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Preface

The 10th *International Scientific-Business Conference LIMEN 2024 – Leadership, Innovation, Management and Economics: Integrated Politics of Research* gathered researchers and practitioners to discuss how organizations, economies, and public institutions were being reshaped by leadership dynamics, technological change, sustainability imperatives, and evolving policy environments. Held in hybrid format on **December 5, 2024**, at the **Vienna University of Technology (TU Wien), Austria**, LIMEN 2024 continued its mission of connecting scientific research with practical decision-making in business and public life.

The papers published in these *Conference Proceedings* reflected the conference's interdisciplinary scope and its focus on research that informed responsible management, innovation, and sustainable development. A strong thematic stream addressed **leadership and organizational sustainability**, including analyses of destructive leadership and its consequences in healthcare, leadership for social impact, generational change in SME leadership, and the role of managerial personality. These contributions highlighted how leadership behaviors and values influenced organizational effectiveness, employee outcomes, and long-term resilience.

Another prominent area of research examined **human resources, motivation, and contemporary workplace challenges**. Studies explored employer branding in the digital age, employee competence and motivation in hospitality, volunteering and early-career decisions, and emerging perspectives on social responsibility and corporate image. These papers emphasized that competitiveness increasingly depended on people-centered strategies, talent attraction, and sustainable work environments.

Artificial intelligence, digital transformation, and cybersecurity formed a central pillar of LIMEN 2024. Contributions addressed AI and intellectual capital, chatbots and service quality in the public sector, AI in anti-money laundering, software security “by design,” data-driven campaign strategies, and IoT-based and cloud-oriented solutions in healthcare systems. The proceedings also included analyses of disruptive technologies, cybercrime, and the economic impact of cybersecurity risks, demonstrating how digital progress created new opportunities while raising new governance and protection requirements.

The volume also provided extensive insights into **innovation, entrepreneurship, and strategic management**. Papers investigated innovation performance and benchmarking frameworks, business model innovation and the metaverse, social innovation paradigms, greener supply chain adoption, consultancy for non-governmental organizations, logistics due diligence, and service recovery strategies in tourism and hospitality. Together, these studies offered practical frameworks for organizations seeking growth through innovation while maintaining accountability and sustainability.

Macroeconomic and public policy questions were well represented. Contributions examined globalization and inequality, poverty and social exclusion indicators, fiscal rules and political cycles, inflation dynamics, investment funds, public financing under crisis conditions, and the role of taxation principles in strengthening tax systems. Several papers focused on regional development, infrastructure performance, and investment attraction, underscoring the importance of evidence-based policy in supporting inclusive growth.

Energy transition and environmental sustainability appeared throughout the proceedings, including studies on renewable energy interest, hydrogen transition in refining, food system inde-

pendence, sustainable city development through building renovation, and sustainable mobility attitudes. These topics highlighted the increasing integration of sustainability goals into economic planning, corporate strategy, and public governance.

LIMEN 2024 was organized by the **Association of Economists and Managers of the Balkans – UdEkoM Balkan** and co-organized with the **Institute of Business Economics and Industrial Sociology, Faculty of Mechanical Engineering & Economics Sciences, Graz University of Technology**. The conference was supported by an international network of partners, including academic institutions and professional organizations, which strengthened the conference's international reach and ensured a broad exchange of perspectives.

Taken together, the contributions in this volume document current research debates and practical solutions at the intersection of leadership, innovation, management, and economics. The LIMEN 2024 proceedings, therefore, serve as a resource for academics, practitioners, and policymakers interested in translating research into practical strategies, balancing competitiveness with responsibility, and innovation with long-term societal value.



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Spending Versus Saving: COVID-19 Crisis Through the Lens of Consumers

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Abstract: *The COVID-19 pandemic showed that people significantly alter their consumer behavior during adverse events, with serious implications for their tendencies to create savings. A survey was conducted on a sample of 1172 Slovak consumers to collect data on consumers' experiences during various years of the pandemic. The findings of this research study show that the majority of consumers decreased their savings. This trend was observed especially in younger generations of consumers. The dependence between savings creation and fear of job loss was proven as medium. It was also discovered that older generations of consumers were spending more on daily consumption goods, especially in 2021. The finding that younger consumers spend less and buy fewer products could be an indication of a major turn towards sustainable consumption that will have positive implications on societies and the environment.*

1. INTRODUCTION

The COVID-19 pandemic significantly altered processes in societies. Consumer behavior observed various major changes that occurred either because consumers themselves chose to make alterations or because they were forced to make adjustments due to government restrictions, such as lockdowns. The research into consumer behavior changes during the pandemic is vast; however, it is still not a complex one. Niewczas-Dobrowolska et al. (2024) created a list of major changes that occurred during the pandemic. However, this list omits important factors such as saving creations.

Various research studies provided evidence that people significantly alter their consumer behavior during adverse events with serious implications for their tendencies to create savings, namely Barrafren et al. (2020), Kempson and Finney (2017), Li et al. (2020), Vanlaer et al. (2020), Waliszewski and Warchlewska (2021), Subova et al. (2022), or Kempson and Poppe (2024). Households' propensities to save depend on a range of socio-demographic and economic factors: living standards, household income, cultural habits, etc.

This evidence proves the relevance of the topic of savings creation during adverse events. Proper and detailed exploration of consumer behavior changes in terms of altered tendencies to increase or decrease the share of household income designated for savings can bring to light relevant findings that impact even post-pandemic societies. Therefore, this research study aims to fulfill this gap and consequently contribute to the current pool of knowledge.

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2. LITERATURE REVIEW

Researchers studying consumer behavior during a crisis or pandemic have focused mainly on consumer responses to the situation in terms of the structure and volume of purchases. They are less concerned with the relationship between consumer behavior and the creation of savings. These are primarily sociological and psychological studies with an interdisciplinary overlap into economics and finance.

The issue of savings creation and consumer behavior is addressed by authors and researchers worldwide. Relevant information is provided by the results of studies conducted across various continents, including those carried out by international research teams. Selected findings are presented below. Conditions most similar to ours are presumed to be in the countries of Central Europe, specifically within the V4 group.

Consumer behavior during the COVID-19 pandemic has been studied by authors in various countries around the world. Among the first were [Kirk and Rifkin \(2020\)](#), who report that consumers become less reactive and more resilient during times of crisis and examine the impact of the pandemic on consumer adaptive behavior in the U.S.A. Consumer behavior during pandemics typically begins with hoarding certain commodities. The authors, drawing on their own and other research, report that the onset of the pandemic was associated with extreme shopping. Household consumer spending increased by up to 845%. Suppliers were not prepared to meet expected deliveries, and some products were completely sold out. This was especially the case for stocks of goods: disinfectants, cleaning products, toilet paper, and bottled water. The above situation causes competitive behavior of consumers and establishes a demand and supply response in relation to the price they are ready or willing to pay for certain products. At the same time, it leads consumers to a certain resourcefulness. Compulsive shopping can also be mentioned. During the crisis, consumers correct their consumer behavior towards brands. According to their attitude to the crisis, they evaluate the attitude of brands and decide whether to buy them or not.

[Khanna et al. \(2023\)](#) studied the shopping and financial behavior of millennials aged 25 to 40 in selected regions of India due to the COVID-19 pandemic. They found that consumers are spending only on essentials during the COVID-19 pandemic, significantly reducing their spending on niceties and non-essentials (less necessary).

Prioritizing the purchase of sustainable products is associated with knowledge and awareness of the consumer's responsibility. Consumer behavior based on the pursuit of sustainability should be responsible. It can be responsible if it is based on relevant decisions based on truthful information. Therefore, consumers, absorbing a lot of information, sort and evaluate their needs according to the level of their knowledge. One of the essential components in the structure of household expenses is energy expenses. To reduce their housing costs and at the same time use sustainable resources, consumers choose from a number of alternatives and assess the effectiveness of their investments - accumulated savings - in a suitable energy source or in an energy-saving product from both an economic and ecological point of view. However, they must be cautious in their choice and avoid fraudulent energy-saving products ([Li et al., 2024](#)).

In general, income is a driving force for consumption: households with higher incomes usually buy larger homes, cars, appliances, and also in terms of quantity (they own more apartments or houses, more cars, etc.). On the other hand, German researchers [Matthies and Merten \(2022\)](#) found that the correlations between motivational factors and intentions to engage in political behavior are not affected by income. Consumers' decisions about sustainable behavior result from their attitudes and beliefs.

A strong correlation between the intention to isolate and the intention to make unusual purchases was also confirmed by a study in Finland (Laato et al., 2020). Here, an international team of researchers states that isolation leads to, in addition to excessive or unusual shopping, information overload and cyberchondria, too.

Household savings are considered key to the creation of the economy's GDP, as well as its further economic development.

Household savings represent the difference between a household's total disposable income and its consumption expenditures over a specific period. Statistical reporting of household savings tracks the so-called household saving rate, which is calculated using the formula $(\text{savings}/\text{income}) \times 100$ and is expressed as a percentage.

Vanlaer et al. (2020) found that households' propensity or willingness to save is closely linked to consumer confidence in the future (or concerns about the future). They conducted research in eighteen countries after the 2007–2009 crisis, and the results revealed that the impact of consumer confidence on savings increased even further after the crisis.

Pessimistic expectations of households regarding their future economic situation and financial ignorance are associated with reduced financial well-being. Li et al. (2020) found that China households' liquidity constraints became serious after the outbreak of COVID-19, and the deterioration of households' liquidity significantly increases their saving willingness and decreases their consumption.

An interesting perspective on savings concerning GDP is offered by an international team of researchers (Slovakia and the USA) on savings in Central Europe, which conducted research during the years 1996–2021. They consider the crises from 2007 to 2009 and the crisis caused by the COVID-19 pandemic to be significant milestones (Subova et al., 2022). They conducted the research in the V4 countries (in alphabetical order): the Czech Republic, Hungary, Poland, and Slovakia. Their results demonstrate short-run Granger causality from real GDP to the household savings rate and from the household savings rate to real GDP in both the Czech Republic and Hungary. They also report significant long-run relationships between the household savings rate and real GDP, especially in Hungary. According to Eurostat, savings in 2021 in the Central European countries (V4) represented different shares: the Czech Republic 21 %, Hungary 15 %, Poland 9 % and the Slovak Republic 11 %.

The household savings rate in the Czech Republic and Hungary is higher than the eurozone average (it was 14–15 % for 2023). Average savings in the eurozone were highest during the pandemic, when they reached more than 25 % in the second quarter of 2020 (Slovak Republic 15 % in 2020, 17 % in 2021), and there was a significant decline in the following years. Currently, experts expect further growth in savings due to the expected growth in household income. In the last two years, there has been a further decline in savings in Slovakia, also due to inflation. An improvement and therefore an increase in the savings share is expected.

Polish researchers Waliszewski and Warchlewska (2021) conducted a fairly extensive relevant analysis of consumer financial behavior in connection with the COVID-19 pandemic. They compared the findings in Poland with other countries (in alphabetical order: Belgium, the Czech Republic, France, the Netherlands, Luxembourg, Germany, Austria, Romania, the United Kingdom, Spain, Italy, Turkey, USA). They found that compared to the pre-pandemic period, there was a decrease

in spending, which could be caused by a temporary decrease in household income, a lack of opportunities to spend money, and fears of an uncertain future. When it comes to savings, not all consumers can afford to create savings. The level of household income is decisive.

3. METHODOLOGY

The main aim of this research was to examine consumer behavior changes that occurred during the COVID-19 pandemic, with special focus on exploring how consumers altered their tendencies to create savings. This research study was created as an empirical investigation. A sample of 1172 consumers in the Slovak Republic was utilized to examine the shifts in consumer behavior that transpired during the pandemic, to describe the changes in savings tendencies. The representativeness of this sample was validated based on the criterion of consumers' age. The base dataset comprised all Slovak citizens of legal age, who are over 18 years old. A Chi-square test was employed to compute and subsequently confirm the representativeness of the sample. The structure of the sample according to the criterion of consumers' age is presented in Figure 1.

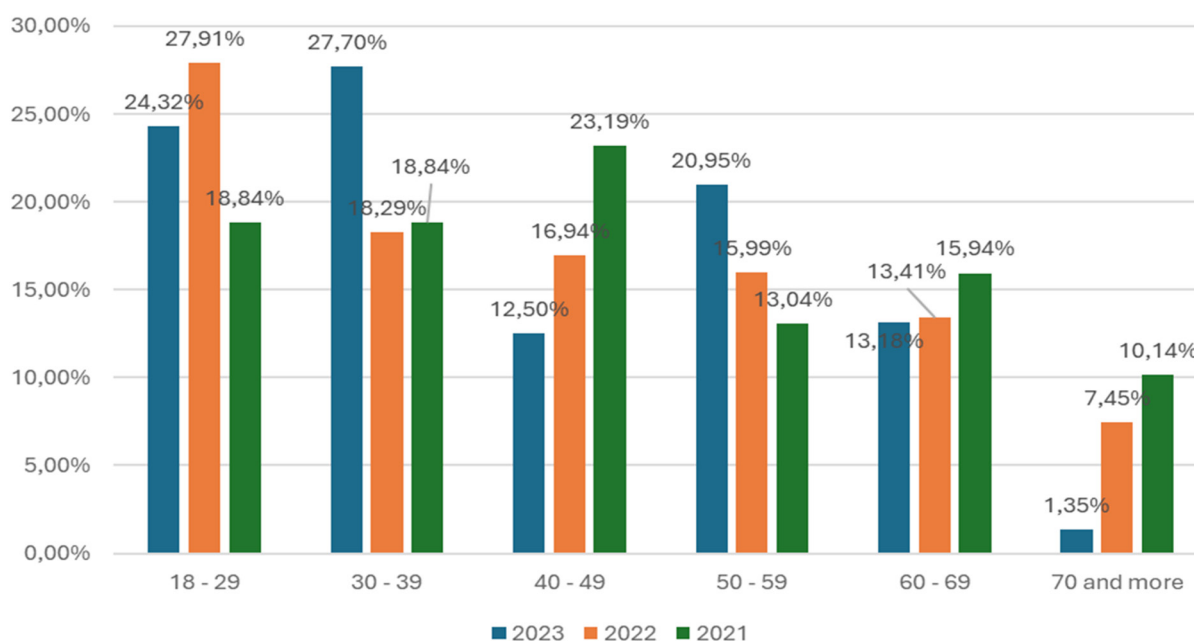


Figure 1. Sample file
Source: Own processing

Additionally, other social and economic attributes of consumers were gathered and subsequently utilized in the analysis of various phenomena related to changes in consumer behavior during the COVID-19 pandemic. This sample comprised 68.61% female consumers. The majority of consumers in the sample were employed (61.09%), and 22.69% were entrepreneurs. Up to 21.5% of consumers in the sample lived alone during the pandemic, 21.51% resided with their parents, 24.23% shared a household with a partner without children, and the remaining 32.78% lived in a household with a partner and at least one child.

4. RESULTS

This research focused on describing observed consumer behavior changes during the COVID-19 pandemic. The findings of this research study show that the majority of consumers decreased their savings. Figure 2 provides the corresponding evidence on the subject. The data in Figure

2 shows a trend of decreasing savings creation as the pandemic continued. The highest share of consumers was observed with savings creation in the range of 51-70% of their household income. However, in 2023, higher shares of consumers were observed in lower savings share categories.

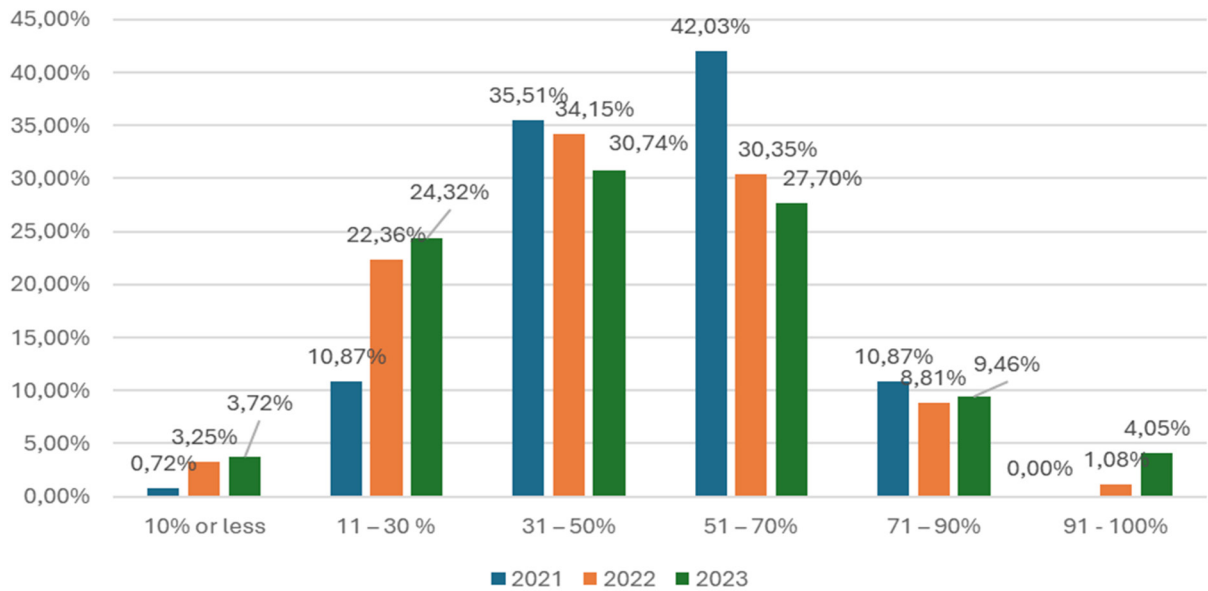


Figure 2. Changes in savings creation during the COVID-19 pandemic

Source: Own processing

The changes in savings creation were also observed in the context of the age of consumers. The trend of a decrease in savings creation was observed, especially high in younger generations of consumers. The data in Figure 3 shows the proportion of consumers who created savings at a given level. According to the data, the highest savings were created mostly by consumers older than 50 years old. On the other hand, consumers younger than 40 years did not designate more than 90% of their household income for savings. The biggest versatility was observed in the consumer age group 60 – 69 years old.

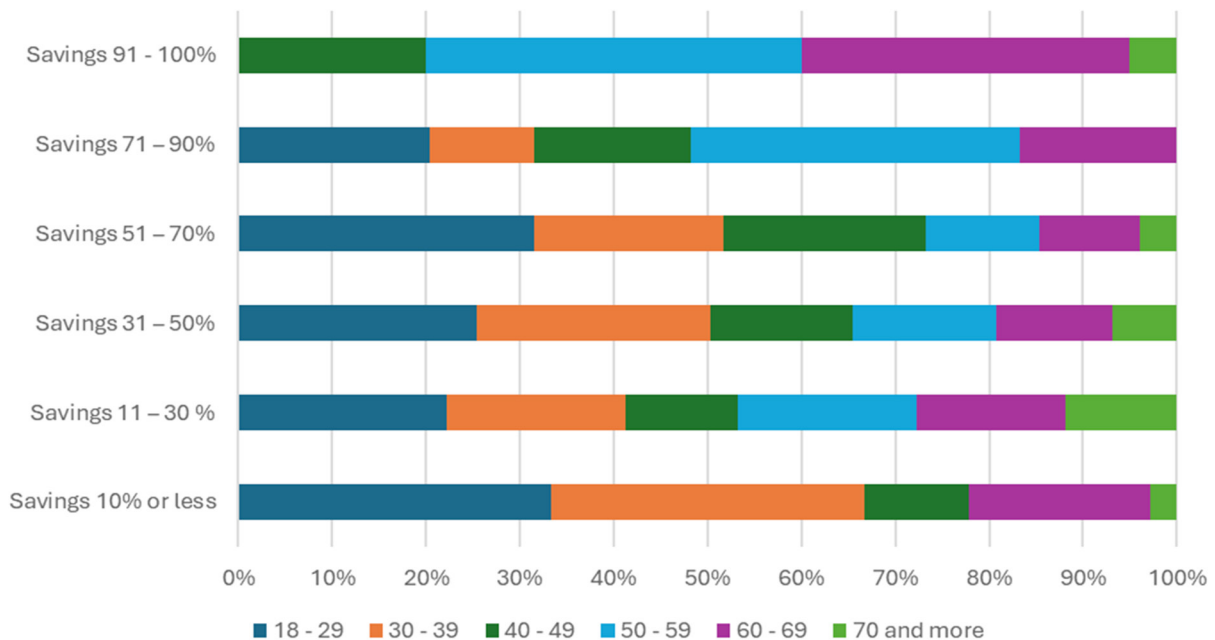


Figure 3. Changes in savings creation based on age of consumers

Source: Own processing

Furthermore, the possibility of fear affecting consumers' tendencies to create savings was also explored. The dependence between savings creation and fear of job loss was proven medium to medium-high. The correlation coefficient was calculated at level 0.482. Therefore, it is possible to conclude that this type of fear had impacted consumers during the COVID-19 pandemic to a small degree. No other significant dependency was discovered between various types of fear and the tendency of consumers to create savings.

Changes in savings creation during the pandemic were also explored in the context of the employment situation of consumers. The data shown in Figure 4 makes it obvious that the employment situation affects the amount of savings consumers created during the pandemic. Even the calculated correlation coefficient at level 0.848 proves that there exists a strong direct dependency between these factors. According to the data, the highest levels of savings were reached only by consumers who were employed during the pandemic. On the other hand, 21.88% of unemployed consumers only created savings of less than 10%. Only 14.07% of these consumers created savings at a level higher than 50% of their income.

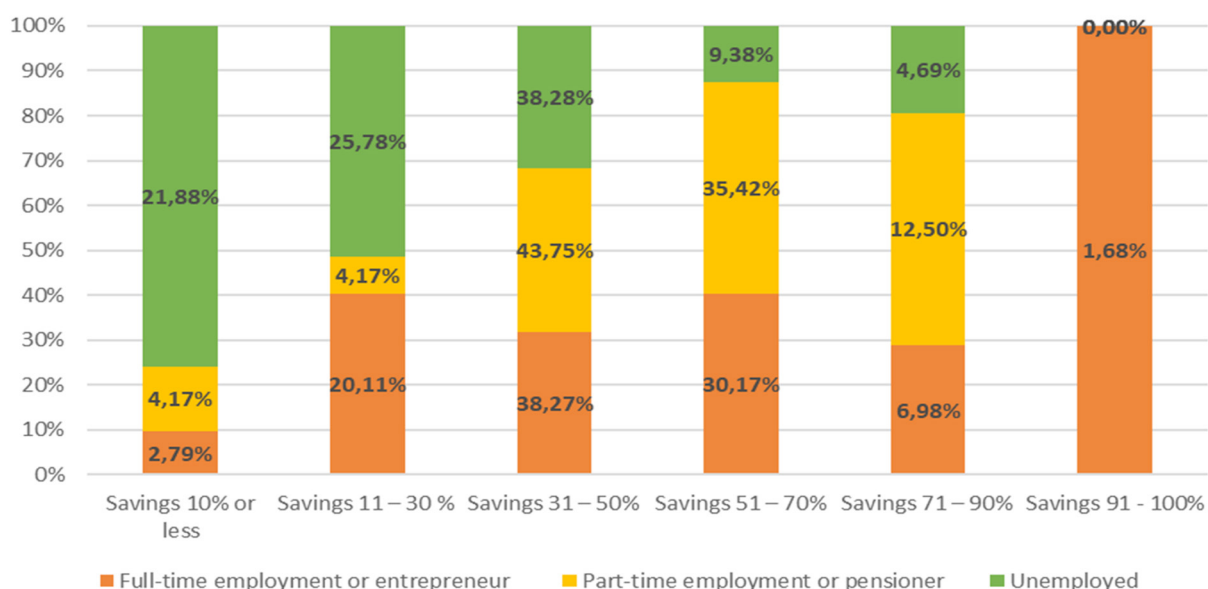


Figure 4. Changes in savings creation based on employment status during the pandemic

Source: Own processing

This research also explored the types of products consumers spend most of their income on. It was discovered that older generations of consumers were spending more on daily consumption goods, especially in 2021, while younger generations spent a significant portion of their income on leisure products. However, it was also discovered that younger consumers tended to buy fewer products by the end of the pandemic. This finding that younger generations of consumers buy fewer products could be an indication of a major turn towards sustainable consumption that will have positive implications on societies and the environment.

5. FUTURE RESEARCH DIRECTIONS

The findings of this research indicate various significant new trends that are emerging in the post-pandemic world. It is evident that societies have evolved, and consequently, consumers have also transformed as they have adjusted to these shifts. Information and communication technologies have made accessing news a very rapid and straightforward process. Hence, decisions

related to purchases can also be made considerably faster. This research study found that younger generations of consumers are more aware of the sustainable values of contemporary societies. Consequently, these generations are the consumer segments that should be targeted by developing new methods of creating more sustainable products. It was discovered that these younger generations of consumers represent the future of the markets. Therefore, further exploration into their needs and beliefs should be conducted in order to uncover the new ways of thinking that will soon become dominant.

Furthermore, this study explored how the savings creation changed during the COVID-19 pandemic. However, it would be beneficial to also explore the impacts of such changes on the economy. Consumption and savings are a delicate balance that, if changed, could destabilize investments and deteriorate the functioning of both public and private sectors. Therefore, exploring these consequences should be a logical next step in research into the post-pandemic world.

6. CONCLUSION

The above research findings demonstrate that consumers make decisions about their purchasing behavior and financial management in different ways. In various situations, they prioritize emotions or rational criteria to varying degrees when making decisions. It is likely impossible to accurately predict how consumers will behave during a crisis, what their purchasing behavior will be, or how they will make financial decisions. Differences in socio-demographic factors serve as the basis for varying reactions even under approximately similar or comparable conditions. It has been shown that a crisis can lead to consumer behavior characterized by both rational and irrational actions, such as unpredictable shopping patterns.

The willingness to save money before a crisis, in preparation for it, as well as the willingness to save during a crisis, depends on many factors. These include the level of household income, the standard of living (both of the household and the country), the cost of living, and consumer awareness regarding lifestyle choices, expectations, and cultural habits, including considerations related to the environment and sustainability. The mentioned disparities demonstrate the need for further investigation and the mutual sharing of acquired information.

The COVID-19 pandemic induced a significant socioeconomic shift that also influenced attitudes and beliefs. To comprehend the modern consumer, a more pronounced systemic approach that considers both the supply and demand sides is necessary. Therefore, it is necessary to make adjustments based on the research findings to fully understand how consumers will adjust their behavior in the near future.

The findings of the research indicate that even though savings play a major role in peoples' lives, not all consumers pay attention to them during adverse events.

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