating systems weights to formulate criteria for the current and determine the strategy of management decisions in order to improve their position in the market of educational services.

The analysis of agrarian university competitiveness management systems and the analysis of analytical reports on their activities is to be the next stage of research.

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## **The needs of retail sector customers after the large-scale social restriction in Jakarta**

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### **Abstract:**

*In order to initiate continuity for their business in this covid-19 pandemic situation, companies need to ensure their products are well absorbed in the market. Companies need to utilize their limited resources effectively and efficiently to fulfill their customer needs better than their competitor to deliver the quality. This paper aims to identify customer needs of Transmart Carrefour Lebak Bulus, Indonesia after Jakarta's large-scale social restriction. This research utilize qualitative data from Google Customer Reviews platform. All qualitative data will be analyzed using affinity diagram and tree diagram to translate the opinions of customers (Voice of customers) into technical language (Voice of quality) then presented in a table that adopts the left chamber of house of quality matrix from quality function deployment method. The analysis customer needs for Transmart Carrefour Lebak Bulus Jakarta results in 4 variables. The first variable is the "perceived benefit" with its dimensions which is "a statement of value" and its items include "low prices" and "Discounted Prices". The second variable is "Product Quality" with the dimensions "performance" and the items include "Product Variation", "product availability" and "quality of goods". The third variable is "E-Service Quality" with its dimensions which is "efficiency" and the item is "easy online ordering". The fourth variable is Service Quality with its dimensions which is "Tangible", "Reliability", "Responsiveness", "Assurance" and "Empathy", and items include "Comfort Place", "Infrastructure", "Certainty of Operation", "Service Time", "Hospitality", "Hygiene", "Neatness", "Safety", "Honesty", "Guarantee", "Convenience of Location" and "Ease of shopping".*

*Keywords: Customer needs, Business continuity, Covid-19 pandemic.*

### **1. Introduction**

Continuity strategies and programs have become very important for any company to ensure the continued survival of its business (Bojniec and Tomsic, 2019). The world economic situation immediately changed dramatically when Covid-19 erupted. The presence of the Covid-19 outbreak has prompted governments around the world to introduce regulations to contain the spread of the Covid-19 virus. One of the regulations is a large-scale social restriction. This regulation has been implemented in Jakarta, the capital of Indonesia. This regulation encourages changes in the consumption behaviour of households to meet their needs. Companies must adapt quickly to these new conditions if their business is to survive. In order to adapt, companies must

really understand what their customers need in such a pandemic (Lubis, 2020). The Covid 19 pandemic has affected almost all social sectors of society. As the first region known to have been affected by the outbreak of COVID -19, the economic impact in Asia was severe, mainly due to the disruption of all major industries. The International Monetary Fund (IMF) describes COVID -19 as worse in the 2007/2008 global financial crisis (GFC) and estimates that growth in Asia is expected to come to a standstill at 0% by 2020 (Austermann et al., 2020). Following the outbreak of a global pandemic of COVID-19, the retail experience has changed dramatically for the foreseeable future. In many countries, the only retail stores open are supermarkets, and the retail experience is now very different. All retailers are committed to providing excellent service to retain existing customers while attracting new customers. However, the high level of uncertainty combined with the prediction of an economic recession due to this pandemic makes this even more difficult and complex (Panone et al., 2020).

### **1.1. Covid-19 impact to retail Industry**

Due to lockdown enforcements and social distancing, many industries are critically affected. One of the sectors affected by this pandemic is the retail sector. The Covid 19 crisis has not only raised a number of complex major global challenges for the retail sector, but has also revealed some new perspectives in the relationship between retail and sustainable development (Jones and Comfort, 2020). Since the beginning of the outbreak of COVID -19 (early 2020), costumers have shown hoarding behavior that deviates significantly from their usual shopping behavior, they tend to hoard basic daily necessities because they fear that they will have difficulty finding supplies during a pandemic (Pantano et al., 2020). Due to quarantine regulations and voluntary social distancing, there is a tendency to leave the physical retail channels and a shift towards online shopping has become visible. As a result, much of the consumption began to take place online and was mostly limited to consumables. While the demand for necessities is growing, aggregate demand has declined (Ceylan et al., 2020). Retailers are aware that their response to the emergency will have a dramatic impact on their business, but they are trying to adapt as they have very little time to act. For some large retailers, who have already suffered from the growing competition from online shops, the crisis will be the last straw and they will either go out their business or permanently close a high proportion of physical stores, which means that costumer will not be able to return to their previous shopping habits (Pantano et al, 2020). The outbreak of Covid-19 is spreading very rapidly around the world, including in Jakarta, the capital of Indonesia. The Indonesian government is taking rapid steps by adopting regulations on large-scale social restrictions, which means that certain activities of residents in an area suspected of being infected with coronavirus disease (Covid-19) will be restricted (Kemenkopmk, 2020). The objectives of this study are to identify the customer needs of Transmart Carrefour Lebak Bulus Jakarta after the large-scale social restriction in Jakarta. It will be important for retailers to understand what kind of in-store experience customers are likely to appreciate after the pandemic. Before the pandemic, many in-store customer experiences focused on creating fun, entertainment and engagement. After the pandemic, costumer can judge their in-store experience by how clean the store is, that they do not need to touch a screen, and that the store is spacious enough to allow social distancing. In restaurants, they may want disposable menus and plenty of space or even plastic barriers between tables (Roggeveen and Sethuraman, 2020). Retailers need to be aware of the vulnerability of costumer, special needs, acceptable response times and possible health risks during (offline) shopping trips and should not underestimate the impact of retail services on costumer welfare. Retailers must successfully translate this awareness into communication with their costumer about how much they value their satisfaction and well-being (Pantone et al, 2020). To be competitive, retailers must offer a customer-centric experience that makes people feel comfortable when they enter the supermarket without compromising the safety of staff or customers. Supermarkets will also need to fine-tune their online delivery

services to maintain consumer confidence and trust in the face of increased demand. Researchers and retailers should investigate how consumers changed their shopping behavior during the closure (e.g. frequency of shopping trips, length of stay in the store, use of heuristics vs. Deliberate product comparisons, purchase of ingredients vs. convenience food) and to what extent they plan to continue shopping in this way (Martin-Neuninger and Ruby, 2020). Retailers need to aware and to use their limited resources effectively and efficiently to fulfill their customer needs better than their competitors and to deliver quality. Identifying customer needs after large-scale social restriction rule in Jakarta can optimize the benefits of using the limited resources of Transmart Carrefour Lebak Bulus Jakarta in fulfilling customer needs ini this pandemic situation. The purpose of this study was to answer questions about the needs of customers of Transmart Carrefour Lebak Bulus Jakarta after the large-scale social restriction in Jakarta. The hypothesis of this study is that customer needs for Transmart Carrefour Lebak Bulus Jakarta will focus on basic products at low prices and safety shopping trip after the large-scale social restriction in Jakarta.

## 2. Data and Methods

The data source used in this research is secondary data. According to Sekaran and Bougie (2016), secondary data is data obtained from data collected by others for purposes other than those of this study. secondary data are data obtained from secondary sources or secondary sources that supplement the primary data, and their forms include photographs, daily notes, newspapers, or transaction records. The data in this study is derived from the collection of qualitative data in the form of costumer reviews from Transmart Carrefour Lebak bulus Jakarta from Google Customer Review platform. Google Customer Reviews is a free service that allows Google to collect valuable feedback from customers who have made a purchase on your site. When you join Google Customer Reviews, you will also be able to view product reviews and ratings by activating Product Rating through the opt-in survey module at Google Customer Review (Google support, 2020). We have chosen Transmart Carrefour Lebak Bulus Jakarta as the subject of research, because it is the headquarters of all Transmart Carrefour businesses in Jakarta and its location is also close to the border of another province, namely Banten Province. We believe that this subject has a variety of qualified customers who represent the opinion of Transmart Carrefour's customers in Jakarta. Reviews from 100 different accounts with criticism and suggestions that reflect customer needs after Jakarta's large-scale social distancing policies have been established, recorded and collected for further analysis. Those data are data opinions or reviews on Transmart Carrefour Lebak Bulus Jakarta written by costumers that only after Jakarta local government implemented a large-scale social restriction in April 2020.

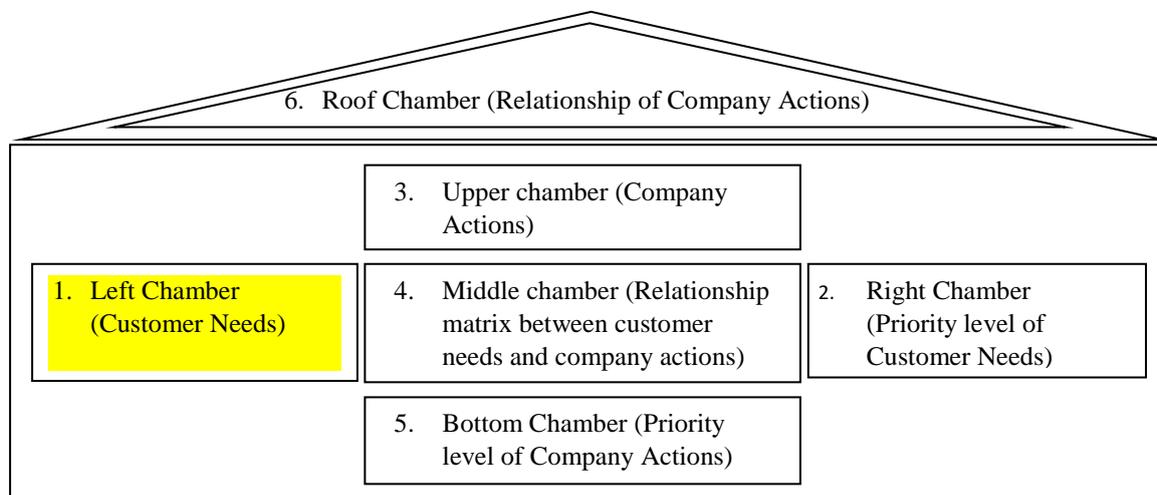
This research uses qualitative, descriptive methods. According to Cooper and Schindler (2014), descriptive research was conducted to find answers to the questions of who, what, when, where and how attempts to describe or define an object. A descriptive approach is used to find data that describe objects (such as people, organizations, products, or brands), events, or situations where this explanation will later be able to provide an explanation that has properties of important things, such as events that occur in research, either from individual sources, organizations, or even industry. The results of this study will be used as material for company business decision-making (Sekaran and Bougie, 2016). This study uses a purposive sampling method where the respondent is a specific type of person who can provide the desired information because only this person has this information or because this person meets several criteria defined by the researcher (Sekaran and Bougie, 2016). When determining the number of samples according to Hair, J.F. et al (2014), the number of good samples is 100 or more. The analytical methods used in this research are affinity diagrams and tree diagrams to transform raw qualitative data into informative, easily understandable data. Affinity diagrams are a suitable medium for collecting

large amounts of verbal data, including ideas, opinions and problems organized in groups based on their underlying relationships. These verbal data were taken from interviews/discussions that were related to complex problems where the topic was not clear and were grouped in large numbers into small data sets with adjacent characteristics (Fatimah, 2009). In application, the affinity diagram in this study starts with the collection of verbal data in the form of reviews from 100 Transmart Carrefour customers, which are taken from Google customer reviews. Verbal data results in random data, which is still abstract in large numbers. The data is then grouped by looking at the proximity of the data so that it becomes a group of data that has a relationship in each group.

Tree diagrams are used to translate the opinions of customers (Voice of Customers) into technical language (Voice of Quality). Input must be translated into a language type or have something to do with the quality applied in the system, organization and management itself (Fatimah, 2009). Tree diagrams are used to construct an effective method of solving a problem. A tree diagram is represented like an ingrained tree stem relationship to illustrate how certain goals can be achieved by looking at the problem in detail.

The left chamber of the house of quality (HoQ) matrix from the method of quality function deployment (QFD) method will be used in this study to present the results of the final analysis. The Quality Function Deployment analysis method will use an analysis tool called the House of Quality (HoQ), which is a graphical technique for defining the relationship between customer desires and products (or services) (Heizer and Render, 2014), in order to map the conditions in the business world. The results of the mapping are represented by the components in the House of Quality.

**Figure 1: House of Quality Matrix**



Source: Secondary data processed (2020)

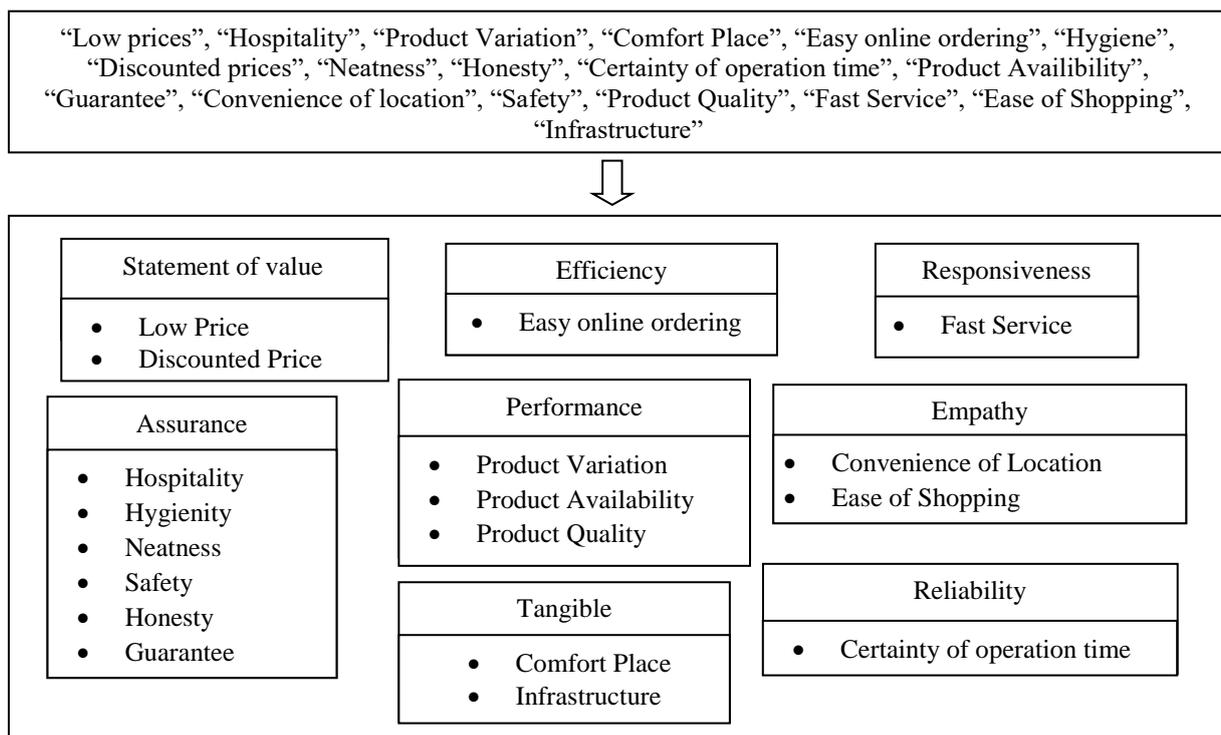
There is six components in the House of Quality, which are left chamber, right chamber, upper chamber, middle chamber, bottom chamber, and roof chamber. This study will use only one component of the HOQ, which is the left chamber of the House of Quality (indicated by the yellow mark in figure 1), to present the final result of the identification of customer needs assessment for Transmart Carrefour Lebak Bulus Jakarta.

### 3. Results and Discussion

#### 3.1. Affinity diagram analysis result

This study involved 100 respondents who are customers of Transmart Carrefour Lebak bulus. This data is secondary verbal data obtained from the Google customer review platform. Affinity diagrams and tree diagrams will be used to analyze the verbal data to answer this research question, which is "what are the customer needs for Transmart Carrefour Lebak Bulus Jakarta after the large-scale social restriction in Jakarta?". The data collection process from 100 customer account of the Google customer review platform resulted in up to 18 items about what is customer need from Transmart Carrefour Lebak Bulus Jakarta, including "Low prices", "Hospitality", "Product Variation", "Comfort Place", "Easy online ordering", "Hygiene", "Discounted prices", "Neatness", "Honesty", "Certainty of operation time", "Product Availability", "Guarantee", "Convenience of location", "Safety", "Product Quality", "Fast Service" "Ease of Shopping", and "Infrastructure", "Items - items of customer needs obtained from Google Customer Reviews are then grouped based on the similarity of characteristics between related objects using an affinity diagram.

**Figure 2: Affinity diagram analysis of customer opinions regarding customer Needs of Transmart Carrefour Lebak Bulus Jakarta**

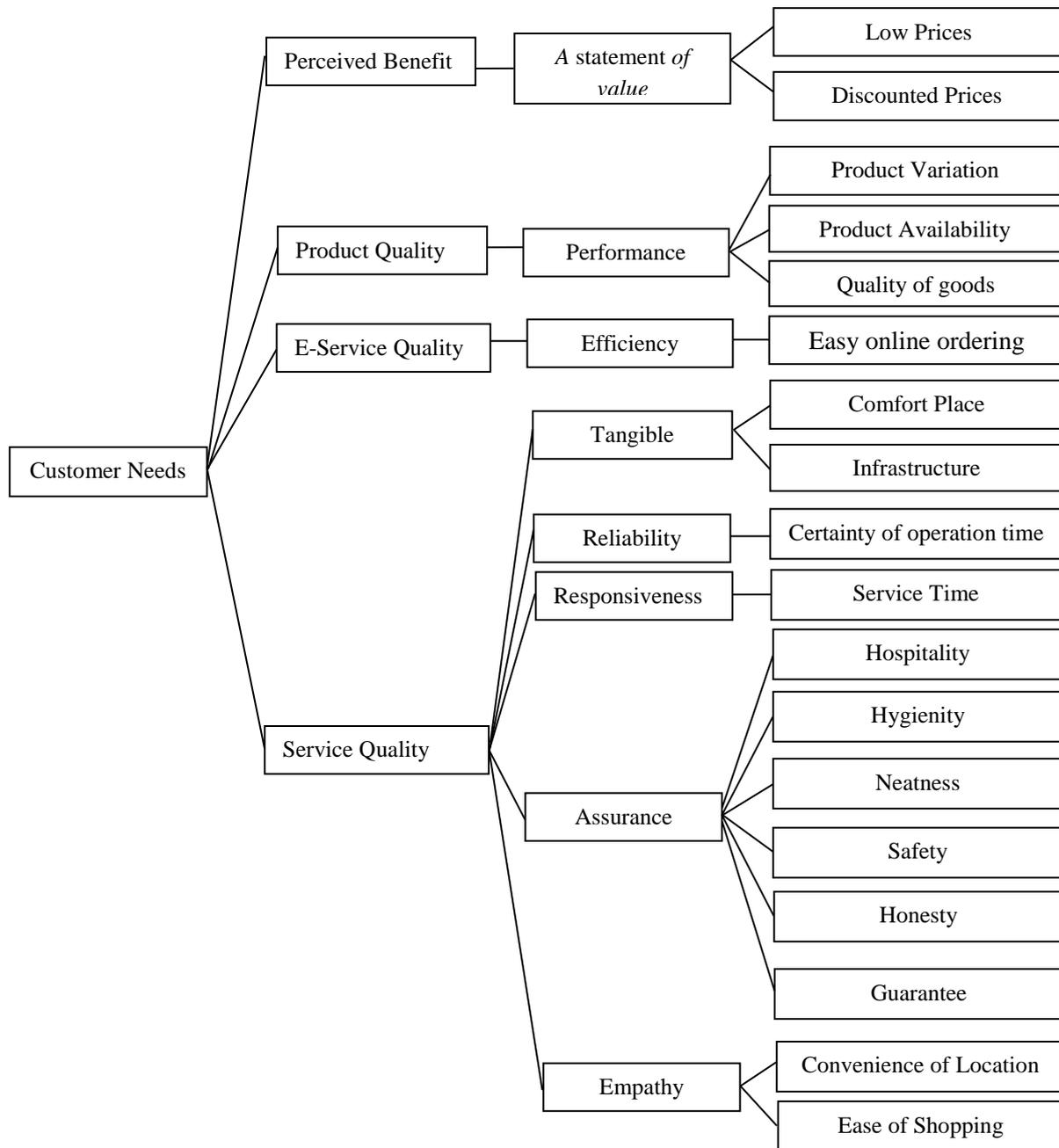


Source: Secondary data from google customer review processed (2020)

#### 3.2. Tree diagram analysis result

The results of the analysis of customer opinions, previously collected and analyzed using affinity diagrams, are then further analyzed using tree diagrams and translated into a language that has an impact on or is relevant to the quality applied in the system, organization or management itself. Tree diagrams are also used to determine the relationship and correlation between elements of customer needs and existing literary theory.

**Figure 3: Tree Diagram analysis of customer opinions regarding customer needs of Transmart Carrefour Lebak Bulus Jakarta**



Source: Secondary data from google customer review processed (2020)

In this study, the items “low prices” and “discount prices” are grouped into a statement of value dimension, which is one of the five factors that influence the customer's perception of the product, this is explained by Sugianto and Sugiharto (2013). According to Tjiptono (2011), the price is a statement about the value of a product (a statement of value). According to Tjiptono (2011) the value or valence is the ratio or comparison between the perceived benefit and the costs incurred to obtain the value of the product, the price will shape the perception of customers on how feasible this product is to buy. will influence the determination of customers when buying products. The items “product variation”, “Product Availability” and “Quality of goods” have relevance and similarity in nature, grouped in performance dimensions. This is explained

by Tjiptono (2010) that the performance is related to the functional aspects of an item and is the main feature that takes the customer into account when buying the product. The item "Easy online ordering" has relevance and characteristics grouped in the efficiency dimension. The efficiency dimension is about the ease and speed of access and use of the website (Parasuraman et al., 2005). In this study, the items "comfort place" and "infrastructure" have relevance and characteristics that are grouped in the Tangible dimension. Physical evidence includes the physical form of service providers, including building infrastructure, the location and form of goods, comfort infrastructure, modern facilities and equipment.

The item "Certainty of operation time" has the relevance and similarity of the properties grouped in the reliability dimension that reliability comprises 2 main points, namely the consistency of work (performance) and the ability to be trusted (reliability). This means that the enterprise provides its services (performances) the first time (in the first period). It also means that the company concerned keeps its promise. Item "Certainty of operation time" has relevance and similarity of the characteristics grouped in the dimension of reliability that reliability includes 2 main points, namely the consistency of work (performance) and the ability to be trusted (dependability). This means that the company provides its services right from the first time. It also means that the company in question keeps its promise. According to Parasuraman et al. (1988), reliability is the ability to deliver on its performance promise reliably and accurately. deliver on its performance promise reliably and accurately. The item "Service time" have relevance and characteristics grouped in the dimension responsiveness. Responsiveness, which implies good service, must be accompanied by a high degree of participation/intervention and adaptability, i.e. it must help to solve problems immediately. According to Parasuraman, et al. (1988) responsiveness is the willingness to help customers and provide fast service. "Hospitality", "Hygiene", "Neatness", "safety", "Honesty" and "guarantee" have relevance and similarity of characteristics in this study, which is grouped in the assurance dimension. According to Parasuraman et al (1988), assurance encompasses the behavior of business people who are able to create trust and give clients a sense of security. Forms of assurance include employees who are friendly and polite and have all the skills required to serve each customer. In this study, which is grouped in the dimensions empathy, the terms "convenient location" and "easy of shopping" have relevance and similarity in the characteristics. According to Parasuraman, et al (1988), empathy involves a sense of care, the attention that the company gives to each individual customer.

**Table 1: Left Chamber *House of Quality*: Customer Needs of Transmart Carrefour Lebak Bulus Jakarta**

	<b>Variables</b>	<b>Dimensions</b>	<b>Items</b>
<b>Customer needs</b>	Perceived Benefit	A Statement of Value	Low Prices
			Discounted Price
	Product Quality	Performance	Product Variation
			Product Availability
			Quality of goods
	E-Service Quality	Efficiency	Easy online ordering
		Tangible	Comfort Place
			Infrastructure
		Reliability	Certainty of operation time

	Service Quality	Assurance	Hospitality
			Hygienity
			Neatness
			Safety
			Honesty
			Guarantee
	Empathy	Convenience of location	
	Ease of shopping		

Source: Secondary data from google customer review processed (2020)

Verbal data of customer opinions from Google customer reviews, which have been analyzed using affinity diagrams and tree diagrams, are then presented using a table adopted from the left chamber of the House of Quality Matrix from quality function deployment method, so that with this matrix, the presentation of the final data regarding the customer needs of Transmart Carrefour Lebak Bulus Jakarta after the large-scale social restriction will be easy to understand. Based on the table above we can see that the results of this study show that there are 4 variables of customer needs, these variables include "Perceived Benefit", with the dimensions being "a statement of value" with two indicator items, namely "Low Prices" and "Discounted". Prices ". The second variable is "product quality" with the dimension is "performance" with three indicator items, namely "Product Variation", "Product Availability", and "Quality of goods". The third variable is E-Service Quality with its dimension is "Efficiency" with the indicator item is "Easy online ordering". The fourth variable is "Service Quality" with 4 dimensions used in this study, including "Tangible" with 2 indicator items, namely "Comfort Place" and "Infrastructure" then the dimension of "Reliability" with 1 indicator item, namely "Certainty of operation time" , then the dimension of "Assurance" with 6 indicator items, among others, are "Hospitality", "Hygienity", "Neatness", "Safety", "Honesty", and "Guarantee". The next dimension included in the Service quality variable is "Empathy" with 2 indicator items, namely "Convenience of location" and "Ease of shopping".

#### 4. Conclusion

The purpose of this study is to determine the customer needs for Transmart Carrefour Lebak Bulus Jakarta. This research question which is "what are the customer needs for Transmart Carrefour Lebak Bulus Jakarta after the large-scale social restriction in Jakarta?" is answered by a table that adopts the left chamber of the House of Quality in this study. The analysis customer needs for Transmart Carrefour Lebak Bulus Jakarta results in 4 variables. The first variable is the "perceived benefit" with its dimensions which is "a statement of value" and its items include "low prices" and "Discounted Prices". The second variable is "Product Quality" with the dimensions "performance" and the items include "Product Variation", "product availability" and "quality of goods". The third variable is "E-Service Quality" with its dimensions which is "efficiency" and the item is "easy online ordering". The fourth variable is Service Quality with its dimensions which is "Tangible", "Reliability", "Responsiveness", "Assurance" and "Empathy", and items include "Comfort Place", "Infrastructure", "Certainty of Operation", "Service Time", "Hospitality", "Hygiene", "Neatness", "Safety", "Honesty", "Guarantee", "Convenience of Location" and "Ease of shopping". From these data we can conclude that the final results of the study support the hypothesis that all hypothetical items and variables are proven to exist, but in fact the final results reveal that there are many items and other variables related to customer needs for Transmart Carrefour Lebak Bulus Jakarta that go beyond those mentioned in the research hypothesis. This research data may also be used for further research

into how Transmart Carrefour Lebak Bulus Jakarta can fulfill the customer needs identified in this research and determine the quality priorities of their business so that companies can effectively and efficiently use their limited resources to fulfill the needs of their customers. In this way, the company's products will be more easily absorbed by the market and can initiate the continuity of the company's business activities.

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## **Lean Six Sigma methodology and tools in COVID-19 affected world.**

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### ***Abstract***

*The circumstances of market are changing fast and pushes companies to understand and provide powerful regulation mechanisms. At the moments, world is struggling to deal with the COVID-19 pandemic which has resulted in many changes in our lives. It caused uncertainty in many aspects of our daily life. Economy, finance, physical and mental healths of people, has directly affected by global spread of the virus. Lean Six Sigma is a powerful tool of operational excellence, which can provide the guidance through uncertainty in the new economy environment. In this context, literature review of Lean, Six Sigma, and combined Lean Six Sigma approaches and their superior advantages and impacts, were studied in this research. Lean Six Sigma approach should be implemented systematically, in the scientific way to establish the best business performance practices as well as find and understand the correlation between cause and effect by applying main principles of Lean. Lean approach identifies improvement opportunities and reduces non-value-added activities through set of tools. In Covid-19 affected world it improves the organization's operational performance and increase the predictive power. This paper is theoretical and presents an extensive literature review on Lean Manufacturing and Six Sigma tools to optimize costs and reduce waste within pandemic and post pandemic period. In conclusion, the key benefits of this implementation are stated, and importance of this study is emphasized. The study can be used as a basis for a deeper further research on Lean Six Sigma implementation in the era of COVID-19.*

**Keywords:** Business processes, COVID- 19, Lean, Lean Six Sigma, Six Sigma, Waste

**JEL Classification:** L10, L20, O30.

## 1. Introduction

The outbreak of Corona virus infection started in Wuhan, China in December 2019, and caused large scale disruptions, challenges to the world economy. Financial markets, international supply chains and tourism are facing significant changes at the time being. During this uncertainty period there are changes in business performance behaviours of companies. Lean Six Sigma approach which is a powerful operational excellence tool is able to predict uncertainties in business environment. With the help of well known Lean tools we are going to identify the COVID-19 caused uncertainty problems from Lean Six Sigma perspective. on an example of testing activities. Harry & Schroeder (2000) describe Six Sigma as a “business process that allows companies to drastically improve their bottom line by designing and monitoring everyday business activities in ways that minimize waste and resources while increasing customer satisfaction” ( Harry & Schroeder, 2000). Nowadays, the main rule to operate business successfully is identify customer needs correctly and fulfill the requirements of customer better, faster, and in higher quality than others. Moreover, with the spread of pandemic customers are more cautious about spending and saving than before and they adjust their consumption behavior correspondingly to the market situation. Decreasing efficiency and sigma level of companies force them to investigate the roots of the problem and apply adequate method that support their strategy. Six Sigma supports companies to reduce their waste, costs, idle time, increase efficiency, market share, customer and employee satisfaction, which are essential to keep up with the trends in the world economy. Implementation six Sigma first of all requires cultural changes to be happen, that has a positive effect on companies culture. Tests to indicate the infection of the virus are highly appreciated during and are able to increase the level of precautions and awareness between people as well as companies. In COVID-19 affected environment Lean professionals deal with identifying the value and non-value added activities through a set of tool. The time spent to get tested indicated as a value, and the time spending to wait for the test results doesn't add any value, therefore indicated as a non-value added time in Lean Six Sigma approach. Also, from Six sigma perspective reduction of waiting time could improve the process mean and performance parameters of a companies will increase afterwards. The experience of companies that implement Six Sigma show significant increases in productivity, efficiency, quality and

customer satisfaction levels. As the success of any company depends on the ability to ensure the highest quality at the lowest cost.

With the respect to performance excellence and job satisfaction level LSS aims to focus on continuous improvement methodology. Which covers issues with technical background as well as customer relations problems.

### *Definition and principles of LSS*

Six Sigma can be defined as a discipline that involves Total Quality Management (TQM), strong customer focus, additional data analysis tools, financial results and project management. Six Sigma is a highly disciplined philosophy that helps an organization to focus on developing and delivering near-perfect products and services. Six Sigma originates from the need to improve quality. Variation is accepted as the main cause of quality problems (Goh & Xie, 2004). The Six Sigma methodology uses different statistical applications to measure and monitor performance. Using these quality management and statistical tools, a framework for process improvement can be furnished. Goh & Xie (2004) point out that Six Sigma translates an operational problem into a statistical problem, uses mathematical tools to solve it, and converts the results back to practical actions. Also Raisinghani et al. (2005) summarize that Six Sigma encompasses the methodology of problem solving, and focuses on optimization and cultural change. Using an extensive set of rigorous tools, uncompromising use of statistical and advanced mathematical tools, and a well defined methodology that produces significant results quickly Six Sigma fulfills this goal.

### *Lean Six Sigma*

Recently, a practice or a method called Lean Six Sigma has come to existence as a result of the merging of all Six Sigma concepts with lean manufacturing by some experts. SS together with Lean manufacturing, which deals with process streamlining and waste concerns, is concerned with dissimilarity and design and harmonizing corrections intended for boosting business and operational effectiveness. (D.Gupta,2015)

USA companies such as: GE, Verizon, Jeebakt and IBM have been utilizing LSS to better incorporate change in both skills and development aspects. LSS has been considered and recognized as the innovation regarding industrial improvement, increased growth in projects, and better software to be provided. Such incorporation of the approaches is essential for the

reason that Lean by itself cannot have an arithmetical governing process; on the other hand, SS is unable to single-handedly achieve the desired outcomes in terms of speed or cost effectiveness. Together, nevertheless, they can deal with the issues of quality and costs more effectively than any other improvement strategies.

*Principles of LSS*

- 1) All outcomes are verified by data with a certain degree of doubt.
- 2) For enhancing competence, one is required to focus on their admission, excision and control.
- 3) The variance bootees reliable competence. The LSS expert should fix irregularities and eliminate them wherever conceivable.
- 4) Development can only be attained through suitable measurements and statistics.
- 5) Only a few vital contributions can have a noteworthy influence on manufacturing. Concentrating on the intricate matters can be decisive.
- 6) Each decision may contain an element of uncertainty and, hence, ought to be always and wisely premeditated, bearing in mind the consequences.

*1.2.1 The Improvement of Lean Six Sigma*

The results of the Lean six sigma method are guaranteed if the implementation is supported by top managers, within teamwork and allocated training programs, with the implementation of modern measurement tools, and a positive culture in the company. Lean systems and Six Sigma are normally aiming at working for achieving the same goals, which is eradicating waste and generating more competent system, we can see that in Table below:

**Table 1: LSS expose alike problems**

Lean	SS
Absence of customer attention	Absence of customer
Deficiency of staff authorization	Emphasis in sufficient measurement
Messy, wasteful work places	systems
Suboptimal maintenance practices	Suboptimal processes
Shortage of cross-training	Imperfection chances
Additional inventory	Out-of-date processes and metrics
Dearth of noticeable controls	Dearth of ownership of processes

Source: author's own summary

We can differentiate differences between Lean and SS as followings:

**Table 2: Differences between Lean and SS**

Lean	SS
Go and See Decent enough statistics Graphical information exhibition Shop floor driven Regular Kaizen Value stream emphasis Accomplishment bias	Gather information Exhaustive usage of authorized statistics Stylish and arithmetical scrutiny Expert driven Scheme concentration Process emphasis Examination bias

Source: Author's own summary

To sum up the idea there is a comparison between LM and SS:

**Table 3: Comparison between LM and SS**

Variance	Lean	SS
Objective	Progress process competence and decrease dissimilarity in process waste	Decrease lead time and process waste
Emphasis	Process aftermaths	Process flow and waste
Attitude	Changeability within stipulations is cost Arithmetical evaluates	Time in system and congestion is cost
Tools	Statistical analyses	Workshop behavior
Usage	Production and business processes	Production and business processes
Method	DMAIC problem-solving	Value stream planning and lean procedures
Project selection	Problem solving	Continuous improvement
Major measure	DPMO	Lead time

Source: Author's own summary

Lean Six Sigma project achievement is guaranteed as it associates practical problem resolving approaches and tools, and project running methods to implement, with the approval by the entire individuals who are exaggerated or will be exaggerated by the resolution. The further most of Lean Six Sigma tools are the identical to the mutual excellence tools. Many universal CSFs of Six Sigma and Lean implementation have been noted previously, among which one may find the following: organizational undertakings and obligation, incentive and appreciation scheme, administrative philosophy, client focus, up keeping of team associates, everyday assessment of LSS/SS task outcomes, dealer association, title roles for data skills, concentration in media, achieving excellence in information and exploration, actual LSS teaching package, previous project achievement stories and finest practices. The overall main findings about LSS so far lead us to the notion that the top most significant issues are organizational pledge, social change, and bringing LSS in line with commercial plans and management styles. The results also show that the most essential aspects are connecting LSS to HR rewards and spreading it to supply chain of the company.

### **The role of Lean Six Sigma during pandemic situation**

To reduce uncertainty and therefore eliminate waste, Lean Six Sigma professionals use set of tools that includes following approaches: Define, Measure, Analyze, Improve, Control (DMAIC). To accomplish a purpose of achieving the understanding of factors of uncertainty regarding COVID-19, LSS team deploys DMAIC methodology. With the usage of

statistical and non statistical tools LSS identifies strategic goals of company. Operational management of the company introducing DMAIC could explore following phases of LSS approach: Define opportunities, Measure performance, Analyze problems, Improve the process, Control of a given performance.

Value stream mapping is one of the essential Lean tools that help us to uncomplicate the COVID-19 testing process and together with the statistical analysis tools of Six sigma such as correlation and regression could verify accuracy level of the results.

First of all, we need to define our customer and his expectation, and understand the whole process our customer is going to go through.

In order to identify the waste in our process companies have to create a value stream map in the phase of Measure. It will help to understand the difficulties companies may face and therefore, the testing results can be delayed and at the end it will increase the non-value added activities. True measurement systems help to collect the real, correct data for further processing. During the process if an error occurred, defect rate and cause will be determined in the analysis phase. To eliminate defects, reduce mean, solve error caused problems companies have to implement improve phase of LSS methodology. It includes finding the reasons for dissatisfactions, bottlenecks of a current process, or testing or any kind of software problems. In control phase LSS use lots of statistical tools to control, measure processes. In case of testing all team should get a proper training of their duties and everyone should follow sustained standards for operations.

### ***LSS Benefits and barriers of LSS in pandemic***

#### *Benefits of LSS*

As LSS merges the benefits of both LSS, it is able to deliver additional services when compared to using just one approach (Ramapatna, N., 2014). Though many researchers have offered conflicting reports as to LSS benefits, there is a broader recognition that it is a commercial process development practice able to deliver fundamental advantages.

- Progress functioning competence and usefulness (Cima, R., Facs, J., 2011)
- Increased processing and additional participation by clients (M.Siddh et.al, 2013)
- Added processing abilities through waste reduction and focusing on perfecting the product by reducing imperfections (Wiboonrat, M., 2011)
- The Six Sigma procedures are changed from slow to fast by Lean. In turn, the productivity of Lean is increased by SS. Leans productivity also offers ideal and effortless flow for the structure (Siddh, M., et.al., 2013)
- Smooth processing brings about customer satisfaction upon improved end results (Ramapatna, N., 2014)
- In all, LSS and TQM practices are the solutions to materializing developments and maintain them (Bin Jumah, J.A., 2012)

LSS is a method that emphasizes on demanding outcomes enhanced data-driven procedure. It syndicates two organization practices acknowledged by the commerce established by businesses such as General Electric, Toyota, Motorola, Bank of America, as well as ourselves. Through assimilating procedures and tools LSS, we are generating a commanding dynamic power to advance the excellence, competence, and rapidity in every feature of our industry (Raghavan Pillai, A.K., 2014)

### *Barriers for Implementation of Lean Six Sigma*

During Covid-19 pandemic situation the behaviour of organizational management of every company has changed. As the uncertainty costs more money and other resources implemetation of LSS can be seen as a money waste in difficult situation for a business. The considerable costs are required to train a team, purchase a software, consultation and implemetation itself. Insufficient information and instruction about the happenings in the future and a poor preparation become a barrier to application of LSS for companies. Aside from these, there are many barriers that can affect the implementation of the Lean Six Sigma example: lack of assets, internal protection, lack of administration from the top management, lack of general knowledge of Lean Six Sigma, insufficient hierarchical arrangements, cultural boundaries, poor preparations and instructions, the untrue notion that Six Sigma is excessive and confusing which renders it impossible to utilize, wrong impressions and attitudes about procedural parameters, Lacunae in information gathering and, finally, poor Six Sigma venture setting (Raghunath, A., 2013)

The four key shortages are, in order of importance: absence of best administrative practices, technical preparations, information, and the use culture (Elgadi, O., 2016) According to Z Mallick, the biggest problems facing LSS implementation are based on the human factor such as these: new employees are hesitant, little effort is made to remove waste and top management indifference , insulating association from cross business , inadequate regard for interior and internal client, failure to change improper planning , lack of training lack of democratic talk (Mallick, Z., Shahzad, 2012)

## **2. Data and Methods**

In order to achieve the goal of the researcher, a thorough literature review was carried out. I will introduce the term LSS and try to shed some lights on its effectiveness. In this paper, literatures associated with Lean, Six Sigma are studied broadly through databases EBSCO,

Emerald Insight, Google Scholar, ScienceDirect. Keywords like "Lean", "LSS methodology", "Continuous improvement", and the founded articles were used for achieving the relevant literature sources and each article examined in details. In order to get a better understanding of the current situation in the world I reviewed the latest articles, book chapters, and conference proceeding. Theoretical literature analyzing of the challenges, opportunities, identify's potential implementation barriers and benefits of LSS in COVID-19 was indicated.

With regard to the structure of this paper, two main parts can be distinguished: First part will cover theoretical background of Lean and Six Sigma and it's principles. Second part devoted introducing LSS to COVID-19 affected world including benefits and barriers for its implemetation.

### **3. Results and Discussion**

Based on the reviewed literature the information about several advantages of LSS for companies during COVID\_19 are obtained. The methodology LSS is using, particulatly DMAIC is very effective in understaning of errors, wastes in testing process. Value Stream Mapping is also effective in reassuming the validity of testing results. Statistical analysis tolls used in Six Sigma such as correlation, regression and hypothesis tests are also very good in manufacuring operations, process excellence and cost elimination. Lean six sigma can improve the overall condition of company in terms of, employees knowledge and competency, customer satisfaction, as well as good reputation for a company. However, the considerable costs are required to implement and maintain LSS. Insufficient information and instruction about the happenings in the future and a poor preparation, costs regarding training a team, building a Lean culture, purchase a software, consultation and implemetation itself become a barrier to application of LSS for companies, especially in these days. Due to a low number of previous researches in this field it's not possible to indicate how companies are managing to apply LSS in pandemic, as pandemic itself is ongoing. But the positive effects of LSS implementation in the framework of COVID-19 outspread are undeniable and needs deep research to be carried out.

#### 4. Conclusion

Lean six sigma is one of the tools that provide huge base of learning material and training for the employees to improve the quality, excellence operations, increase value, eliminate waste. Significant costs that requires LSS are the main obstacle for companies to implement it. The educational background of employees and managers are also unsatisfying in terms of understanding and proceed with Lean implementation. Limited time, abilities to run the software for statistical analysis make it challenging to apply LSS. COVID-19 added a necessity to implement LSS and solve the initial problems of company to prevent further disruptions in a much bigger scope.

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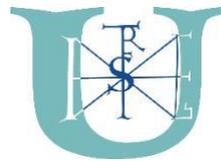
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**“Challenges and changes under the shadow of COVID-19”  
7thVUA YOUTH scientific session**

**PROGRAMME SCHEDULE 27<sup>TH</sup> NOVEMBER 2020**

**Inaugural Session**

**TIMING: 10 A.M. – 10:10 A.M.**

**Welcome address: Prof. Dr. Hc. József Popp**

Corresponding member of the Hungarian Academy of Sciences,  
Dean.University Professor  
Szent István University, Faculty of Economics and Social Sciences,  
Hungary

**Zoom meeting link:** <https://us02web.zoom.us/j/89335206680>

**Meeting ID:** 893 3520 6680

**SESSION CHAIR**

**Prof.Dr Róbert Magda, PhD.**

University Professor  
Szent István  
University,Hungary

**KEY NOTE SPEAKERS**

❖ **Prof.Dr.Bernd Hallier**

European Retail Academy  
Germany  
(Time 10:10am -10:30am)

❖ **Dr.Umesh Raut,**

Associate Professor  
Savitribai Phule Pune University Sub Centre Nashik,  
Nashik, Maharashtra, India  
(Time 10:30am -10:50am)

## “Challenges and changes under the shadow of COVID-19” 7th VUA YOUTH scientific session

### FIRST SESSION

TIME: 10:50 A.M. – 12:30 P.M.

#### PAPER PRESENTATION

1. **Kristína Mušínská**, Slovak University of Agriculture Nitra, Slovakia.  
*Aroma Marketing and Its Impact on the Sales Success and the Economic Situation in Café In Cuple*  
Time 10:50am -11:00am
2. **Dolores Mensah Hervie**, Szent istvan University Godollo. Hungary. *Foreign Direct Investments and Foreign Influences in Ghana.*  
Time 11:00 am -11:10am
3. **Prayag Sakhare**, Savitribai Phule Pune University Sub Centre Nashik,India, *Evolution of agribusiness company through corporate sustainability: A case study.*  
Time 11:10am -11:20am
4. **Olena Vasylenko**, Bila Tserkva National Agrarian University, Kyiv Oblast., Ukraine, *Analytics of competitiveness management of Ukrainian agrarian higher education institutions.*  
Time 11:20 am -11:30am
5. **Can Ertugrul**, Szent istvan University, Godollo Hungary, *Impact of Covid-19 on Global Supply Chain Management.*  
Time 11:30 pm -11:40pm.
6. **Jaec Jogalekar**, Savitribai Phule Pune University Sub Centre Nashik,India, *The Dawn Of New Market From Pandemic Bog.*  
Time 11:40 pm -11:50 pm.
7. **Jihad Fraij**, Debrecen, Egyetem Hungary. *Blockchain As An E-Voting Tool.*  
Time 11:50 pm -12: 00pm.
8. **Kristína Hudecová**, Slovak University of Agriculture Nitra Slovakia, *Short-term Impact of Covid-19 on the Selected Macroeconomic Indicators in Visegrad Four Countries.*  
Time 12:00 pm -12:10pm.
9. **Sagar Patil**, Savitribai Phule Pune University Sub Centre Nashik,India, *The role of education in times of crisis: A critical analysis of the India region in 2020*  
Time 12:10 pm -12:20pm.
10. **Priya Rani Bhagat**, Szent istvan University, Godollo. Hungary. *Effects on digitalization of agriculture industry post the COVID-19 lockdown in India: Entrepreneurial possibilities for Agri-tech Businesses.*  
Time 12:20 pm -12.30pm.

**“Challenges and changes under the shadow of COVID-19”  
7thVUA YOUTH scientific session**

**BREAK (TIME:12:30 P.M.- 12:45 PM)  
SESSION FIRST QUESTION ANSWER AND  
DISCUSSION**

**SECOND SESSION**

**TIME: 12:45 P.M. – 14:55 P.M.**

**SESSION CHAIR**

**Dr.Dhanashree Katekhaye**  
Szent István  
University,Hungary

1. **Priatmoko Setiawan**, Szent istvan University,Godollo Hungary, Online Appearence of Rural Tourism Destinations Amid Pandemic Comparative Case Studies: Holloko (Hungary) and Tinalah (Indonesia).  
Time 12:45 pm -12:55 pm.
2. **Vaibhav Jadhav**, Savitribai Phule Pune University Sub Centre Nashik,India, Implications of Covid-19 for Labour and Employment.  
Time 12:55 pm -13:05 pm.
3. **Elizaveta Polishchuk.**, Szent istvan University,Godollo Hungary, The effect of COVID-19 pandemic on tourists behavior.  
Time 13:05 pm -13:15pm.
4. **Vladimir Fuga**, Slovak University of Agriculture Nitra Slovakia ,What prevails at the Slovak Food Market II: Regional Variances in Customer Perception and Food Quality.  
Time 13:15 pm -13:25 pm.
5. **Jalil Mehtiyev**, Szent istvan University,Godollo Hungary, Indirect International Trade Barriers.  
Time 13.25 pm -13:35 pm.
6. **Tutur Wicaksono**, Szent istvan University,Godollo Hungary, The needs of retail sector customers after the large-scale social restriction in Jakarta.  
Time 13:35 pm -13:45 pm.

## “Challenges and changes under the shadow of COVID-19” 7th VUA YOUTH scientific session

7. **Xénia Szarková**, Slovak University of Agriculture Nitra Slovakia, *The Prediction of The Development of The Craft Beer Industry in Slovakia in an “Ideal” COVID-19-free Market*  
Time 13:45 pm -13:55 pm.
8. **Ganchimeg Gombodor**, University of Debrecen, Debrecen 1 Hungary, *Livelihood strategy of Mongolian herder households.*  
Time 13:55 pm -14:05pm.
9. **Anh Don Ton**, Szent István University Kaposvár, Hungary, *Influence of face mask on perceived dominance and trustworthiness in times of COVID-19.*  
Time 14:05 pm -14:15 pm.
10. **Adil Saleem**, Szent István University, Godollo Hungary, *Is Islamic Stock Index immune to COVID-19 Crisis? Evidence from Thomson Reuters Islamic global Indices.*  
Time 14:15 pm -14:25pm.
11. **Muhammad Shahadat Hussain Mazumdar**, Szent István University, Godollo Hungary, *A Socioeconomic Study on the overall lockdown impact of COVID-19: Challenges and Changes in Bangladesh.*  
Time 14:25 pm -14:35 pm.
12. **Marta Paula Bendelová**, Slovak University of Agriculture Nitra Slovakia, *Impact of Covid-19 on EU agricultural market, trade, and production of milk and dairy products.*  
Time 14:35 pm -14:45 pm.
13. **Dáša Klenková**, Slovak University of Agriculture Nitra Slovakia, *Impact of COVID-19 and Associated Policy Decisions on the Agri – Food Sector in Selected Region of Slovakia.*  
Time 14:45 pm -14:55 pm

**CLOSING SESSION**