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CONTENTS

IMPACT OF HOUSEHOLD SENTIMENT AND EXPECTATIONS ON STOCK RETURNS IN U.S. DURING COVID-19 PANDEMIC: IS THERE ANY RELATIONSHIP?

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Abstract
The COVID-19 pandemic not only created a major challenge for society, but the pandemic also affected and impacted the functioning and performance of the financial markets. Investor ‘s psychology played an important and crucial role. The presented paper deals with a well-known phenomenon in the form of the impact of sentiment on the performance and stock returns. Most empirical studies focus not only on individual investors but also on large corporations. The main thesis of this phenomenon is that excessive investor optimism leads to lower future returns, and this negative correlation is statistically and economically more significant in the US than in Europe. In our paper, we examine the impact of household sentiment and expectations on the stock returns in the US during the COVID-19 pandemic. Using a general regression model and correlation analysis on monthly data, we show that there is a negative relationship between household sentiment and expectations and S&P stock returns in most cases, but that it does not show signs of statistical significance even when time lags are exploited. Also, the predictive power of households’ sentiment is largely reduced

Keywords
confidence, expectations, household, sentiment, stock returns.

JEL classification
D10, G12, G17

1 Introduction

The COVID-19 pandemic was a situation that affected many countries not only in terms of social life but also in terms of the functioning of economic systems. Many economic actors have had to adapt to the new conditions and change their behaviour in view of the increased level of uncertainty resulting from the spread of COVID-19. At the same time, the pandemic has disrupted established rules and changed widely accepted patterns of behaviour. The functioning of the financial market and the household sector was no exception. The link between these two sectors can be seen precisely in the impact of household sentiment and expectations and stock returns. In the pre-crisis period, it has become an established dogma that periods of higher investor optimism tend to be followed by lower returns for the aggregate market (Schmeling M., 2009). Despite the simplicity of the definition of the relationship in question, its empirical confirmation is not entirely straightforward and individual results vary due to the differences and specificities of the countries and time periods studied. Due to these reasons, the main objective of the this paper is to empirically test the validity of the relationship between household sentiment or expectations and stock returns on the example of the USA during the COVID-19 pandemic, respectively, investigate the potential change in the impact of household sentiment and expectations on stock returns in the US during the COVID-19 pandemic.

One of the biggest challenges that researchers have to deal with, when tackling similar topics, is the problem of defining sentiment. Although sentiment is considered one of the most important factors influencing households' consumption and financial behaviour and is one of the topics addressed by academics, it has never been officially defined and several interpretations of it can be encountered. The academic community is also not entirely unanimous as to what this sentiment should encompass. (Bormann, 2013). Within the concept of sentiment, we can include categories such as emotions and moods (Filiz, 2021; Kusev et al., 2017), predictions, outlooks and beliefs

(Rakovska et al., 2020; Kamdar, 2019) or trust (Bialowolski, 2019). The reason why sentiment is associated specifically with emotions and moods is that these factors influence future expectations and shape risk aversion, which is the de facto essence of households' financial decision-making. Bormann (2013) further discusses the construction and use of sentiment indices. He also restates any data can be included in sentiment indices if it is believed to reflect investor sentiment. He starts from the observation that there is no official definition of sentiment, and his indices can include any data. From this perspective, it is extremely difficult to subsequently assess and accurately define household sentiment, even for our research and the purposes of this paper. In general, therefore, we lean towards the definition by Baker, Wurgler (2007), who define sentiment as "beliefs about future cash flows and investment risks that are not supported by available facts..." in terms of being quite broad and offering a degree of flexibility for further research.

The structure of the article is as follows, the first part deals with a review of the literature and a theoretical definition of the problem. The second part deals with the working procedure and methodology, through which we test our assumptions and hypothesis. The last part presents the achieved results of empirical research, which are then conceived into conclusions and recommendations.

2 Literature review

As mentioned in the previous section, the main theorem is that periods of higher investor optimism tend to be followed by lower returns for the aggregate market. The validity of the relationship in question has been subjected to empirical research by several authors, and the results have not been entirely clear either in favour of a positive or a negative relationship. In the following paragraphs, we will focus on important empirical studies from before and during the COVID-19 pandemic.

One of the most important articles that have dealt with the issue can be considered a study by Fisher, K. L., & Statman, M. (2003) who examined the relationship between stock returns and consumer confidence. They found a strong and positive correlation between S&P500 index and consumer confidence indices, and they argue that consumer confidence has power to predict some stock returns. This empirical study is considered by many academics to be groundbreaking and to have laid the theoretical foundations in this field of economic and financial science. Subsequent empirical studies have built on it, and in the following we provide an overview of them in chronological order, mostly from the period already affected by the spread of the pandemic COVID-19. Schmeling, M. (2009) found that sentiment negatively forecasts aggregate stock market returns on average across countries. When sentiment is high, future stock returns tend to be lower and vice versa. Reis, P. N., & Pinho, C. (2020) confirmed that the US stock markets react more to the anticipation of bad news and worst scenarios than Europe that reacts more to real pandemic verified confirmed cases. Lee, H. S. (2020) used Daily News Sentiment Index (DNSI) and Google Trends data on coronavirus-related searches and suggests the strategic investment planning considering the time lag perspectives by visualizing changes in the correlation level by time lag differences. Wang, W., Su, C., & Duxbury, D. (2021) documented a negative relationship between investor sentiment and future stock returns at the global level. Jiang, B., Zhu, H., Zhang, J., Yan, C., & Shen, R. (2021) used Baidu index to predict the return of stocks during the COVID-19 pandemic. Eachempati, P., Srivastava, P. R., & Panigrahi, P. K. (2021) used a machine learning approach to Twitter to analyze and follow investor sentiment that has guided the market to the new low during the first 150 days of the COVID-19 era. The only respite for recovery of financial markets is the lowering of COVID-19 infected cases for the time being till a vaccine is developed for the virus. Cevik, E., Kirci Altinkeski, B., Cevik, E. I., & Dibooglu, S. (2022) examined the relationship between positive and negative investor sentiments (using Google Search Volume Index) and stock market returns and volatility. An increase in positive investor sentiment leads to an increase in stock returns while negative investor sentiment decreases stock returns at lower quantiles. Hasan, M. T. (2022) constructed and found that SCARES index negatively explains stock market return and subsequent return reversals, implying that households increased pandemic sentiment negatively affects equity market return. Gaspar, R. M., & Jiaming, X. (2023) found some negative correlations between stock market returns and changes in consumer confidence indices for the Covid pandemic sub-period. Bai, C., Duan, Y., Fan, X., & Tang, S. (2023) measured the financial market sentiment via textual data from news media and showed that the intensification of the epidemic adversely affects the stock market, but the increasing financial market sentiment increases the stock market return, even during the worst of the pandemic. Xia, Z., Chen, J., & Sun, A. (2024) explored the relationship between public sentiment related to COVID-19 (via Twitter data) and stock market fluctuations during the different phases of the pandemic. Their findings indicate a strong correlation between the sentiments expressed on social media and market volatility, particularly sentiments directly associated with stocks. The importance of the topic can also be reflected through the work of Gric, Z., Bajzík, J., & Badura, O. (2023), which focused on a meta-analysis of findings within the relationship between household sentiment and stock returns.

As we can see, several empirical studies that were conducted during the COVID-19 pandemic focused on sentiment, which was primarily expressed through quantifying the number of text searches associated with the COVID-19 pandemic, i.e., through the expression of households' emotions, sentiments, and fears about the further spread of the disease in question. The conclusions of these studies also do not provide straightforward answers on the interpretation of the relationship and in many cases the direction of the correlation depends on several variables such as the proxies used to measure sentiment, the types of actions and also the countries (different countries faced different intensity of the COVID-19 pandemic and at the same time took different measures to mitigate its spread, which had different levels of strictness of compliance).

3 Methodology and data

In order to achieve the main objective of clarifying the relationship between household sentiment and stock returns in the U.S. during the COVID-19 pandemic, we used statistical and econometric methods. The starting point for our research was the work of Fisher, K. L., & Statman, M. (2003) who used correlation analysis and Schmeling, M. (2009) whose model we used in estimating the relationship in question and which takes the following form:

$$r_{t+1} = \alpha + \beta sentiment_t + \varepsilon \tag{1}$$

, where r_{t+1} represents stock returns (time lag +1) and $sentiment_t$ represents an indicator reflecting the sentiment of households at time t.[1] At the same time, Pearson's correlation coefficient was used to perform the correlation analysis. Fisher, K. L., & Statman, M. (2003) in their work also focused on the predictive power of household sentiment on stock returns by defining the time period as M+3, M+6 and M+9, where M represents the current month. In our research, we used cross-correlation function to determine the predictive power of household sentiment and cross-correlogram for better visualization.

As we mentioned in the previous section, most empirical studies that have looked at the impact of sentiment on stock returns have relied on constructed indexes based on internet searches that reflect the sentiment and feelings of households during the COVID-19 pandemic. In our case, in contrast, we focus on the different proxies that were used to express household sentiment in the period before the COVID-19 pandemic, which simultaneously differentiates us and express value-add of our research. We defined the variables in the econometric model as follows:

- **Dependent variable:** Stock returns of S&P 500
- **Independent variables:** proxies of Household sentiment
    - Month to Month changes (%)[2]

[1]A similar econometric model is presented by Gric, Z., Bajzík, J., & Badura, O. (2023), who extend it, also stating that in general a time lag of +1 is considered in the correlation relationship in question.
[2] The institutions involved in the compilation of the indicator are indicated in brackets.

- Index of Consumer Sentiment (University of Michigan)
- Index of Consumer Expectations (University of Michigan)
- Index of Consumer Confidence (OECD)
- Index of Consumer Confidence (Conference Board)

, with a monthly frequency, covering the official time period of the COVID-19 pandemic (04/2020 - 04/2023) in the USA. In the next section of the paper, we take a closer look at the definitions, basic attributes, evolution, and descriptive statistics of the various expressions of household sentiment and S&P 500 stock returns.

The S&P 500 is a stock market index tracking the performance of the 500 largest companies listed on US exchanges, and you can see the evolution of stock returns in the Figure below.

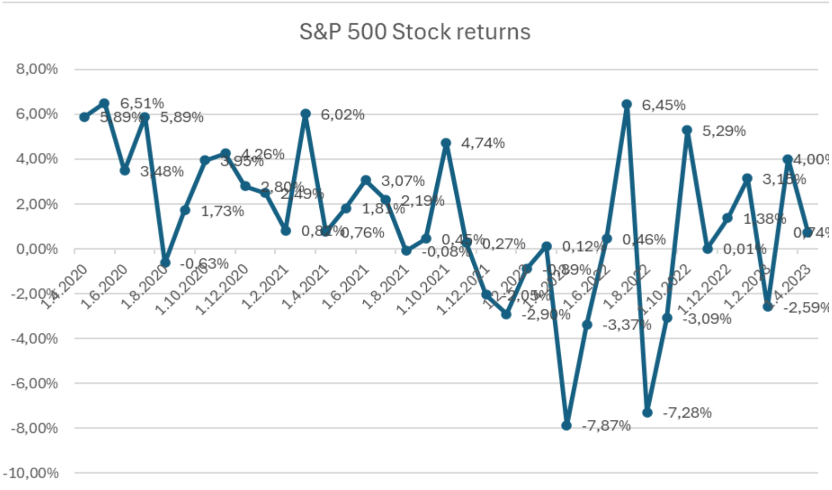

Fig. 1. S&P 500 stock returns (Source: officialdata.org)

In the following Table 1 we can see descriptive statistics regarding Stock returns of S&P 500.

Table 1. S&P 500 stock returns – descriptive statistics

S&P 500 Stock returns		Kurtosis	0,4937
Mean	0,0130	Skewness	-0,6824
Standard Error	0,0058	Range	0,1438
Median	0,0138	Minimum	-0,0787
Mode	0,0589	Maximum	0,0651
Standard Deviation	0,0352	Sum	0,4798
Sample Variance	0,0012	Count	37

Source: Own processing

The first proxy appearing in the regression equation as an independent variable expressing household sentiment is the Index of Consumer Sentiment constructed by the University of Michigan, which characterizes it as a monthly survey of how consumers feel about the economy, personal finances, business conditions, and buying conditions. In Figure 2, we can see the evolution of its values over the period we observe.

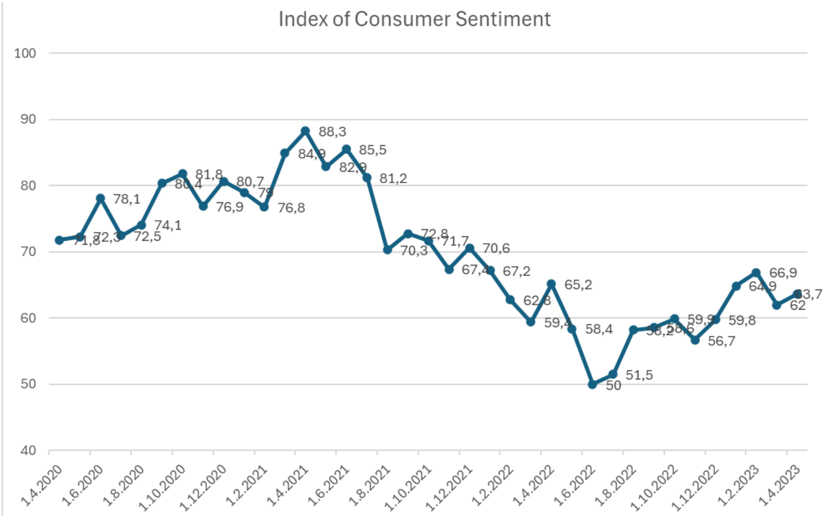

Fig. 2. Index of Consumer Sentiment (ICS) (Source: University of Michigan)

Descriptive statistics for the index in interest can be found in Table 2.

Table 2. Index of Consumer Sentiment (ICS)– descriptive statistics

Index of Consumer sentiment (ICS)		Kurtosis	-0,8843
Mean	69,8703	Skewness	-0,0575
Standard Error	1,6448	Range	38,3000
Median	70,6000	Minimum	50
Mode	#N/A	Maximum	88,3000
Standard Deviation	10,0050	Sum	2585,2000
Sample Variance	100,0999	Count	37

Source: Own processing

As a second measure of sentiment, we used the Index of Consumer Expectations (ICE), also produced by the University of Michigan, which focuses on three areas:

1) how consumers perceive the outlook for their own financial situation
2) how they perceive the prospects for the general economy in the near term
3) their view of the economy's prospects in the long run.

The evolution of the values of this index is shown in Figure 3.

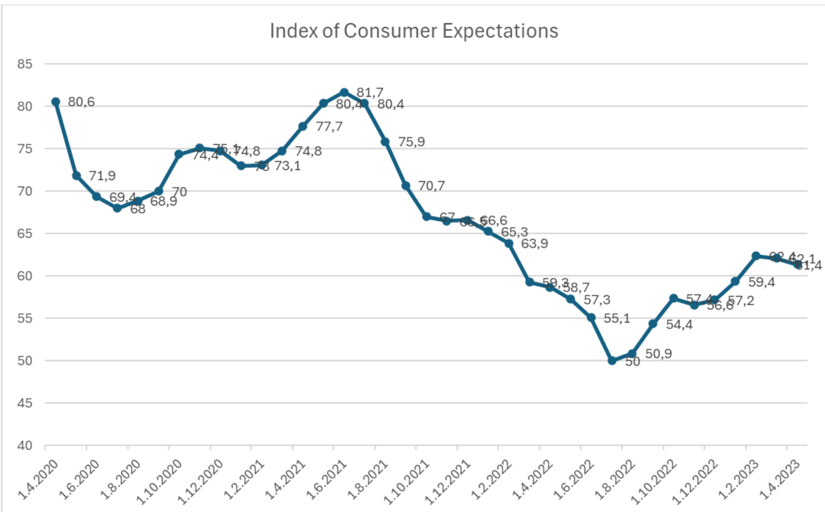

Fig. 3. Index of Consumer Expectations (ICE) (Source: University of Michigan)

Table 3. Index of Consumer Expectations (ICE)– descriptive statistics

Index of Consumer expectations (ICE)		Kurtosis	-1,0040
Mean	66,8189	Skewness	-0,0841
Standard Error	1,4600	Range	31,7
Median	67	Minimum	50
Mode	74,8	Maximum	81,7
Standard Deviation	8,8810	Sum	2472,3
Sample Variance	78,8721	Count	37

Source: Own processing

The third and fourth independent variables are expressed through the Consumer Confidence Index, which is compiled by both the OECD and the Conference Board US, with a difference in the definition of this indicator and in its interpretation. The OECD defines the Consumer Confidence Index as a standardised confidence indicator providing an indication of future developments of households' consumption and saving. The index is based upon answers regarding household's expected financial situation, their sentiment about the general economic situation, unemployment and capability of savings.[3] The evolution of this index can be seen in the following Figure 4.

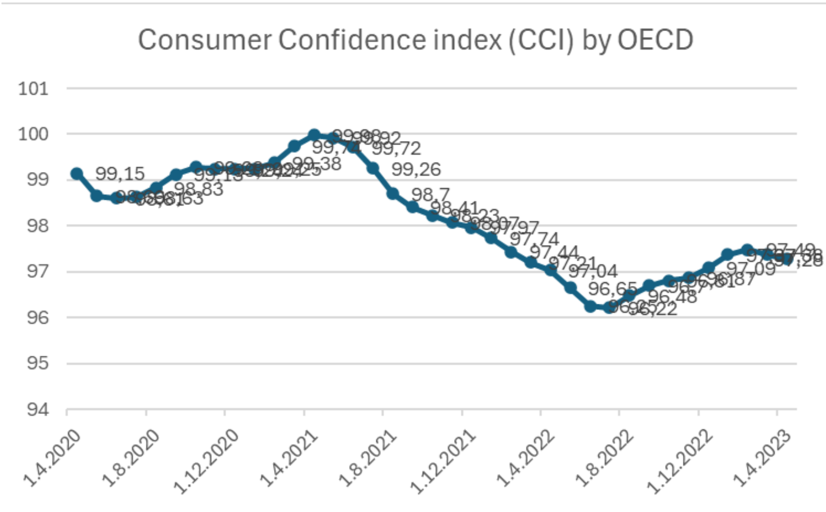

Fig. 4. Consumer confidence index (CCI) (Source: OECD)[4]

Table 4 contains the values of the descriptive statistics for this indicator.

Table 4. Consumer confidence index (CCI) by OECD – descriptive statistics

Consumer Confidence index (CCI)		Kurtosis	-1,3097
Mean	98,1465	Skewness	-0,0772
Standard Error	0,1875	Range	3,76
Median	98,23	Minimum	96,22
Mode	99,24	Maximum	99,98
Standard Deviation	1,1406	Sum	3631,42
Sample Variance	1,3011	Count	37

Source: Own processing

[3] OECD considers CCI as a leading indicator and provide qualitative information used to monitor the current economic situation and are a waring of turning points of economic activity.
[4] CCI>100 =>boost in the consumers' confidence towards the future economic situation

Unlike the OECD, the Conference Board defines the Consumer Confidence Index (CCI) as an index that measures how consumers feel about their expected financial situation, whether they are optimistic or pessimistic. It also considers it as a lagged indicator, or one that changes after a change in another related economic variable, taking 1985 as a reference (chain value 1985=100), meaning that when the CCI>100, consumers are more optimistic than in 1985. The evolution of this indicator can be seen in the following Figure 5.

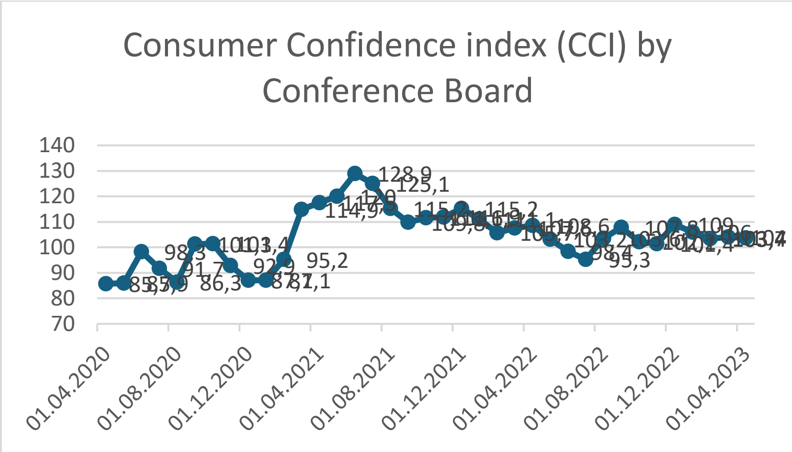

Fig. 5. Consumer confidence index (CCI) (Source: Conference board)

Table 5 then reports the values of the descriptive statistics for this indicator.

Table 5. Consumer confidence index (CCI) by Conference Board – descriptive statistics

Consumer Confidence index (CCI)		Kurtosis	-0,2361
Mean	104,1622	Skewness	0,06972
Standard Error	1,7801	Range	43,2
Median	103,7	Minimum	85,7
Mode	101,4	Maximum	128,9
Standard Deviation	10,8278	Sum	3854
Sample Variance	117,2402	Count	37

Source: Own processing

4 Results

First, we estimated the tightness of the dependencies between the variables using correlation analysis and Pearson's correlation coefficient. The results of the correlation analysis can be seen in Table 6, noting that no time lags were used in this analysis.

Table 6. Results from correlation analysis

Correlation coefficient	S&P 500_stock returns
ΔCCI_OECD	-0,089
ΔCCI_CB	-0,102
ΔICS	-0,161
ΔICE	-0,231

Source: Own processing

Based on the results of the correlation analysis, we can confirm that there is a negative correlation between household sentiment and stock returns, but it is very weak. For a better visualization, we decided to use the correlation matrix as well.

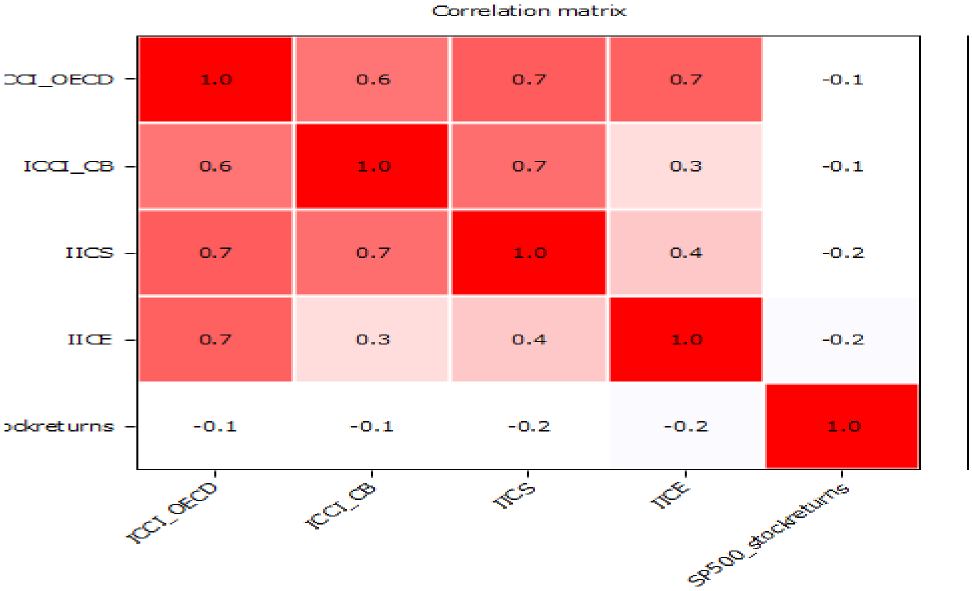

Fig. 6. Correlation matrix (Source: Own processing)

The correlation matrix in this case also shows us how the different indicators and sentiment expressions correlate with each other.

We then performed regression analysis between month-to-month changes of independent variables (proxies of households' sentiment) and dependent variable (S&P 500 stock returns). We report the results of the regression analyses in Figure 7 below, and we have already used time lags (+1) in this regression analysis.

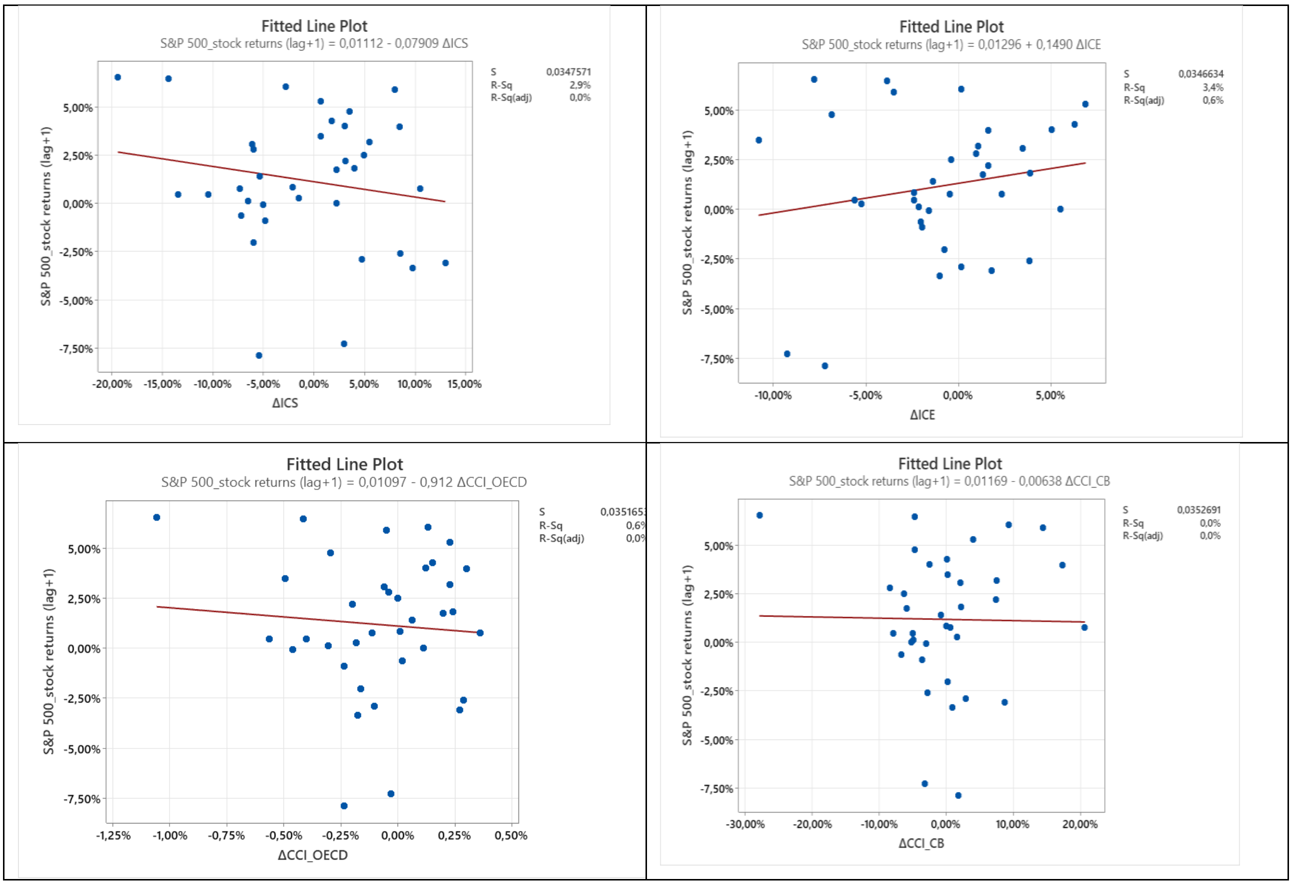

Fig. 7. Regression analysis (Source: Own processing)

Based on the results of the regression analysis, we can conclude that there is a negative correlation between household sentiment and stock returns (except in the model where the Index of Consumer Expectations acts as a proxy for sentiment, as this correlation appears to be positive) using time lags (+1). However, this correlation is statistically insignificant, which may be due to the COVID-19 pandemic, where the relationship may have weakened.

Finally, we tested the predictive power of sentiment and tried to determine the appropriate number of time lags using a cross-correlation function. The results can be seen in the following graphs.

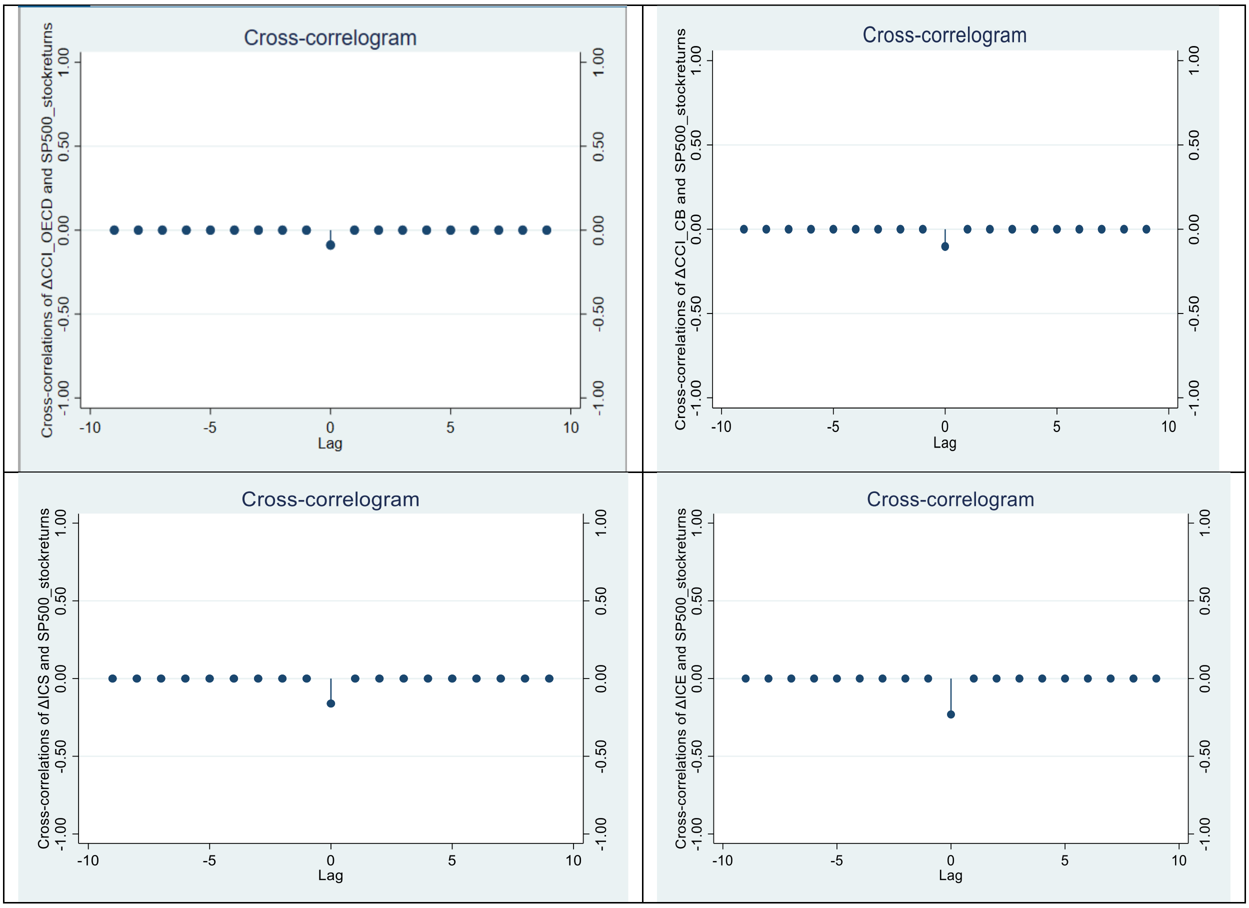

Fig. 8. Predicitive power (Source: Own processing)

Based on the cross-correlogram results, we can conclude that COVID-19 has reduced the predictive power of sentiment due to the increase in uncertainty in global financial markets and in the household sector. Thus, it is no longer possible to predict stock returns based on household sentiment in the long run.

5 Conclusion

The COVID-19 pandemic has been an element significantly influencing the behaviour of economic actors around the world. The present paper examines the correlation between household sentiment and stock returns. In our case, we used several proxies that reflected household sentiment and its impact on S&P 500 stock returns in the U.S. during the COVID-19 pandemic period. Through regression and correlation analysis, we confirmed a negative correlation between household sentiment and stock returns in the U.S. during the COVID-19 pandemic, which, however, is losing strength/statistical significance. We also confirmed through a cross-functional function that household sentiment cannot be used to predict stock returns in the long run (in the short term there are several limitations). Thus, potential investors should not rely on sentiment alone to predict the evolution of financial markets during extraordinary events but use multiple indicators.

6 Acknowledgement

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UNDERSTANDING THE ROLE OF BIG DATA ANALYTICS IN SHAPING CONSUMER BEHAVIOR: A SYSTEMATIC LITERATURE REVIEW

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Abstract
The integration of big data analytics into business planning offers significant opportunities and challenges in understanding and influencing consumer behavior. This systematic literature review examines the evolving landscape of research on big data's role in shaping consumer behavior. By reviewing 48 journal articles, the paper identifies key trends, methodological approaches, and findings across multiple regions, including India, China, the USA, and European countries. The study explores major sub-topics, such as the integration of big data analytics in digital transformation, its impact on traditional and online shopping, consumer loyalty, and decision-making, as well as consumer behavior during the COVID-19 pandemic. Sustainability concerns are another focus, addressing how businesses can use data-driven strategies to meet the growing demand for eco-friendly products. This review also outlines common methodologies used in big data research and suggests future research directions to advance the understanding of consumer behavior in the digital age.

Keywords
Big Data, Brand Experience, Consumer Behavior, Digital Transformation, E-commerce, Machine Learning, Sustainability.

JEL classification
Y3 Book Reviews (unclassified)

1 Introduction

The advent of *big data analytics* has fundamentally transformed consumer behavior research, reshaping how businesses interpret and respond to the rapidly evolving needs of their customers. Big data, characterized by its volume, velocity, variety, and veracity, offers organizations the ability to analyze vast quantities of consumer data in real-time, providing deep and unprecedented insights into purchasing patterns, preferences, and emerging trends (Chen, Chiang, & Storey, 2012). According to a *McKinsey Global Institute* report (2011), companies that leverage big data analytics effectively are not only able to outperform their competitors but also create significant value by enhancing their decision-making processes and optimizing operations. As the digital age continues to evolve, big data has become a vital asset for businesses seeking to maintain competitiveness and better understand their customers.

One of the most prominent applications of big data analytics in consumer behavior research is the personalization of customer experiences. By analyzing consumer preferences, behaviors, and interactions across multiple digital touchpoints, businesses can create highly tailored marketing strategies that resonate with individual consumers. *Personalized marketing*, driven by big data, allows companies to engage customers more effectively, improving customer satisfaction, loyalty, and ultimately, conversion rates (Davenport, 2014). Furthermore, businesses are now able to use predictive analytics to anticipate customer needs and offer recommendations in real time, fostering deeper engagement and enhancing overall brand experiences.

The integration of *big data analytics* has also enabled businesses to optimize their marketing strategies. Real-time data allows for dynamic adjustments in marketing campaigns, making it possible to target consumers at the optimal time and through the most effective channels. According to a *Forbes Insights Report* (2018), organizations that leverage big data analytics in their marketing strategies see a significant increase in marketing ROI, with many companies reporting improvements in customer targeting and engagement through data-driven insights.

In recent years, the adoption of digital technologies has accelerated dramatically, spurred in part by the *COVID-19 pandemic*, which has forced both consumers and businesses to adapt to new ways of interacting. The pandemic led to a widespread shift from traditional brick-and-mortar stores to *online shopping*, giving businesses unprecedented access to a broader range of digital data. This includes consumer digital footprints from websites, social media interactions, mobile apps, and e-commerce platforms, which collectively offer a more comprehensive picture of consumer behavior than ever before (Zwanka & Buff, 2021). As a result, businesses are now able to leverage big data to track and predict consumer behavior in real time, enabling them to respond more nimbly to changing customer demands.

Moreover, *big data analytics* has proven essential in understanding the complex and dynamic nature of modern consumer behavior. With the rise of *social media* and online review platforms, consumers have taken on more active roles in shaping brand perceptions and influencing the purchasing decisions of others (Lamberton & Stephen, 2016). The data generated from these platforms offers a wealth of information that businesses can use to understand not only how consumers interact with their brands but also how these interactions influence broader consumer trends. As *e-commerce* continues to expand globally, understanding how big data can be utilized to capture these consumer insights has become a critical research and business imperative.

This systematic literature review explores the integration of big data analytics in consumer behavior research, focusing on its impact across various industries and geographic regions. By reviewing studies from countries such as India, China, the USA, and several European nations, this article identifies key research questions, methodologies, and findings that shed light on the evolving relationship between big data and consumer behavior. Previous studies have demonstrated that the adoption of big data in markets like *China* and *India* has had profound effects on consumer engagement and business strategies, particularly in e-commerce and digital retail (Kshetri, 2014). In the *USA*, big data has been widely applied across industries such as retail, finance, and healthcare, driving business transformation and enhancing consumer decision-making (Manyika et al., 2011).

As businesses continue to integrate big data analytics into their operations, the ability to harness this data effectively will play a pivotal role in shaping consumer behavior research. This review aims to consolidate current knowledge on how big data is influencing consumer behavior across different regions and industries, providing insights that will guide future research and practical applications in business contexts.

2 Methods

This review follows the recognized principles for systematic literature reviews (SLR) by using a rigorous and transparent methodology to identify, analyze, and synthesize relevant literature on big data analytics and consumer behavior. The systematic literature review method is known for its structured approach, which provides thorough coverage of the research topic while minimizing bias using a set search and inclusion process.

The SLR approach has various advantages. First, it provides a full review of the existing literature, ensuring that all relevant studies are taken into account and providing for a thorough grasp of the current research environment. Second, the technique reduces researcher bias by following a controlled, transparent process for study selection and analysis, hence increasing the review's replicability. Third, SLRs allow for the identification of research gaps and emerging trends, resulting in significant insights for future research orientations. SLRs improve the generalizability of conclusions by combining information from several studies.

Search Strategy:

- To ensure the inclusion of high-quality, peer-reviewed research, the *Web of Science Core Collection* was selected as the primary database for retrieving articles. This database is widely regarded for its rigorous indexing of reputable journals, providing access to high-impact, peer-reviewed research across various fields.
- Keywords included "big data," "consumer behav*," (to capture various forms like behavior, behaviours, etc.), and related terms were employed to identify relevant articles. Boolean operators were used to refine the search, ensuring a focus on studies that specifically addressed big data's application in the context of consumer behavior.

Inclusion Criteria:

- *Peer-reviewed articles* published between *2010 and 2024* were included. During the extraction process, it was found that all the articles retrieved and analyzed for this review were published within this timeframe. The selection of this period is crucial, as it captures the most significant advancements in big data analytics and its applications to consumer behavior, which have largely developed over the past decade. This timeframe also ensures the inclusion of the latest research and trends in both technology and consumer behavior.
- Studies focusing on the application of big data analytics in understanding consumer behavior.
- Articles written in *English* and indexed in the *Social Sciences Citation Index (SSCI)* were included. English was chosen due to accessibility and the prevalence of English-language research in global academic discourse. SSCI indexing ensured that only high-quality journals with established impact factors were considered.

Exclusion Criteria:

- Articles that did not include consumer behavior as a central theme.
- Studies lacking empirical data or methodological rigor.
- Duplicates and non-English language studies were also excluded.
- Article without access was eliminated after the overall filter.

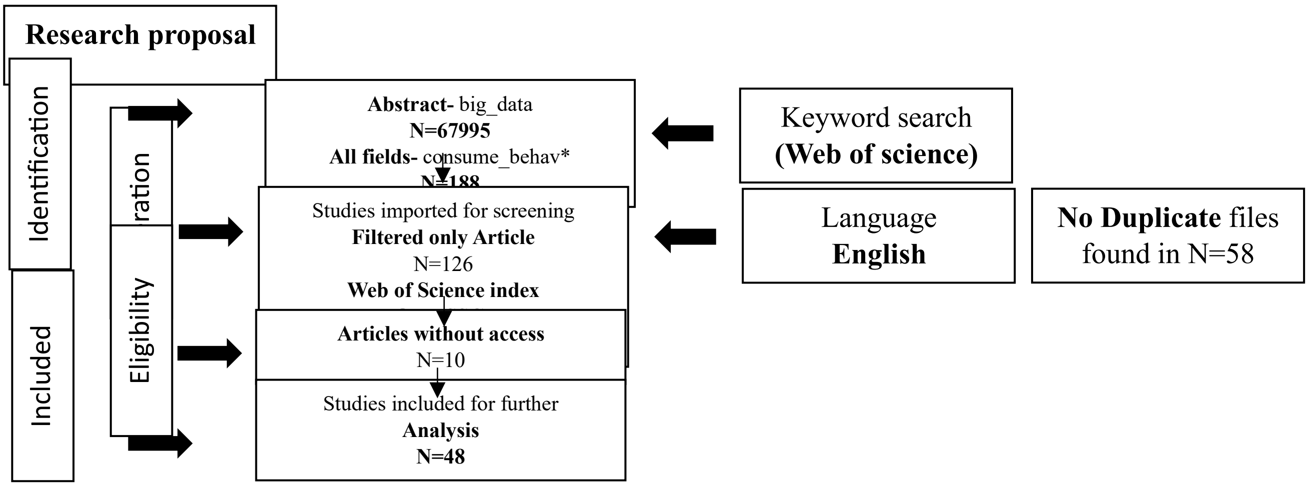
Data Extraction and Analysis:

- The data extraction process was systematic and focused on identifying *core themes, research methodologies*, and *key findings* across the selected articles. *Thematic analysis* was employed to categorize the key topics that emerged from the literature, including digital transformation, sustainability, and the impact of the COVID-19 pandemic on consumer behavior. This approach allowed for the identification of recurring patterns and provided insights into how big data is being applied across various industries and geographic regions.
- Each article's methodology was carefully reviewed to assess the quality of data collection, analysis, and interpretation. The articles were then grouped by themes such as *machine learning applications in consumer behavior*, the role of *big data in sustainability initiatives*, and the *digitalization of consumer interactions*. This thematic categorization enabled a clear understanding of the different dimensions through which big data analytics influences consumer behavior.

Limitations:

- This review is limited by its focus on articles indexed in *Web of Science* and written in *English,* which may exclude relevant research published in other languages or indexed in different databases, such as *ESCI* or *Scopus*. The decision to focus on SSCI-indexed journals was made to prioritize the inclusion of high-impact, well-established research. However, this may have led to the exclusion of emerging research published in newer journals not yet indexed in SSCI.

Additionally, the decision to limit the timeframe to *2010–2024* was driven by the need to focus on contemporary research, but it may exclude earlier foundational studies that could provide historical context to the evolution of big data analytics.



3 Results

Methodological Quality:

The majority of studies reviewed applied sophisticated and robust methodologies, leveraging the power of big data analytics to analyze consumer behavior across various sectors. Commonly used methods included machine learning algorithms, bibliometric analysis, text mining, sentiment analysis, and survey-based research. The quality of the research was generally high, with many studies demonstrating strong statistical foundations and methodological rigor.

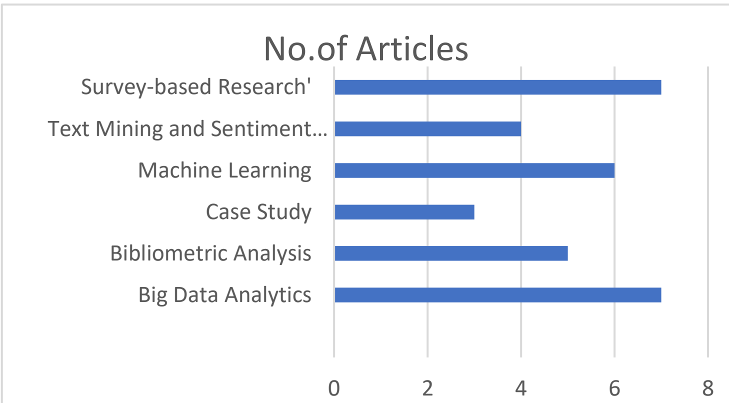


Fig. 1. Methodology used (Source: own processing)

Key Characteristics of Study Participants:

Participants in the reviewed studies typically represented diverse consumer groups segmented by demographics such as age, gender, and location. The studies frequently analyzed data from e-commerce platforms, social media interactions, and digital payment systems, providing valuable insights into the behavior of online shoppers, tourists, and sustainability-conscious consumers. Cultural and geographic differences were also central to many studies, particularly those comparing consumer behavior across regions like India, China, and the USA.

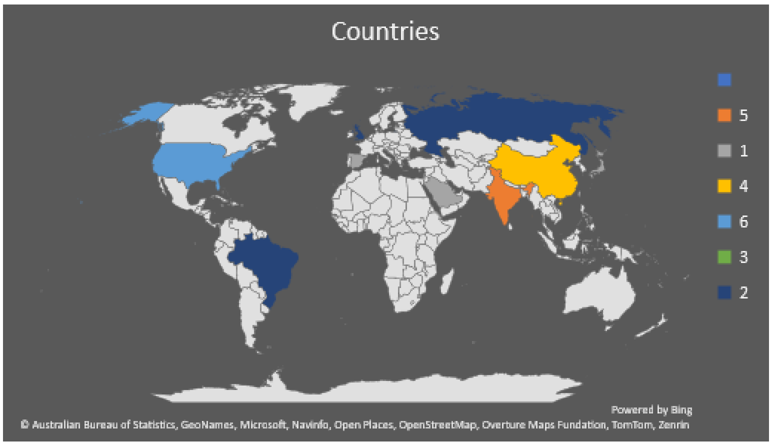


Fig. 2. List of countries involved in articles (Source: own processing)

Settings and Sample Sizes:
The studies were conducted in a variety of settings, from digital platforms (e.g., Amazon, Taobao) to mobile payment ecosystems (e.g., Bizum in Spain). Sample sizes varied significantly, with big data studies analyzing millions of data points, such as customer reviews and transaction records, while smaller-scale survey-based studies typically included several hundred participants.

Interventions and Comparisons:
Interventions examined in the studies included personalized marketing campaigns, AI-driven product recommendations, and sustainability initiatives designed to influence consumer behavior. Comparisons were often made between traditional marketing methods and data-driven approaches, with AI-based systems consistently outperforming manual strategies in terms of engagement, satisfaction, and sales.

Risk of Bias:
Potential biases were identified in several studies, including selection bias in survey-based research, algorithmic biases in machine learning models, and publication bias. These biases may have influenced the results, particularly in studies relying on self-reported data or proprietary algorithms with limited transparency.

Effects of Interventions on Outcomes:
- *Consumer Engagement and Loyalty*: Interventions such as personalized recommendations and AI-driven marketing were shown to increase consumer engagement and brand loyalty. Studies indicated that consumers are more likely to remain loyal to brands that offer tailored experiences based on their preferences and behavior.
- *Sustainability and Consumer Behavior*: Sustainability initiatives, particularly those integrated into brand messaging and product offerings, had a significant impact on consumer behavior. Consumers increasingly favored brands that promoted eco-friendly products, especially in the food, tourism, and fashion sectors.
- *Pandemic-Driven Behavioral Shifts:* The COVID-19 pandemic led to substantial changes in consumer behavior, with many studies reporting increased reliance on e-commerce platforms and digital payment systems. The reviewed studies highlighted how big data analytics was used to track these shifts in real time, allowing businesses to adapt their strategies to meet changing consumer needs.

4 Discussion

1. The Growing Importance of Personalization:
One of the most significant findings across the studies is the growing importance of personalization in consumer behavior research. Big data analytics allows businesses to create highly personalized marketing strategies, which have been shown to improve customer engagement, satisfaction, and loyalty. By leveraging machine learning algorithms, companies can analyze consumer preferences in real time and deliver tailored product recommendations, advertisements, and promotions. Future research should explore the next generation of personalization tools, focusing on AI and predictive analytics to create even more sophisticated consumer experiences.

2. Challenges in Data Integration and Interpretation:
While big data analytics provides unprecedented opportunities for businesses, the integration and interpretation of large datasets remain a challenge. Many companies struggle with the complexity of handling unstructured data, such as social media posts and customer reviews, and require more advanced tools to extract actionable insights. Moreover, concerns about data privacy and security continue to loom large, as businesses must navigate increasingly stringent regulations while still extracting value from consumer data. Future research should focus on developing more advanced data governance frameworks and exploring how businesses can balance the need for consumer data with ethical considerations around privacy.

3. Sustainability as a Driving Factor in Consumer Behavior:
Sustainability emerged as a key theme in many of the reviewed articles, reflecting a growing consumer demand for environmentally friendly products. Big data analytics plays an essential role in tracking and promoting sustainable behavior by providing businesses with insights into consumer preferences for green products. However, there is still much to learn about how sustainability can be integrated into broader business strategies. Future research should investigate how big data can be used to measure and promote sustainability in real-time, particularly in industries with complex supply chains, such as food and fashion.

4. Ethical Considerations and Data Privacy:
As businesses increasingly rely on big data to shape consumer behavior, ethical concerns around data privacy and transparency have become more prominent. Several studies highlighted the potential for algorithmic bias, where machine learning models may inadvertently reinforce stereotypes or exclude certain consumer groups. Moreover, the collection of personal data has raised concerns about how businesses safeguard consumer information. Future research should focus on creating ethical frameworks for the use of big data, ensuring that businesses maintain consumer trust while continuing to innovate in their marketing and product development strategies.

5 Conclusion

Big data analytics has fundamentally transformed the way businesses understand and influence consumer behavior. By providing deep insights into consumer preferences, purchasing patterns, and behavioral shifts, big data enables companies to create more personalized and effective marketing strategies. The studies reviewed in this article highlight the vast potential of big data, but they also underscore the challenges of data integration, privacy, and ethical considerations. As businesses continue to adopt digital transformation strategies, the role of big data will only grow in importance.

Future research should focus on addressing the ethical concerns associated with big data, as well as developing more sophisticated analytical tools to interpret the increasingly complex datasets generated by digital consumers. Furthermore, the integration of sustainability into business strategies will remain a key area of interest, particularly as consumers become more environmentally conscious.

Recommendations for Future Research:
Future research should focus on developing strong data governance frameworks to solve privacy and data interpretation issues as firms increasingly employ big data. Furthermore, additional research is required into how AI might improve personalization and real-time user involvement. There is also an increasing need to study how big data may drive industry-wide sustainability, assisting businesses in meeting the expanding demand for environmentally friendly products. Finally, the long-term consequences of digital transformation on consumer behavior should be investigated, particularly in light of emerging technologies like as AI and big data, to better understand their long-term impact on purchase decisions and brand loyalty.

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GENDER DIVERSITY OF MAYOR AND ITS INFLUENCE ON THE FINANCIAL PERFORMANCE OF A MUNICIPALITY: A STUDY FROM CZECH REPUBLIC

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Abstract
This article focuses on the impact of gender diversity in municipal leadership and the financial performance of municipalities in the Czech Republic. The aim of the research is to determine whether municipalities with a female mayor exhibit better financial results and higher expenditures on social care compared to those led by men. The study utilizes descriptive statistics and data analysis from the town of Vizovice for the period 2011-2022. The results suggest that gender diversity in leadership can have a positive impact on the financial performance of municipalities and their investments in social care. Specifically, municipalities led by female mayors show higher financial stability and greater allocation of funds to social programs. This article contributes to the broader debate on the role of gender diversity in local governance and offers new insights that may be useful for policymakers and other researchers in the field of public administration.

Keywords
Gender, Gender Diversity, Municipality, Financial Performance, Mayor.

JEL classification
H00, H72, H83

1 Introduction

The participation of women in public institutions has increased significantly in recent years (Cabailero & Buch, 2024). In the last twenty years alone, there has been an increase in the number of women represented in senior management positions in the Czech Republic from the original 10.6% in 2004 to the current 23% in 2023 (2024). The share of women in senior managerial positions has thus more than doubled. This is not the case with the representation of women in leadership positions at the level of municipalities. As of 2020, there were 28% female mayors in small municipalities, which is almost twice as many as 30 years ago (2020). However, it is still true that as the population increases, and therefore also the responsibility, the level of representation of women in leadership positions decreases. This brings us to the limit of 8% representation in large cities (2020). This is confirmed by Smith, Reingold and Owens (2011), who talk about the relationship between the prestige of municipal offices and the probability of female representation. Here too, it was found that a lower level of prestige brings a higher probability of being represented by a woman.

However, the Czech Republic, as a member of the OECD, the EU and other important world groups, lags other developed countries. Within the EU, the Czech Republic is significantly below the average (2024), where it ranks among the worst. The Czech Republic is not doing better in the international field either. The Global Gender Gap Index, which is compiled regularly by the WEF, placed the Czech Republic in 101st place out of 146 possible. Only Cyprus (2023) is worse off in Europe. At the same time, Choi and Ko (2024) talk about the benefits of gender diversity in top management.

At the same time, research has shown that gender diversity, which is also particularly supported in the European Union by the introduction of legal measures that lead to equality between women and men, has a positive effect on the performance of municipalities (Cabaleiro & Buch, 2020). Some research indicates (Holman, 2017; Choi & Ko, 2024; Wang et al., 2024) that women are still underrepresented in public leadership positions in municipalities and cities, such as mayors, representatives or city managers, despite the ever-increasing share of women in public positions, which was mentioned above.

However, too little is still known about gender diversity in the public sector (Holman, 2017; Huang & Villadsen, 2023; Suzuki and Avellaneda, 2018; Araujo & Tejedo-Romero, 2018). Several researchers have already dealt with this issue in the private sector, but at the same time there is growing interest in extensive research on gender differences in public sector management (Cabaleiro & Buch, 2023; Huang & Villadsen, 2023).

For the time being, the research that were focused on the approach of gender diversity in relation to the performance of the municipality were carried out in countries belonging to the above average in the field of representation of women in leadership positions. Examples include studies from Spain (Cabaleiro & Buch, 2024, 2023 and 2020; Araujo & Tejedo-Romero, 2018; Ferreira & Gyourto, 2014; Cuadrado – Ballesteros et al., 2024), Denmark (Opstrup & Villadsen, 2015), Japan (Suzuki & Avellaneda, 2018), the United States of America (Ferreira & Gyourto, 2014) or Italy (Brusca et al., 2015). However, empirical evidence on the possible differences between men and women within gender diversity on municipal performance is often different, sometimes even contradictory (Park, 2021).

Researchers call for further research on gender diversity and its impact on municipal performance in other international, cultural or socio-economic contexts. (Cabailero & Buch, 2024; Choi & Ko, 2024; Wang & Ma, 2024 and many others).

Research dealing with this area is not sufficiently represented in the context of the Czech Republic, an OECD and EU country where gender diversity is below average. According to the OECD (2014), a higher level of representation of women in politics has a positive effect on the management of public finances. A more thorough analysis of the articles on this topic that are included in the Scopus database (2024) does not meet the required validity.

For this reason, the article is focused on the gender diversity of the top management of municipalities, or mayors, and its influence on financial performance. The article is divided into several parts. The introduction is followed by a part of the literature review, where the issue of gender diversity in the leadership positions of municipalities and its relationship to the financial performance of the municipality is outlined for the reader. Furthermore, the article will include a section dealing with research methods and data collection. In the conclusion itself, the results will be commented, and a conclusion will be drawn.

The article thus contributes to the expansion of theoretical knowledge in the field of gender diversity in relation to the performance of municipalities, in the context of the Czech Republic's perspective. The study brings new insights into the field of gender diversity at the level of senior management of municipalities in the Czech Republic and their financial performance.

2 Literature review and hypotheses

The chapter is devoted to the presentation of theoretical knowledge in the field of gender diversity, management of municipalities, financial performance of municipalities and its possible impacts on the activity of municipalities, including possible risks and other influences. Hypotheses will be established based on literature research.

For the purposes of the paper, the literature search is compiled from more than 30 professional articles from high-impact journals available from Scopus or Web of Science. Two methodological procedures were chosen for the analysis of professional articles and the subsequent literature search, namely a search using keywords that were chosen for the purposes of the paper - gender, diversity, financial performance, municipality, mayor. In addition, the Snowball Method was used.

2.1 Gender Diversity and Municipal Performance

As noted by Park (2021), there is wide variation in the observed effects of gender diversity on municipal performance. The conducted research of top management, i.e. the positions of mayors and municipal councils, are not so much that we can talk about the researched area (Huang & Villadsen, 2023). The authors talk about further research in the influence of gender on the performance of municipalities. For example, Cabaleiro and Buch (2024) concluded that there is a positive relationship between gender diversity and municipal indebtedness. Greater diversity in municipal management goes hand in hand with lower municipal indebtedness, where the mayor's gender plays an important role. This is contrary to the research mentioned above (2020), where the presence of a female mayor or a higher proportion of women in the council has a negative impact on the financial performance of the municipality. This finding is confirmed by research (2020) of Spanish city districts, where districts with a greater representation of women showed worse results.

This fact is also pointed out by Alesiny and Giuliana (2011) and Lotta and Kenny (1999), when they talk about the higher reporting of the level of public expenditure by women than by men, which can affect performance. However, Ely (2004) and Pfeffer and Salancik (2003) talk about positive connections between gender diversity in top management and the performance of municipalities and thus complement Opstrup and Villadsen (2015), who talk about the positive contribution of gender diversity to the financial performance of municipalities in Denmark.

The literature talks about gender as a certain influence on the performance of public institutions. Studies in the past have shown the influence of the gender of the mayor on the financial performance of municipalities, both on expenses and tax collection (Avellaneda, 2009,2016; Park, 2014; Freier and Thomasius, 2016) or deficit budgets (Cabaleiro & Buch, 2018) and in not least municipal debt (Hernándéz-Nicolás et al., 2018). However, Brusca et al. do not agree with this. (2015) who showed that the amount of municipal debt is not affected by the gender of the mayor. Thus, the effects can be both positive and negative depending on the different levels of gender diversity (Choi & Ko, 2024). However, a higher level of representation of women brings a positive effect on the performance of local governments in dealing with issues with citizens. Such representation has a positive effect on local politics and on the effectiveness of public organizations (Wang & Ma, 2024).

The work is based on *Kanter's Theory* (1977), which predicts gender diversity, i.e. the proportion of men and women in organizations as a decisive factor. Kanter talks about ideal diversity in the case of more than 40% of women in leadership positions. Such a composition brings a positive influence on the management and performance of municipalities.

An important aspect of the municipality's performance is the very function of the mayor. Cabaleiro and Buch (2023) talk about positive gender diversity in the case of a male mayor. However, this fact disappears with a woman in the role of mayor. Cuadrado-Ballesteros et al. (2024), on the contrary, claim that in the case of a female mayor, the financial performance of the municipality is better. The work of Suzuki and Avellaneda (2018) does not agree with this, which does not add any obvious effect on the financial performance of municipalities in the case of the representation of a woman in the role.

With this, we can confirm the words of Park (2021) about the apparent deviations in the claims about the effects of gender diversity on the performance of municipalities. Based on this fact, hypothesis H1 is established.

H1: Municipalities/cities with a female mayor show better financial performance.

2.2 Gender Diversity and the Social Agenda of Municipalities

From the point of view of financial performance of municipalities and their relationship with gender diversity, it is also interesting to observe the relations between gender and the social agenda of municipalities. As research shows, women in the top management of municipalities are more concerned with topics such as public service, social work, risk minimization or social insecurity, while men aim more for money, power and recognition (Pratch & Jacobowitz, 1996; Chow & Ngo, 2022; Croson & Gneezy, 2013; Davies et al., 2020). It is precisely due to the sociological profile of women, when there is greater support for social policies than is the case with men (Inglehart & Norris, 2003; Rehavi, 2007; Holman, 2014). Holman (2014, 2015) is also complemented by Smith (2014) and confirms the occurrence of increased spending on financing social services in the case of municipalities led by female mayors. Based on this finding, hypothesis H2 was established.

H2: Municipalities/cities that have a female mayor show a higher rate of spending on social care.

3 Research context

For a broader understanding of the connections between gender diversity and the financial performance of municipalities, and thus to contribute to the literature on the subject, it is desirable to conduct research in a different context than the previous research. As mentioned above, several researchers agree on the need for further research in this area from a different national, cultural or socio-economic point of view (Cabailero & Buch, 2024; Choi & Ko, 2024; Wang & Ma, 2024 and many others). Further research is needed to understand the impact of gender representation on local public finances (Suzuki, Avellaneda, 2018).

The Czech Republic represents an interesting sample for a deeper study of the given issue. This developed, economically strong country, which has been a member of the OECD since 1995, a member of the EU since 2004 and which has committed itself to the Sustainable Development Goals, does not achieve satisfactory results in gender balance. Thus, a higher rate of representation of men in leadership positions in municipalities still prevails. However, studies to date have been conducted in Western developed countries, where the rate of representation of women is considerably higher, reaching an almost balanced state. New knowledge from an environment where this is not the case can bring new knowledge about gender diversity and its influence on the financial performance of municipalities.

4 Methodology and Data Collection

For the purposes of the paper and the subsequent testing of the above-mentioned hypotheses, the method of descriptive or descriptive statistics of data related to indicators of the financial performance of the municipality or city will be used. This method is based on the description of the state or development of mass phenomena that show signs of the influence of chance. It consists of a part of data acquisition, data use and subsequent analysis of quantitative properties of information collections. (Švábová et al., 2022, p. 35)

The following indicators of the financial performance of the municipality or city were selected based on a literature search. The literature indicates the indicator of *budget income, budget expenditure or budget balance* as the most frequently used indicators for assessing the financial condition of the municipality (e.g. Peková, 2011, Žehrová, Pfeiferová, 2006, Halásek et al., 2002, Binek et al., 2007). In addition, another indicator was selected for hypothesis testing, namely the indicator of the *amount of social care expenditures.*

The paper and hypothesis testing are based on the analysis of financial performance indicators of the city of Vizovice. This city was chosen as a good example for testing the mentioned hypotheses.

It is a smaller town located near the regional town of Zlín in the Zlín Region. The city of Vizovice is currently being led by a female mayor for the second election period in a row, when she replaced a male mayor in this position. In addition, we can find several social services in the city, from a low-threshold facility for children and youth, through children's homes, sheltered housing, a maternity and family center or a relief center and the Hospital of the Merciful Brothers. It is also a municipality with the status of a municipality with extended jurisdiction with all civic amenities.

The data collection took place primarily with publicly available documents of the city of Vizovice and data provided by the State Treasury Monitor. The data was collected for the period from 2011 to

2022. This period includes data for 3 election periods when the mayor's gender changed, and thus represents an ideal sample for the purposes of the paper.

The data was collected during the month of August 2024. Work with the data was further carried out in the MS Excel 2016 spreadsheet environment and then inserted into the paper.

5 Findings

5.1 Gender Diversity and Municipal Performance

The following table will be used for testing and subsequent verification of hypothesis H1, and thus to determine whether municipalities with a female mayor show better financial performance.

Table 1. Gender diversity and performance of municipalities

Election period	1. Election period				2. Election period				3. Election period			
Gender	Male				Female				Female			
Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Income in thousand CZK	129 497	109092	103997	91466	94490	97918	109347	113280	126121	124716	127701	167496
Expenses in thousand CZK	132 990	121851	93953	77120	88722	83184	109364	113121	128746	106690	111452	168229
Balance in thousand CZK	-3493	-12758	10044	14346	5768	14734	-17	159	-2625	18026	16250	-732

Source: own processing based on publicly available data

The table contains information about the monitored period, the gender of the mayor, monitored years and monitored indicators - income, expenses and the balance of the city budget. The aim was to find out whether in the monitored periods when the mayor's gender changed from male to female, there was also a deterioration or improvement in the financial performance of the given city.

For this finding, there was a comparison of individual indicators in individual monitored periods. Significant differences in individual monitored indicators are essential for revealing better or worse financial performance.

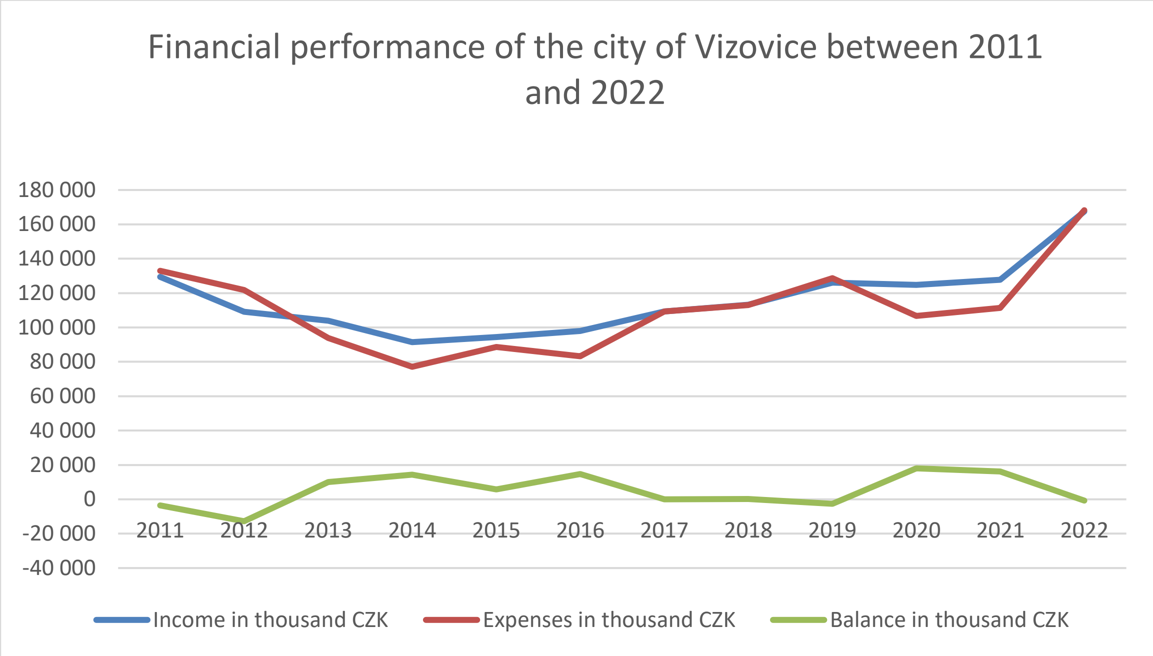

Fig. 1. Financial performance of the city of Vizovice between 2011 and 2022 (Source: own processing based on publicly available data)

As can be seen from the figure above, there were no significant differences in the individual indicators even in a single year, namely in the year when the city was led by a male mayor or a female mayor. Up until the years 2012, 2017, 2019 and 2022, revenues exceeded expenditures and the city's finances showed a positive balance of revenues and expenditures. Nevertheless, in years when the budget balance was negative, deficit budgets did not reach extreme values. The year 2012, when the highest deficit occurs in the observed period, can be considered as a significant value of the negative balance of the budget of the city of Vizovice. However, this can be explained by possible investments in the city's infrastructure or other unexpected expenses. However, the negative balance from 2012 is no longer followed by other years.

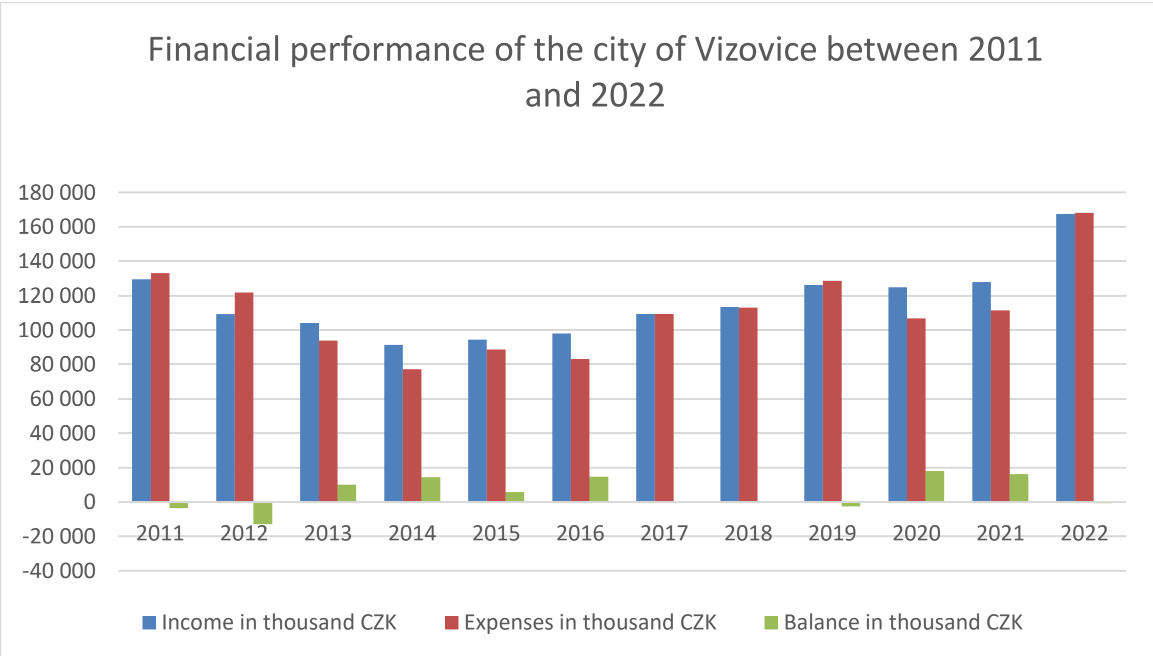

Fig. 2. Financial performance of the city of Vizovice between 2011 and 2022 (Source: own processing based on publicly available data)

Even from the next graphic representation, it is evident that the financial performance in the years when the position of mayor is held by a woman, is not dramatically different from the "male" years. Although we see a significant increase on the revenue side in 2022, there has also been a significant increase on the expenditure side and a negative balance.

Based on the above, it can be said that the financial performance of the municipality when the mayor is a woman is not better than when the mayor is a man. Thus, we did not confirm the statement H1. The gender of the mayor has no influence on the financial performance of municipalities.

5.2 Gender Diversity and the Social Agenda of Municipalities

The following table was compiled on the question of the influence of the gender of the mayor of a city or municipality and social care.

Table 2. Gender Diversity and the Social Agenda of Municipalities

Election period	1. Election period				2. Election period				3. Election period			
Gender	Male				Female				Female			
Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Social care expenses	1 022 000	427 000	663200	880900	1120000	1129800	1148300	1425700	1253100	1183600	1563400	1 415 215

Source: own processing based on publicly available data

The table contains information on the total expenditure on social care in the city of Vizovice for the monitored period 2011 to 2022. The aim was to find out whether the hypothesis H2 compiled based on the literature, i.e. whether municipalities or cities where the mayor is a woman, show higher expenditure on social care than in the period when the position of mayor is held by a man.

For these purposes, information on social care expenditures for the monitored period was collected and then a comparison was made between the period of a male mayor and the period of a female mayor.

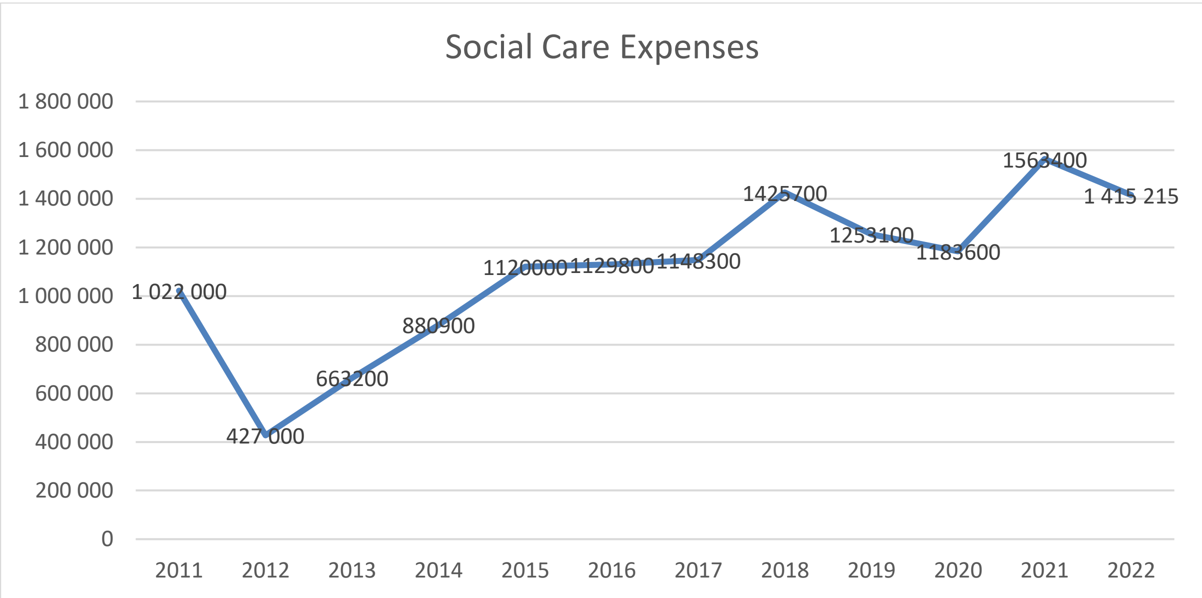

Fig. 3. Social Care Expenses (Source: own processing based on publicly available data)

As can be seen from the graph, in the observed period there is a gradually increasing trend of increasing expenditures on social care in the city of Vizovice. Since 2015, when the election period of a female mayor began, social welfare spending has not reached the level of the years when a male mayor was in office with each passing year.

In each year of a female mayor, more funds were spent on welfare than in the year of peak social welfare spending for a period of a male mayor. However, social care spending in years with a female mayor has never been as low as in the case of a male mayor.

This can confirm the conclusions of the researchers and therefore also H2, when higher expenditures on social care can be observed in the case of a city where the function of mayor is held by a woman.

6 Conclusion

Gender diversity, or gender equality, and their influence on public space, or public finances, is a very current and desirable topic among the scientific community. According to studies to date, there is still room for further research in this area, especially in the influence of the mayor's gender on the financial performance of municipalities and cities. In the paper, emphasis was placed on uncovering additional findings from this area, and the goal was thus to bring another perspective to the literature dealing with the given issue.

The research carried out is not a groundbreaking issue in research focused on the given topic, but it contributes in a certain way from other, primarily national and cultural contexts to the current literature.

Based on the analysis, it was found that the gender of the mayor has no significant effect on the financial performance of municipalities and cities. In addition, however, the gender of the mayor plays a role in social care spending.

It is therefore possible to confirm the current literature, where researchers agree on increased expenditures for social care in the case of a municipality or city where a woman predominates as mayor and at the same time there is no deterioration or improvement in financial performance.

The research can be further developed in many ways. Other indicators of the municipality's financial performance can be monitored, such as the level of debt, liquidity, ability to collect taxes and local fees and many others. One can also work with far more sophisticated statistical methods for a more thorough analysis. In addition, the research can be carried out on a wider sample of municipalities and cities than this research focused on the study of a selected city.

7 Limitation

As already mentioned above, the author is aware of the absence of more advanced statistical methods such as regression analysis statistical models. Also, the research sample did not have to be focused on one selected city but could include a wider range of cities.

8 Acknowledgement

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THE EVOLUTION AND ASSESSMENT OF MINIMUM WAGE IN SLOVAKIA: GROSS VS. NET WAGES, TAXATION, AND THE RELATIONSHIP TO THE LIVING MINIMUM

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Abstract
This article focuses on the analysis of the minimum wage in Slovakia, comparing gross and net minimum wages in the context of legislative changes and developments over time. Special attention is given to the taxation of the minimum wage and its impact on the net income. The article also explores the relationship between the minimum wage and the living minimum, assessing whether the current minimum wage level is sufficient to meet basic living needs. Additionally, the study considers economic and social factors that influence potential future adjustments to the minimum wage.

Keywords
Living minimum, Minimum wage, Net minimum wage, Slovakia.

JEL classification
H7, R50

1 Introduction

The minimum wage is an important tool of economic policy, the main function of which is to ensure the basic protection of the income of employees who are most threatened by low wages. At the national level, it operates in 22 of the 27 member states of the European Union, while its amount and adjustment mechanisms differ between individual countries. The minimum wage is a legal limit below which employees cannot be paid for their work, which is considered a key element of social protection (Solej, Kalamen, 2024). In Slovakia, the minimum wage was re-introduced after 1991, during the existence of Czechoslovakia, and from 1993, after the establishment of the independent Slovak Republic, it developed in response to changing economic conditions and political decisions (Barošová, 2005).

This contribution focuses on a detailed analysis of the development of the minimum wage in Slovakia from its introduction to the present, with an emphasis on its growth, stagnation and role in ensuring the standard of living of employees. From 1993 to 2024, the minimum wage underwent dynamic development, with its increase from the original 2450 Slovak crowns (approximately EUR 81.33) to the current level of EUR 750 in 2024 and to the expected level of EUR 816 in 2025 (Solej, 2024). This process was accompanied by a period of stagnation, economic crisis and later a period of more significant growth in connection with favorable macroeconomic conditions after 2014.

The introduction of the minimum wage has long-term consequences for the labor market and the economy. Its increase takes into account not only the rise in the cost of living, but also broader political and social goals, such as the fight against poverty, the reduction of income inequality and the promotion of fair remuneration. This contribution therefore emphasizes the link between the development of the minimum wage and its real impact on the standard of living, especially with regard to the consideration of inflation and other economic indicators that may affect the real purchasing power of this wage.

2 Literature review

In the previous research, Barošová devoted herself to the research of the minimum wage in Slovakia. The essence of these functions is in the field of social protection function from the point of view of the employee and the employer. From the employee's point of view, it is about covering the employees' daily needs (Barošová, 2005). Baštýř (2005) on the part of the employer talks about protection against wage dumping, which is to prevent unfair competition from other employers who employ employees from other countries with a lower standard of living. Pavelka (2014) therefore mentions that especially the issue of dumping comes to the fore in connection with the free movement of labor within the EU. Barošová (2008) also describes other functions of the minimum wage, such as the fact that it serves as a reference quantity: also as a legal guarantee of the lowest labor income, wage compensation and guaranteed wages, and as a measurement basis for the needs of public insurance.

The minimum wage is the subject of significant debate between its supporters and critics. Dinga and Ďurana (2013) argue that policies to increase the minimum wage lead to higher unemployment, especially among low-income and low-skilled workers. They point out that the minimum wage in Slovakia is growing faster than the median wage, which creates pressure on businesses and increases the risk of the growth of the shadow economy. They also argue that raising the minimum wage increases uncertainty in business planning and does not lead to effective poverty reduction. On the other hand, Belman and Wolfson (2014) question the negative effects of raising the minimum wage on employment. In their meta-analysis, they conclude that the effect on employment is negligible, emphasizing the positive effects on income distribution and wage equality. This approach emphasizes that the impact of the minimum wage depends on local economic conditions and the specifics of the labor market. Meer and West (2016) come up with the argument that the negative consequences of raising the minimum wage may not be reflected immediately in unemployment statistics, but rather in the slowdown of employment growth in the longer term. This approach suggests that businesses can adapt to change by, for example, reducing the number of employees they hire or introducing automation, which can lead to a reduction in new job creation. Therefore, there is still no consensus in the economic literature about the impact of the minimum wage on employment. Neoclassical theory considers the minimum wage to be a form of labor market rigidity that increases employers' costs and leads to reduced employment. Neumark and Wachser (2007) find a negative effect on employment especially among workers with lower education.

Conversely, monopsony theory in the labor market suggests that if a firm dominates the market, an increase in the minimum wage can improve not only wages but also the level of employment. Card and Krueger (1994), for example, find no negative effect on employment.

Similar conclusions were also reached by Harasztosi and Lindner (2019), who found that companies facing higher costs due to an increase in the minimum wage do not reduce the number of employees, but transfer the costs to customers in the form of higher prices. Bodnár et al. (2018) confirm that businesses in Eastern and Central Europe respond to increases in the minimum wage by raising prices, reducing other costs and improving productivity.

Research in the Czech Republic, such as by Grossman, Jurajda and Smolek (2019) and Grossman (2021), also did not produce significant negative effects on employment, except for short-term effects in 2013. In Slovakia, Hidas and Žúdel (2016) found that an increase of the minimum wage by 5% increases the probability of job loss among low-income workers by 1 percentage point compared to those whose wages are above the minimum wage.

This wide range of research shows that the impact of the minimum wage on the labor market depends on the specific conditions of the country, the resilience of individual regions and the overall economic cycle.

3 Data and methodology

This chapter contains a specification of the relevant data collection process, a description of our sample. The main objective of the article on the development of the minimum wage in Slovakia is to analyze this development in the period from 1993 to 2025. The methodology of the article is based on the analysis of publicly available sources, while the main data comes from several main institutions:

- Ministry of Labour, Social Affairs and Family of the Slovak Republic – provides data on legislative changes and official decisions regarding the minimum wage.
- Eurostat (European Statistical Office) – provides comparative data for international comparisons of minimum wages and economic indicators.
- Statistical Office of the Slovak Republic - is the main source of data on the minimum wage at the national level.
- Another important source is the study by Barošová (2005), which provides historical data and an analysis of the minimum wage in the first years of independent Slovakia.

Main variables:

- The amount of the minimum wage - the basic variable investigated in the article, which includes the nominal values of the minimum wage in individual years.
- Real level of the minimum wage - the level of the wage adjusted for inflation, which better reflects the real purchasing power of the minimum wage over time.
- Inflation growth and average wage - these data are used to contextualize and analyze the development of the minimum wage in relation to the wider economic environment.

The research focuses not only on the analysis of the nominal values of the minimum wage, but also on monitoring its real growth, which allows taking into account inflation and the growth of the price level in the analyzed period. In this way, a more comprehensive view of how the minimum wage influenced and still influences the standard of living in Slovakia is ensured.

4 Results

The minimum wage in Slovakia has undergone significant changes since its introduction in 1993, which are analyzed in the work of Solej and Kalamen (2024). The initial amount of the minimum wage was 2,450 Slovak crowns (SKK), which, when converted to euros according to the conversion rate of 30.126 SKK/EUR, represents approximately EUR 81.33. Adjusted for inflation, this amount would be equivalent to approximately EUR 324 today.

In the first years after the establishment of the independent Slovak Republic, the minimum wage stagnated, while its first increase was recorded in 1996, when it rose by 10% to Sk 2,700. Subsequently, the minimum wage began to rise almost continuously, with an average annual rate of around 7%. The most significant increase occurred in 1999, when the wage increased by 20% from Sk 3,000 to Sk 3,600 (from approximately EUR 99.58 to EUR 119).

For more than 30 years, the minimum wage has increased every year except for 1994, 1995, 1997 and 2008, when it remained unchanged. In the first decade, its development was characterized by a doubling in nominal values, but after taking inflation into account, wages increased in real terms by only 11%. However, for a large part of this period, wages were trying to catch up with the decline from the first years after the establishment of the republic.

In the period of Slovakia's accession to the European Union in 2004, the minimum wage was almost triple compared to 1993, reaching 6,500 Sk (approximately EUR 215.76 in nominal terms), which would correspond to about EUR 398 today. When the euro was adopted in 2009, the minimum wage was around EUR 300 (specifically EUR 295.5) and stagnated during the economic crisis.

After 2014, the minimum wage began to grow more significantly, not only nominally, but also in real terms, since inflation was almost zero during that period. This real wage growth lasted until 2021, when the minimum wage reached EUR 623 (which is around EUR 802 in today's prices). In nominal terms, the minimum wage reached EUR 750 in 2024 and 816 EUR during next year of 2025, approaching four figures.

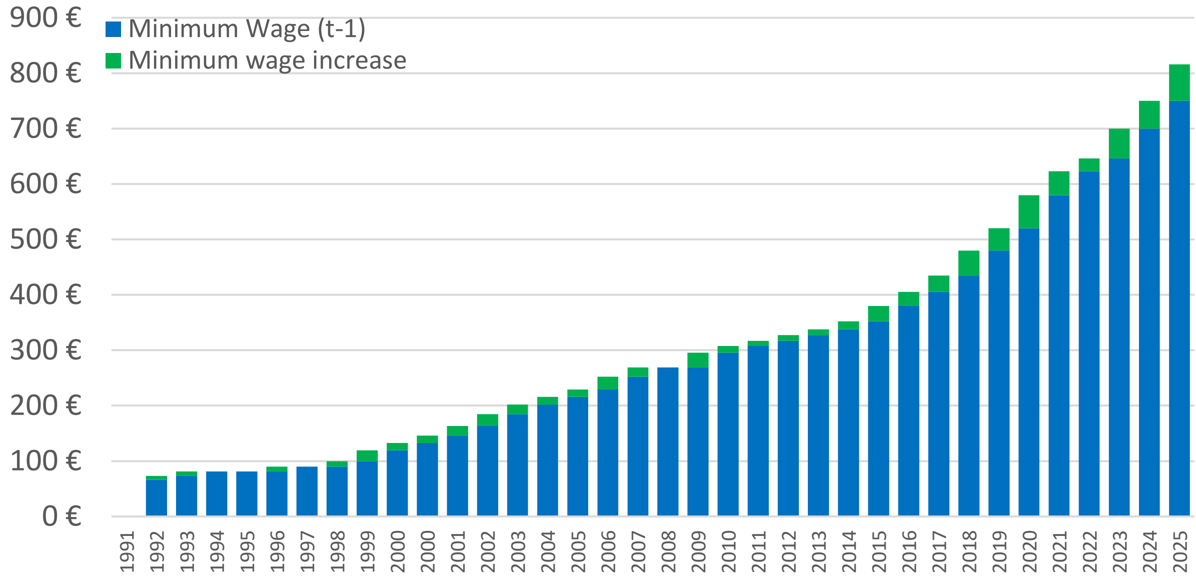

Fig. 1. Development of minimum wage 1993 – 2025 (Source: Statstical office)

Data on the growth of the minimum wage in Slovakia from 1993 to the projected year 2025 show several significant trends and cycles. Growth in the 1990s: After the re-introduction of the minimum wage in 1993, there was a significant increase of 11.4%, but in 1994 and 1995 the wage was at the same level, i.e. no growth (0%). The highest increase in this decade was recorded in 1999, when the minimum wage increased by 20%, which represents the most significant jump in the observed period. The next period was years of stagnation and gradual growth (2000-2008): In the early years of the 21st century, the minimum wage continued to grow regularly, with annual percentage increases ranging from 9.9% (2009) to 6.2% (2005). The exception was 2008, during which there was no growth (0%). In period of slower growth between 2009-2013, right after the financial crisis, growth was more moderate. Between 2010 and 2013, increases ranged from 3% to 4.2%, which represents a significantly slower increase compared to previous years.

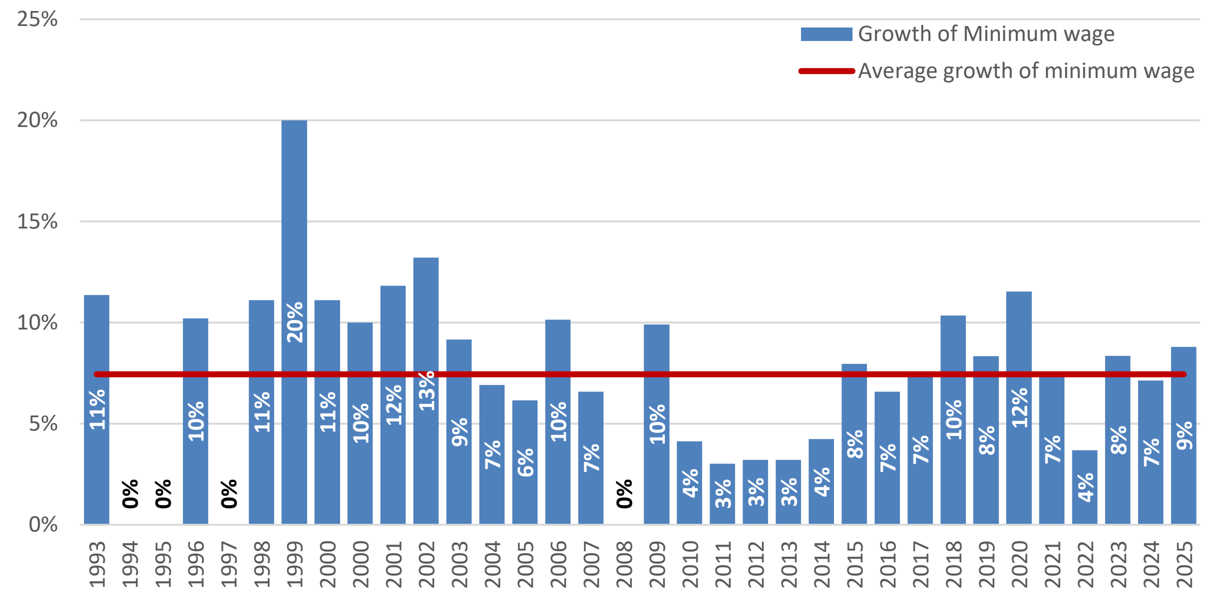

Fig. 2. Growth of minimum wage 1993 – 2025 (Source: Author's calculation based on Statstical office)

More significant increases after 2014 till COVID-19 pandemic in 2020. Minimum wage growth has accelerated since 2014, with increases reaching 8% in 2015 and between 6.6% and 10.3% between 2016 and 2019. The period around 2020 saw another strong increase in the minimum wage by 11.5%. Pandemic and Post-Pandemic Years (2020-2025): After 2020, during the pandemic, the minimum wage continued to grow, but the rate of growth slowed to 3.7% and 8.4% in 2022 and 2023, respectively. An increase of 7.1% is predicted in 2024, while an increase of 8.8% is expected by 2025.

These data show that the minimum wage in Slovakia is characterized by regular growth, with the exception of several years of stagnation. The most significant increases occurred in periods of economic growth and after 2014, when Slovakia recovered from the consequences of the financial crisis.

In Slovakia, there are six levels of the minimum wage, which are divided according to the difficulty of the work performed. The first level represents the lowest level of the minimum wage, which is intended for jobs involving less demanding activities, such as auxiliary, preparatory and handling work performed according to precise instructions. This amount serves as the base rate. The second level of difficulty includes more demanding routine work or controllable actions that are performed within the framework of simple craft or sanitary activities in health care, administration and business, such as the work of a sanitary worker, administrative worker or salesperson. The third category includes professional work or creative craft activities, managing or operationally ensuring the operation of equipment and operational processes, which are associated with increased mental effort and potential responsibility for the health and safety of others or for hard-to-remove damages. The fourth level involves independent management of the agenda, for example, the work of an area manager, chief accountant or driving school instructor. The fifth level belongs to senior management, which includes specialized systemic, conceptual and creative tasks with a high mental load, as well as complex management of the most complex sections and agendas, while determining new procedures within the system. This category includes the management, organization and coordination of complex processes and systems with the selection and optimization of procedures. The sixth and last level represents the highest level, performed by CEOs, CEOs or CEOs. These positions require creative solutions to tasks in unusual ways with a high degree of responsibility for damages that can have broad social consequences. This also includes specialized and certified activities in the field of health care with high responsibility for the health and lives of people, and the management of the most complex systems where there is a threat of irreparable material and moral damage. This work is associated with significant demands on the ability to solve complex and conflict situations, often with a general threat to a wide group of people.

Until 2020, the minimum wage in all categories grew at the same rate as the wage in the first category. The difference between the individual categories represented 20% of the minimum wage set for the first level. The coefficients established by the Labor Code are used to calculate the minimum wage for individual categories:

- 1st level: coefficient 1
- 2nd level: coefficient 1.2
- 3rd level: coefficient 1.4
- 4th level: coefficient 1.6
- 5th level: coefficient 1.8
- 6th level: coefficient 2

However, the pandemic has caused this growth to slow, and classes are already increasing only by the absolute value of the increase in the minimum wage. The difference between individual classes remains at 20% of the 2020 minimum wage, which is €116 out of the €580 minimum wage for 2020.

Year	Difficulty level 1	Difficulty level 2	Difficulty level 3	Difficulty level 4	Difficulty level 5	Difficulty level 6
2007	268,87 €	322,64 €	376,42 €	430,19 €	483,97 €	537,74 €
2008	268,87 €	322,64 €	376,42 €	430,19 €	483,97 €	537,74 €
2009	295,50 €	354,60 €	413,70 €	472,80 €	531,90 €	591,00 €
2010	307,70 €	369,24 €	430,78 €	492,32 €	553,86 €	615,40 €
2011	317,00 €	380,40 €	443,80 €	507,20 €	570,60 €	634,00 €
2012	327,20 €	392,64 €	458,08 €	523,52 €	588,96 €	654,40 €
2013	337,70 €	405,24 €	472,78 €	540,32 €	607,86 €	675,40 €
2014	352,00 €	422,40 €	492,80 €	563,20 €	633,60 €	704,00 €
2015	380,00 €	456,00 €	532,00 €	608,00 €	684,00 €	760,00 €
2016	405,00 €	486,00 €	567,00 €	648,00 €	729,00 €	810,00 €
2017	435,00 €	522,00 €	609,00 €	696,00 €	783,00 €	870,00 €
2018	480,00 €	576,00 €	672,00 €	768,00 €	864,00 €	960,00 €
2019	520,00 €	624,00 €	728,00 €	832,00 €	936,00 €	1 040,00 €
2020	580,00 €	696,00 €	812,00 €	928,00 €	1 044,00 €	1 160,00 €
2021	623,00 €	739,00 €	855,00 €	971,00 €	1 087,00 €	1 203,00 €
2022	646,00 €	762,00 €	878,00 €	994,00 €	1 110,00 €	1 226,00 €
2023	700,00 €	816,00 €	932,00 €	1 048,00 €	1 164,00 €	1 280,00 €
2024	750,00 €	866,00 €	982,00 €	1 098,00 €	1 214,00 €	1 330,00 €
2025	815,10 €	931,10 €	1 047,10 €	1 163,10 €	1 279,10 €	1 395,10 €

The development of the minimum wage and unemployment is closely linked to the ratio of the minimum wage to the cost of living. In the initial stages of development, the minimum wage covered only the basic necessities of life. A significant decrease occurred between 1996 and 1998, when the level of the minimum wage fell below 100% of the subsistence minimum. From this period, a significant increase of the minimum wage towards the living wage began, which lasted until the economic crisis in 2008, after which the rate of growth of the minimum wage slowed down slightly and stabilized at the level of 130-150% of the living wage.

There has been a continuous increase in the minimum wage since 2013, which lasted until 2020. However, this year saw a deterioration in the ratio of the minimum wage to the cost of living due to external factors such as the COVID-19 pandemic, the military conflict in Ukraine and a significant increase in inflation. These factors had a significant impact on the stability and evolution of the minimum wage compared to the rising cost of living.

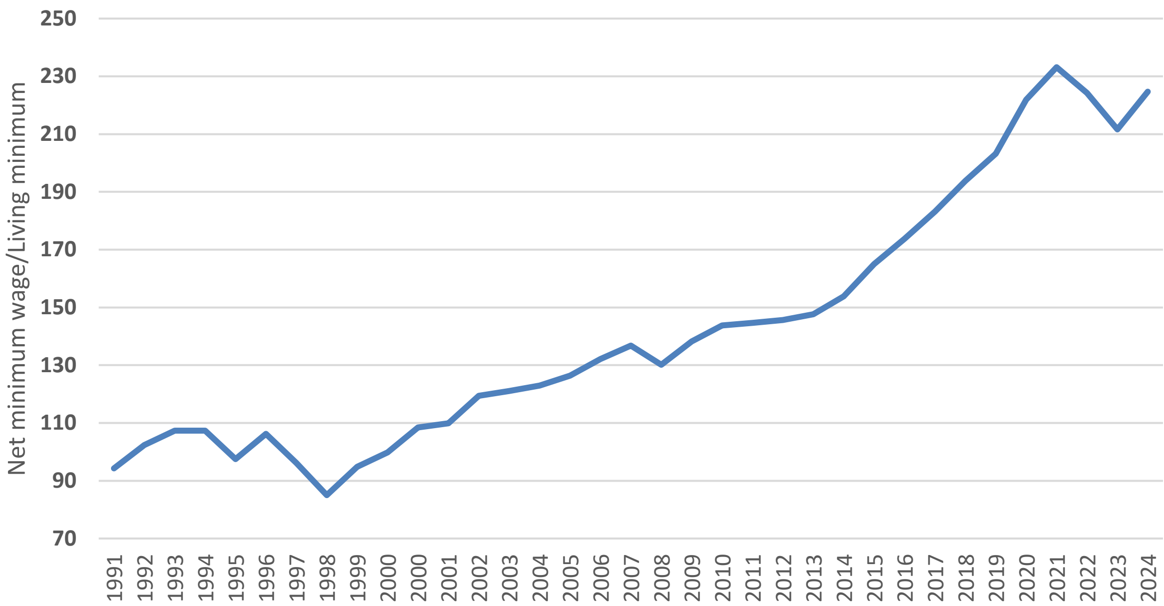

Fig. 3. Minimum wage relation to living minimum 1991 – 2025 (Source: Author’s calculation)

The following table summarizes data for the entire existence of the Slovak Republic. The data documents the development of the gross and net minimum wage in Slovakia compared to the living wage from 1991 to the projected year 2025. The minimum wage has been steadily growing, while in the early years it was only slightly above the living wage, which limited its ability to provide more than the basic necessities of life.

Between 1996 and 1998, the minimum wage fell below 100% of the living wage, which was a significant drop. This trend changed in 2000, when the minimum wage again exceeded the living wage and has been steadily increasing since then, with this growth accelerating after 2013.

Since 2020, under the influence of pandemic, geopolitical and inflationary pressures, the minimum wage has continued to grow more significantly, which significantly increases its distance from the subsistence minimum. While in 2020 the minimum wage reached approximately 270% of the living wage, in 2025 it is expected to exceed 300%. This development reflects efforts to raise the living standards of low-income workers in response to the rising cost of living and economic challenges of recent years.

Table 1. Title of the table

Year	Brutto minimum wage	Net minimum wage	Living Minimum
1991	66,39 €	53,21 €	56,43 €
1992	73,03 €	57,76 €	56,43 €
1993	81,33 €	70,57 €	65,72 €
1994	81,33 €	70,57 €	65,72 €
1995	81,33 €	70,57 €	72,36 €
1996	89,62 €	76,88 €	72,36 €
1997	89,62 €	76,88 €	80,00 €
1998	99,58 €	84,64 €	99,58 €
1999	119,50 €	102,67 €	108,21 €
2000	132,78 €	115,65 €	115,85 €
2000	146,05 €	125,64 €	115,85 €
2001	163,31 €	138,19 €	125,80 €
2002	184,89 €	155,78 €	130,45 €
2003	201,82 €	169,12 €	139,75 €
2004	215,76 €	186,85 €	152,03 €
2005	229,04 €	198,35 €	157,01 €
2006	252,27 €	218,47 €	165,31 €
2007	268,87 €	232,84 €	170,28 €
2008	268,87 €	232,84 €	178,92 €
2009	295,50 €	255,90 €	185,19 €
2010	307,70 €	266,47 €	185,38 €
2011	317,00 €	274,52 €	189,83 €
2012	327,20 €	283,36 €	194,58 €
2013	337,70 €	292,45 €	198,09 €
2014	352,00 €	304,83 €	198,09 €
2015	380,00 €	326,77 €	198,09 €
2016	405,00 €	344,31 €	198,09 €
2017	435,00 €	365,35 €	199,48 €
2018	480,00 €	397,34 €	205,07 €
2019	520,00 €	427,10 €	210,20 €
2020	580,00 €	476,74 €	214,83 €
2021	623,00 €	508,44 €	218,06 €
2022	646,00 €	525,65 €	234,42 €
2023	700,00 €	568,97 €	268,88 €
2024	750,00 €	615,50 €	273,99 €
2025	816,00 €	663,49 €	

Source: OECD.

5 Conclusion

This article analyzes the development of the minimum wage in Slovakia from its introduction to the present and focuses on its importance as an economic policy tool. The minimum wage serves to ensure basic income protection for low-wage workers, whose situation is often the most economically vulnerable. At the national level, this concept is applied in 22 member countries of the European Union, while its amount and adjustments vary according to the economic and social conditions of individual states. In Slovakia, the minimum wage was reintroduced in 1991, and since the establishment of the independent Slovak Republic in 1993, its development has been adapted to economic changes and political decisions.

The data documents the evolution of the gross and net minimum wage between 1991 and 2025 compared to the living wage. Since 1991, there has been a continuous increase in the gross wage from the original €66.39 to the expected €816 in 2025. There is also an increase in the net minimum wage, which from €53.21 reached the expected value of €663.49 in 2025. When compared with the value of the living wage, it can be seen that in the early years the minimum wage covered only the basic level of living costs, while the relationship between the minimum wage and the living wage was relatively close. The changes occurred between 1996 and 1998, when the minimum wage reached a level just below 100% of the subsistence minimum, which represented a drop in the standard of living. After the turn of the millennium, especially after 2000, the minimum wage significantly exceeded the living wage, with the most significant growth occurring since 2013.

External factors such as the 2008 economic crisis, the COVID-19 pandemic, the conflict in Ukraine and the rise in inflation have influenced developments in recent years. These factors contributed to the acceleration of the growth of the minimum wage, which grew faster than the living wage in the period 2020–2025, thereby gradually widening the gap between the minimum wage and the living wage. This tendency is particularly noticeable from 2022, when the gross minimum wage reaches more than three times the subsistence minimum, which reflects the effort to strengthen the purchasing power and living standards of low-income employees in the context of inflation and rising living costs.

The work emphasizes the importance of the minimum wage in reducing poverty, improving income equality and strengthening social protection. Based on the presented data, recommendations are formulated for a more effective setting of the minimum wage to reflect changes in the cost of living and ensure adequate protection of low-income groups of the population in Slovakia.

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DEFINITION OF ORGANISATIONAL CULTURE IN CONTEXT OF START-UPS

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Abstract
This paper explores the vital role of organisational culture in startups, analysing how culture shapes behaviours, decisions, and the overall sustainability of these organisations. Startups, often driven by speed and financial pressures, can neglect culture at their own risk, leading to inefficiencies, market missteps, or failure. This paper highlights the importance of integrating strong organisational culture from the beginning, emphasising tangible and intangible aspects and their influence on startup performance.

Keywords
Culture, Organisation, Organisational culture, Pre-seed stage, Seed stage, Start-up.

JEL classification
M1, Z1, L2

1 Introduction

In a world where changes are an inevitable part of our daily lives little is certain. Having surroundings that can provide more comfort than more questions is becoming something that can help us to keep focus on what must come rather than what simply surrounds us. Uncertainty is the part where we must keep guessing and questioning that takes away part of our focus and energy. Creating culture inside an organisation might be the right way to avoid negative impact and make the lives of our employees more supportive. This crucial part is being skipped very often for the sake of fast money and fast progress. This brings organisations to a point where they are too big, and it is quite complicated to build organisational culture. Goal of this paper is to provide insight into relevance between organisational culture and startups at their early stage.

When it comes to startups their life depends on money and speed in which they manage to "jump in" the game. According to Colombelli (2016) The latter being those who enter a new business not because of market opportunities and innovative ideas but merely because they need income to survive (think, for instance to those "escapers from unemployment" who try an entrepreneurial adventure as a consequence of a job loss or induced by the fear to lose their jobs. This need exactly creates focus outside the organisation and on current needs to either make money or keep the organisation alive.

In this context, it is not surprising that the empirical evidence concerning industrial dynamics is inconsistent with a view centred on the progressive potentialities of business start-ups. (Colombelli, A., Krafft, J. & Vivarelli, M., 2016). While start-ups have potential at the beginning but most of them fail within 5 years, 10% of start-ups fail within first year and 70% of startups fall into this category in year two to five (*106 must-know startup statistics for* 2024). Entering any field one might ask at the beginning "is it worth the risk?". With such a deadly rate, starting a new business might not be exactly the right idea, but is there something that can bring an advantage?

2 Literature research

Organisational culture is a multi-faceted concept that has been explored by various scholars, each providing valuable insights into its influence on organisational dynamics. The foundation of modern organisational culture theory can be traced back to Edgar Schein (1985), who describes culture as the shared assumptions and beliefs that guide behaviour within an organisation. Schein argues that these assumptions form over time and can become deeply embedded, shaping how employees interact, solve problems, and perceive their environment. His work offers a structural view of culture, highlighting the role of leadership in shaping and maintaining these cultural elements.

Building on Schein's ideas, Hofstede (1991) introduced the notion that culture operates as a form of "collective programming" that differentiates members of one organisation from another. His research primarily focuses on national cultures and their implications for workplace behaviour, yet the fundamental idea that culture can be measured and analysed has been adapted to the organisational level. Hofstede's dimensions of culture, such as power distance and individualism, provide a useful framework for understanding how cultural values influence startups, particularly in global or multicultural environments.

Deal and Kennedy (1982) further emphasise the practical aspects of organisational culture, coining the famous phrase, "Culture is the way we do things around here." Their work highlights the tangible manifestations of culture, such as rituals, stories, and symbols, which shape everyday organisational life. According to them, successful organisations maintain a strong culture by aligning these rituals and symbols with strategic goals. Startups, which often operate without rigid structures, may rely heavily on such cultural mechanisms to guide behaviour and decision-making in the absence of formal policies.

Ongori and Bosire (2019) explore how organisational climate, which closely aligns with culture, affects employee performance. They argue that a positive organisational climate can enhance employee motivation and engagement, critical factors for startups facing the pressures of rapid growth and limited resources. This ties into the broader literature on how startups can leverage their culture to create a cohesive, motivated team, despite the lack of financial incentives that more established firms may offer.

Salamzadeh and Kesim (2015) focus on the unique challenges faced by startups and how culture influences their life cycle. They posit that startups often struggle with internal disorganisation, particularly as they transition from the ideation phase to scaling operations. During this transition, a coherent organisational culture can serve as a stabilising force, helping to align employee actions with the company's evolving goals. Their research supports the argument that developing a strong, adaptable culture early in a startup's life cycle can contribute significantly to long-term success.

Eisenmann (2021) offers a contemporary perspective on the role of organisational culture in the failure of startups, particularly in the context of external pressures such as investor demands. He argues that many startups face cultural misalignment when they prioritise short-term growth over internal cohesion. This view echoes the findings of Carleton and Lineberry (2004), who examine the cultural challenges that arise during mergers and acquisitions. These authors stress the importance of cultural due diligence, suggesting that the integration of disparate cultures can either enhance or impede organisational success.

In summary, the literature consistently highlights the critical role of organisational culture in shaping startup success. While the specifics of how culture manifests in startups may differ from established firms, the underlying principles remain the same: culture guides behaviour, influences decision-making, and ultimately, determines whether a company can thrive in a dynamic business environment. By synthesising insights from both classic and contemporary scholars, this paper builds on the premise that fostering a strong organisational culture is not just beneficial but essential for startups aiming for long-term sustainability.

3 Thinking deeper

When we take a closer look at start-ups and organisational culture together at the first sight we may see the clash. If you consider culture that is connected to social groups, communities and other social-economic entities, one has to consider time behind. It took years to create national identity, strong beliefs within the group or form a proper code of conduct among groups. While start-ups are often like a rocket, they have to start strong and fast at the beginning to just take off and not to burn. Eisenmann and his observations are resembling quote of Abraham Lincoln "If I had eight hours to chop down a tree, I'd spend six sharpening my axe".

This led the author to ponder about whenever it is more important to be fast or strong, which means that starting fast and strong can mean that an organisation took a time to develop and not to rush into market and form itself. As Eisenmann claimed, a jockey is more important than a fast horse (2021). Building on this metaphor you develop a horse by feeding it right, training to be fast, working on its stamina and practising on the circuit. Which are all single target focus. While a developing jockey means his/her physical and mental health. Knowledge about opponents, developing the style for the race, learning about opponents, and probably much more. But knowing about the horse as much as possible. This means that at some point the horse, even with his importance, becomes a tool that is led by the jockey. Similarly, we can see it with organisations and products or services. When one devotes most of its time to develop products and then rushes to sell it without proper understanding of the situation, needs, target group and other aspects. It’s like chopping a tree without knowing which one, why and with a blunt axe. One may succeed chopping down the wrong tree with enormous effort and burning all the energy.

Author believes that avoiding this error, a crucial role is played by true understanding of self. Self-identification of organisation leads to better understanding of where an organisation stands on the market, what connection and relation it has to other parties, customers, suppliers, investors and other third parties.This leads to how to define self and most importantly to build a strong core that employees and organisation itself can lean on in difficult times or at the beginning.

4 Organisational culture

When we look around us everything we know is based in history, each culture, group, society, nation and even companies and schools have their own culture that was developed over time and is still developing. Organisational culture is defined as "the shared assumptions, values, and beliefs that shape the behaviour of members of an organisation." It is the collective way of thinking, feeling, and acting that is unique to a particular organisation (Schein, 1985). If we look at this from a different angle, we are aiming at tangible and intangible aspects of organisational culture that we have to set in order to create a functional system in which people can navigate themselves.

Organisational culture is "the collective programming of the mind that distinguishes one organisation from another." It is the "software of the organisation" that guides behaviour and decision-making (Hofstede, G., 1991). When we look at the terms behaviour and decision making, they have one common ground. Frame on which they can be determined as acceptable and unacceptable by the rest. If the culture is created as simple and transparent, people inside have little to non-trouble to navigate through it. But if the culture of the company is too complicated then people start spending time second-guessing and questioning things as they go through on a daily basis.

As Ongori and Bosire states, Organisation climate is very critical in this era of globalisation where businesses are operating in a dynamic business environment which compels managers to look for better ways of managing organisations effectively (2019). This is also a factor that is of rising importance. Due to development of technology, open borders and open markets organisations need to respond to different environments as well as they are being affected by different environments, that is not their home country and original culture.

5 Start-ups at their birth

Startup companies are newly born companies which struggle for existence. These entities are mostly formed based on brilliant ideas and grow to succeed. These phenomena are mentioned in the literature of management, organisation, and entrepreneurship theories. However, a clear picture of these entities is not available (Salamzadeh & Kesim, 2015). The first success of a firm is its birth. A significant portion of those attempting to establish a business fails. In this paper the person undertaking activities to create a business is referred to as the nascent entrepreneur, and the founding effort is called nascent entrepreneurship (Reynolds and White, 1992). But even the most brilliant idea with a purpose cannot sustain unless handled well. This also connects to its continuity that depends not only on funding itself but other factors like human resource, ability to engage customers and more importantly also how to create something that has a long lasting core. Which means that at the beginning it will help the organisation to identify itself but also to others to relate to this organisation.

Formal organisation structure is almost non-existent during the Startup stage. A simple organisation structure is generally employed, staffed by the founder who supervises the work of a few employees. Job assignments are very general. The tone is flexible, informal and personal. There are few if any formal systems; planning and control occurs on an ad hoc, of ten intuitive bases. Decision making is highly centralised in the organisation founder (Hanks, 1990). This statement also underlines how crucial and must work on the organisational culture in the start-up at its birth. When an organisation faces threats that come with its instability in the beginning like financial instability, personal fluctuation, unclear needs and weak position on the market.

Most of the problems that organisational managers and executives deal with are not as simple and contained as they may assume at first blush. In fact, many of the common deficiencies encountered in organisations today are, in effect, self-inflicted by the management of the organisation when they take actions that do not take into account the systemic nature of the organisation. A simple or obvious solution developed in one function of the organisation can have an impact on a number of other areas, and total organisational effectiveness can be diminished far beyond any potential gain in the particular function (Carleton & Lineberry, 2004). This statement again greatly points out limited vision and one problem focus solution, that can solve the problem but at the same time create many others. We may find two approaches towards these situations, first we would have a logic-solution based approach which deals only with the problem itself and its solution. Second one would be a context-based solution which comes out of the knowledge of the problem with understanding how a certain approach will or would affect organisation in the long run.

Many different factors can influence startup performance. A large fraction of past research on entrepreneurship examines relationships between these factors and new venture 6 performance, so a thorough review here of relevant literature would be unwieldly. Instead, I will cite just a few studies in each of four categories that respectively explore the relationship of startup performance to attributes of: 1) founders; 2) investors; 3) product markets; and 4) management processes (Eisenmann, T., 2020).

When looking at the Eisenmann approach from which he tried to understand and identify what affects the performance of start-up it is also apparent that what he mapped are internal and external aspects that are closely connected to organisational culture. Organisation cannot exist without its founders who have some connection to investors as well as product markets are accessible to organisations based on their management process.

Which leaves all organisations with a lot of questions, especially at the beginning of their existence.

5.1 Funding and first steps

Considering that not all start-ups can afford to invest their own money into their business, they have to look for other options or consider a combination of some of them. According to Carta we can find following sources:

- Friends and family
    - The ability to raise money from friends and family is certainly not available to all entrepreneurs and likely contributes to continued inequity in the startup ecosystem. Availability depends on the assets and liquidity within your personal network. If a friends-and-family round isn't in the cards for your startup, know that there are other options, and a startup doesn't need to raise a friends-and-family round to succeed.

- Angel investors
  - Often former entrepreneurs themselves, angel investors are high-net-worth individuals who invest their own money. Angel investors typically focus on pre-seed and seed investment.
- Angel syndicates
  - A syndicate is a group of people who combine their resources to make a single investment in a company through special purpose vehicles (SPV). For pre-seed funding, SPVs are legal entities that enable multiple angel investors to pool capital and make an investment in a company.
- Crowdfunding
  - Equity crowdfunding is the process of collecting small contributions from many people, typically through online crowdfunding platforms. Some crowdfunding websites specialise in fundraising for businesses and can get the pitch out to a large group of general investors (unaccredited investors included).
- Accelerators and incubators
  - Accelerators and incubators are programs that can provide guidance, mentorship, and access to funding for startups in exchange for an equity stake in the company. Some accelerators and incubators make direct cash investments in the startups they support, while others connect founders to other potential investors.
- Venture capital
  - One type of incubator is a venture studio, which functions as a hybrid between a traditional incubator and a venture capital firm. A venture studio will foster a startup idea from ideation, hiring a team of founders, mentoring them, and funding the venture, often through pre-seed and seed stages. Partners at the studio may stay on as co-founders as the startup grows.

(Source: https://carta.com/learn/startups/fundraising/pre-seed-funding/)

Considering how first funding can be precious and limited, start-ups have to think twice or should have to think twice before they start pursuing some goal without deeper consideration. According to Eisenmann they face different befalls at the beginning, Good Idea, Bed bedfellows that means that companies are still able to identify good opportunity yet still fail. In that, the jockey is more important than the fast horse. False Starts, even if Lean Startup methods are well known to them, this means that there was "no market need". False Positive, which brings excessive optimism about market demand based on a strong response from startup's first customers, which can lead founders to pursue flawed opportunity, burning through cash reserves during the process (2021).

6 Where does it end or start

According to Cvijanović, Marović and Sruk (2008) financing the development of the company can be displayed according to the phases of development. They distinguish five phases, namely: 1. experimental or seed; 2. start-up; 3. expansion; 4. recapitalization, and 5. buyout - selling a majority stake of the company. We can find many more theories and descriptions of stages that startups go through, but the author recognizes within the organisation and timeframe the inner value of the company that is not often considered until it becomes a brand.

Styles and Ambler (1995) identified two approaches to defining a brand. The first is the traditional product plus definition which views branding as an addition to the product. The brand is seen primarily as an identifier. Thus, in the new product development processes typically found in textbooks, the branding decision is one of the last decisions to be made. The second approach is the holistic view. Under this approach the focus is on the brand itself, which encompasses much more than just the product. ... The attributes that make up a brand may be real or illusory, rational or emotional, tangible or invisible" (Ambler, 1992).

When it comes to tangible and intangible aspects of a brand it seems that they are tightly connected with organisational culture because both state quite clearly who we are. Which makes it a continuous process that is its own purpose and side product is that customers buy our products because of who we are. Or they simply want just the product, which may mean they are only going to fulfil their need and not to come back, to build loyalty to the brand and to become supporters. To this extent the author believes there lies the key aspect of continuous development of the organisation, it is realisation that our brand is as strong as our own culture.

7 Conclusion

The role of organisational culture in startups cannot be overlooked, as it is a critical factor in shaping the behaviour, decision-making processes, and long-term sustainability of these organisations. While startups face immense pressures to achieve rapid growth and financial success, neglecting culture can lead to disarray, inefficiency, and ultimately failure. By integrating a strong, adaptable culture from the outset, founders can create a solid foundation for their startup's future success.

As noted by Deal and Kennedy (1982), culture defines "the way we do things around here," and for startups, this is especially important given the fluid and dynamic nature of their environment. Startups that invest in building a coherent and supportive culture will be better positioned to navigate the challenges of growth, market expansion, and evolving business demands. Ultimately, organisational culture is not just a secondary concern; it is a critical element of a startup's long-term success and sustainability.

This paper was created to form basic understanding of organisational culture and how it connects to start-ups. For better understanding author used work or previous authors that worked on topic of organisational culture, to form basic understanding and connect it to start-up world. As was already mentioned by author in this paper it is matter of viewing this as socio-economical groups which allow us to better understand different aspects that affects their life. Due to limited time that defines early stage of start-up development creation of organisational culture is more difficult due to lack of time. This leads author to believe that next step in understanding this area is to form clear statement on how democratization affected life of star-ups and their development.

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