

CAN PRICE INCREASES SATISFY CONSUMERS? EMPIRICAL RESEARCH ON THE BEHAVIOUR OF CONSUMERS OF AGRO-FOOD PRODUCTS DURING THE COVID-19 PANDEMIC

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Abstract

The COVID-19 pandemic was a turning point for society. It radically changed people's lives and behaviour, especially in the first months after its onset. Then, people related differently to various products and services, carrying out the purchase process according to other criteria compared to the period that preceded the COVID-19 crisis.

One interesting aspect that emerged during this pandemic is that consumers have been willing to allocate more financial resources to purchase products that meet their needs and wants. For example, even though quality food products became more expensive, people allocated a significant portion of their income to buy them. However, was this natural, or is there any relationship between allocating a higher disposable income and consumers buying quality agro-food products?

This article tries to answer this question through a bivariate correlation, using two questions from a survey about the behaviour of agro-food product consumers in Romania during the COVID-19 pandemic.

In this way, it could be observed and established whether such a relationship exists and what consequences it brings.

The article is structured in 5 parts, parts that present general and particular information about the subject. The first part of the research is the introduction; the second part is a review of the scientific literature on the effects of the COVID-19 pandemic on the global food system; the third part represents the methodology used, the fourth part is about the results obtained; and the last part contains the conclusions that can be drawn.

Keywords

Pandemic, COVID-19, consumer, behaviour, price, agro-food products, Romania.

JEL Classification

M00, M10, M30, M31

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Introduction

The year 2020 can be considered the beginning of a period in which uncertainty and unpredictability were the most certain things that humanity has experienced. This consideration can be attributed to the outbreak of one of the biggest crisis situations in history, the COVID-19 pandemic (March 2020 – May 2023).

With the emergence of the COVID-19 pandemic, people had to face a complex health crisis that had never before been encountered worldwide at such an intensity and scope in this century. Due to its characteristics, the COVID-19 pandemic has put people all over the world in the position of protecting themselves from an invisible, potent, and relentless enemy (the SARS-CoV-2 virus). This enemy has brought fear and death into their lives (Lipsy, 2020). Thus, this posture generated consequences that changed their way of life, that changed their behaviour as consumers (Bender et al., 2022; Jribi et al., 2020), the way they conduct their social relations (United Nations - Department of Economic and Social Affairs, 2020) and the way they work (Titis, 2022).

An exciting change determined by the effects of the COVID-19 pandemic was in people's behavior as consumers of agro-food products (European Institute of Innovation & Technology (EIT), 2021).

The shock created by the news of a pandemic in the 21st century, together with the immediate global effects of this critical event (imposing movement restrictions, social distancing, moving school and university courses online, working from home) and the need to adapt to a different way of life were the ingredients that made people behave differently as consumers of agro-food products (Grunert et al., 2021, 2021; Laborde et al., 2020).

Of course, the impact of the shock created and of the need to adapt to a different way of life was significantly amplified by a message from the World Health Organization (WHO). This message emphasized the importance of eating agro-food products to protect against COVID-19. More specifically, in the first weeks of the COVID-19 pandemic, the World Health Organization (WHO) recommended that until accurate and medically correct information about the SARS-CoV-2 virus is available, people should use known and accessible protective measures, such as adopting a healthy diet that includes lots of quality fruits and vegetables from safe sources (World Health Organization (WHO) and Food and Agriculture Organization of the United Nations (FAO), 2020). But even if the World Health Organization (WHO) was well-intentioned and said nothing new, its recommendation amplified the shock generated by the start of the COVID-19 pandemic and the restrictions imposed, which changed people's behaviour as consumers of agro-food products (Borsellino et al., 2020).

Given the context created, consumers of agro-food products suddenly began to buy larger quantities of such products (Borsellino et al., 2020; Li et al., 2020), emphasizing quality (Marty et al., 2021). This aspect is essential and exciting because it can be interpreted as a causal relationship between how consumers have increased the degree of allocation of their income to buy quality agro-food products during the COVID-19 pandemic.

However, was there such a causal relationship?

The present research, which uses a bivariate correlation to uncover the potential benefits of understanding causal relationships, is of utmost importance. This understanding

could prove to be a valuable tool for various fields, particularly in the event of crises with characteristics similar to the COVID-19 pandemic.

The research consists of five parts. The first part is the introduction. The second part is a review of the scientific literature about some consequences generated by the COVID-19 pandemic on the global food system in relation to the behaviour of agro-food product consumers. The third part is the research methodology. The fourth part contains the results. And, the last part is the conclusions that can be drawn.

1. Review of the scientific literature

The COVID-19 pandemic, a global health crisis of unprecedented scale, has significantly impacted people's physical and mental health. It has also triggered a series of social, economic, and political challenges. However, it has also led to substantial changes in human behaviour, showcasing our adaptability in the face of adversity (International Monetary Fund (IMF), 2020; United Nations - Department of Economic and Social Affairs, 2020).

One type of behaviour that felt the full effect of these problems generated by the COVID-19 pandemic was the behaviour of people as consumers of agro-food products (Jo et al., 2021).

If in the research carried out on the health crises before the COVID-19 pandemic, no great emphasis was placed on conducting studies on the behaviour of people as consumers of agro-food products, the situation was very different in the case of the COVID-19 pandemic since this type of behaviour has been analyzed at length (Laato et al., 2020). The main reason that determined the study of this aspect was represented by the reaction that people had during the beginning of the pandemic (March - June 2020), i.e., during the lockdown period, about the purchase of agro-food products (Laborde et al., 2020). Specifically, very many people as consumers, through their behaviour in the early months of the COVID-19 crisis, have generated pressure and strain on the global food system that has rarely been seen in the last 20 years (Cranfield, 2020). The main cause of these effects was the purchase of large quantities of agro-food products to store them for as long as possible (Brizi and Biraglia, 2021; Cranfield, 2020). As was expected, this gesture endangered the right to life of those who did not react in the same way because certain agro-food products necessary for daily living were either no longer available or very difficult to find in markets and stores. In this context, the role of the relationship between the global food system and consumers stands out. This relationship is crucial in an increasingly globalized society. According to the definition provided by the World Food Programme (WFP) 2024, the global food system is the joining of "the networks needed to produce and transform food and ensure that it reaches consumers." That means that the global food system is the link between the producers of raw materials needed for food and agro-food products, processors, distributors, and sellers to satisfy consumers' needs or wishes.

The fact that there were adverse effects on this system, effects that led to an increase in the prices of food and agro-food products (Laborde et al., 2020), was something predictable. However, it has yet to be correctly anticipated how serious the consequences of these adverse effects are on changing people's behaviour as consumers.

It is known that the price of a product is one of the factors determining the manifestation of a specific type of consumer behaviour both in times of peace and crisis (Jones, 2020). It should also not be forgotten that prices and how they fall or rise in a country's economy and consumer incomes show the security and stability of that state from an economic point of view (Raleigh et al., 2015). For example, a sudden increase in prices, even for short periods, can cause the emergence of social inequality (Berazneva and Lee, 2013; Koubi, 2018; Zhang et al., 2010), decreased life expectancy, economic and political fragility, lack of consumer products (Arndt et al., 2023; Kemmerling et al., 2022), or the increase in people's poverty level (Ivanic and Martin, 2008). Thus, what happens to prices can violate people's right to a decent living, triggering discontent, riots, protests, or civil conflicts and creating tensions within states view (Raleigh et al., 2015).

As for the increase in the prices of consumer products generated by the COVID-19 pandemic, only if we refer to two basic products such as wheat and rice, we can observe major changes. The world price of wheat decreased by 10%, and that of rice increased by 20% (Laborde et al., 2020) from the moment when the health alert was raised at the pandemic level (March 2020) until the end of the first lockdown period in almost all countries of the world (beginning of June 2020).

However, it should also be mentioned that after the experience generated by the COVID-19 pandemic, many opinions claimed that people need to change their behaviour towards food and agro-food products. These views have promoted the idea that people need to move towards more sustainable (Alva Ferrari et al., 2023; Lim et al., 2019), and stable food and binge eating behaviour by adopting some consumption, such as careful shopping planning, proper storage, preparation, and consumption of food adapted to actual needs (Quested et al., 2013).

In other words, the COVID-19 crisis has brought back to the discussion the neglected idea of people that the weak points of the global food system need to be strengthened (O'Meara et al., 2022) to make it more resilient to future shocks (Webb et al., 2021) and ensure as many people as possible have the right and access to food (Food and Agriculture Organization of the United Nations (FAO), 2020).

2. Research methodology

This research adopts a distinctive approach by using bivariate correlation to examine whether there is a causal relationship between Romanian consumers' increased allocation of income for purchasing quality agro-food products during the COVID-19 lockdown.

Bivariate correlation is a statistical method used to analyze the relationship between two variables (Field, 2013). Depending on the results obtained, the bivariate correlation can be of three types: positive correlation, negative correlation, and null correlation (Field, 2013).

The data used in the present research were obtained following the application of a survey. The survey was conducted between April and June 2022, and its purpose was to investigate the behaviour of consumers of agro-food products in Romania during the COVID-19 pandemic. The participants in the survey were people from Romania over the age of 18, and the sample consisted of 404 eligible respondents out of a total of 422

(18 respondents were not eligible). A confidence level of 95% and a margin of error of $\pm 5\%$ were considered when determining the sample size.

The z-distribution table, a key tool in statistical analysis, reveals that at a 95% confidence level, the error value is $\alpha = 0.05$, and $z\alpha/2$ is 1.96 (Cătoiş et al., 1999).

$$\frac{t^2 \times p \times (1 - p)}{\Delta\varpi^2}$$

The sample size n_e was determined by: $n_e = \frac{t^2 \times p \times (1 - p)}{\Delta\varpi^2}$, where: n_e = sample size; t = is the coefficient corresponding to the probability of guaranteeing the result; p = the proportion of components possessing the investigated characteristic; $\Delta\varpi$ = accepted limit error, (Cătoiş et al., 1999).

Considering that the probability of guaranteeing the result $P =$ is 95% and the acceptable limit error $\Delta\varpi = \pm 4.77\%$, the sample size equals 422.

Last but not least, the sampling method used for this quantitative research was non-random (non-probability) sampling.

SPSS software was used for data processing and bivariate correlation.

All information received was treated following the ethical norms used in high-quality research worldwide, is strictly confidential, and was collected anonymously through Google Forms.

The main reason for conducting this bivariate correlation was the responses recorded to question 11 and question 12 of the survey.

Namely, to question 11: "*Did you allocate a larger part of your income for agro-food products during the lockdown (March-May 2020) caused by the COVID-19 pandemic?*" the most answers (150 out of 404) were recorded in variants partial agreement and complete agreement (see Table 1).

This large number of responses shows that the survey participants, as consumers of agro-food products living in Romania, allocated a more significant part of their income to buying agro-food products during the lockdown period (March-May 2020) imposed by the onset of the COVID-19 pandemic.

Table 1: Answers obtained for question 11

Answer variants	Number of answers	Percent	Score
Partially disagree	79	19,6 %	2
Totally disagree	49	12,1 %	1
Similar	126	31,2 %	3
Partial agreement	84	20,8 %	4
Complete agreement	66	16,3 %	5

Source: author's research

Moreover, to question 12: "*During the lockdown months (March-May 2020), did the purchased agro-food products comply with your expectations from a qualitative and quantitative perspective?*". Two hundred ten responses out of a total of 404 were recorded for partial agreement and total agreement (see Table 2).

This result shows that the agro-food products bought in Romania during the lockdown period (March-May 2020) were in line with consumers' expectations regarding quality, which led them to buy these products.

Table 2: Answers obtained for question 12

Answer variants	Number of answers	Percent	Score
Partially disagree	39	9,7 %	1
Totally disagree	63	15,6 %	2
Similar	92	22,8 %	3
Partial agreement	110	27,2 %	5
Complete agreement	100	24,8 %	4

Source: author's research

A higher number of favourable results (partial agreement / complete agreement) reveals a new possible research direction. More precisely, it can be assumed that Romanian consumers' management of their financial resources influences their shopping behavior during a medical crisis like the COVID-19 pandemic and can determine a causal relationship.

However, whether this possible research direction is true or false needs to be verified, moreover, this can be seen by applying bivariate correlation.

To apply bivariate correlation, specific analysis variables and research hypotheses were established. In this sense, question 11 represented the independent variable of the correlation and question 12 the dependent variable, two hypotheses being issued:

Hypothesis 0 or null hypothesis – there is no causal relationship between the increase in allocating a more significant part of Romanian consumer incomes to buy quality agro-food products when a medical crisis occurred as was the COVID-19 pandemic.

Hypothesis 1 or the alternative hypothesis – there is a causal relationship between the increase in the allocation of a more significant part of the income of Romanian consumers to buy quality agro-food products when a medical crisis occurs, as was the COVID-19 pandemic.

3. Results and discussions

After establishing the research variables, hypotheses, and methodology, the results obtained were exciting. The bivariate correlation results are presented in Table 3.

Table 3: Bivariate correlation results

		Independent variable: Did you allocate more of your income to agro-food products during the lockdown (March-May 2020) caused by the COVID-19 pandemic?*
Dependent variable: During the lockdown months (March-May 2020), did the agro-food products purchased comply with your expectations from a qualitative and quantitative perspective?*	Pearson Correlation	,931**
	Sig. (2-tailed)	<,001
	N	404
** . Correlation is significant at the 0.01 level (2-tailed).		

Source: author's research

The results obtained indicate a very strong positive correlation between the two variables due to the value of the correlation coefficient (r) is 0.931 and the value of the level of significance (p) is less than 0.001.

At the same time, the positive results of this bivariate correlation confirm *hypothesis 1* or the *alternative hypothesis*, which claims that there is a causal relationship between the increase in the allocation of a larger part of Romanian consumers' income to buy quality agro-food products when a medical crisis occurs, such as the COVID-19 pandemic.

Conclusions

In conclusion, the findings of this research, which support a solid and positive relationship between the dependent and independent variable, i.e., the increased income allocation of Romanian consumers to purchase quality agro-food products during the COVID-19 lockdown, are of significant importance. These results deepen our understanding of consumer behavior during medical crises and provide practical insights for policymakers and businesses, enlightening them on the potential shifts in consumer behavior during crises.

Thanks to this research, we now know that in Romania, agro-food consumers make an extra financial effort to purchase agro-food products that meet their standards when a medical crisis occurs.

This is of great interest to the manufacturers of these products and those who manage their marketing and sales strategies. Knowing this information, the people in these fields will have a starting point from which they can make their production, sales, and marketing strategies when health crises arise that will impose measures similar to those imposed in the COVID-19 pandemic.

The results of this research can also be useful for people in other sectors connected with the production and sale of agro-food products. For example, people in charge of logistics and packaging will know how to react if such events occur again.

Lastly, because this information is known and the correlation results were positive, the global food system can be helped. If there is information about how consumers in a country or region react when exceptional events occur, such as health crises, the pressure and strain placed on it can be lessened. It would be ideal for consumers to move towards sustainable behaviour, but this transformation will take a long time. We need to work with the information and tools we have now because a major health crisis will certainly occur again soon, and the consequences may be much worse than those caused by the COVID-19 pandemic.

Regarding the limitations of the research, no research can be 100% perfect for various reasons and it has limitations. The most apparent limitations relate to data availability, how they are aggregated, the omitted variables, or the robustness of the analysis. For this reason, this research has an indicative character. Despite its limitations, the present research, with its promising results, is a significant stepping stone for future studies. This initial exploration paves the way for further in-depth investigations.

Thus, in the future, the goal is to do new research on a larger scale regarding the sample of participants and the countries part of the analysis. In addition, it would be interesting to explore the influence of other factors, such as income level, location, gender of buyers, etc., on this relationship between the two variables.

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