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Gender-Based Analysis of Intrinsic Motivation: The Case of Public Sector Servants in the Republic of North Macedonia

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Abstract

Public sector provides various essential services in terms of promoting social equity and inclusion, protecting the public interest, regulating and supervising various aspects of society and economy, fostering economic development, and supporting democratic governance. Therefore, the motivation of the public sector servants indirectly contributes to the overall effectiveness of the public service sector and finally to the well-being and prosperity of the society. Considering this, in the public sector, extrinsic factors cannot be easily and quickly influenced, i.e., they are fixed. This paper can be of crucial importance when determining the intrinsic factors behind the public sector servants' satisfaction with their jobs and ultimately their performance. Considering this, in developing economies, such as the economy of the Republic of North Macedonia, public sector servants exhibit poor performance. The main purpose of the research presented in this paper has been to investigate the motivational factors of the public sector servants at municipality level in the Republic of North Macedonia. In the research, primary data collected by using descriptive statistics and cross-tabulation have been used to determine whether gender-based differences exist in intrinsic motivation.

Keywords: public sector servants, motivation, satisfaction with jobs.

Introduction

Motivated employees want to be involved in multiple aspects of their institution. They are ready to work overtime and put a lot of effort and energy in improving the organizational performance. In 2014, the UNDP Global Centre for Public Service Excellence highlighted a long-term decline in motivation among public sector employees, noting that both morale and the sense of self-worth among public officials have been decreasing for many years. On the other hand, the direct consequence of high motivation and, thereby, commitment of public sector servants is the satisfaction of the citizens' municipality when providing municipal services (Ngowi, 2015). When discussions are held in this context, i.e., when the citizens' satisfiction with the provided municipal services is considered, data from the Report on the Public Opinion Survey on Citizens' Satisfaction with Local Services in North Macedonia (2021) are particularly useful. According to this report, 38% of the respondents reported that they were satisfied or completely satisfied, while 33% were dissatisfied, and approximately 28% were neutral, neither satisfied nor dissatisfied, when asked about their overall satisfaction with the services provided by their municipalities. Furthermore, if the results with the previous years' findings are compared, it can be concluded that there is a continuing trend of increase of dissatisfaction among citizens with the services provided by municipalities, the lowest level of general dissatisfaction being 2.97 (average grade of satisfaction with municipality services on a scale from 1 to 5, where 1 denotes strongly dissatisfied, and 5 denotes fully satisfied). Furthermore, when evaluating the overall satisfaction according to demographic characteristics, municipalities in rural areas (37%) note significant dissatisfaction with municipal services compared to those in urban areas (29%).

This trend highlights the need for enhancing the quality of local services and more effectively meet the needs and expectations of the citizens. Regardless of the proposed strategies for enhancing the delivery of general and specific municipality services, the motivation and the commitment of the municipality servants have a direct impact on the municipality performance (Ritz et al., 2016), and in this context, indirectly affect the local and national economic growth.

Therefore, the purpose of the research presented in this paper has been to investigate the intrinsic factors of motivation of the public sector servants at the municipality level in the Republic of North Macedonia, and additionally determine whether there is a gender-based difference among them, by answering the following research questions:

1. Which are the motivational factors that guide Macedonian municipality servants' performance?
2. Are there significant gender-based differences in intrinsic factors of motivation among municipality servants?
3. Which are the recommendations for policy improvement for increased motivation among female and male municipality servants?

Additionally, the paper is aimed at filling the gap in literature related to intrinsic factors of motivation in the case of public sector servants in the Republic of North Macedonia and determining whether there is a gender-based difference in their intrinsic motivation.

Research Methodology

The main issue in this paper, alongside the research questions, will be answered by using secondary data from empirical findings, academic articles, reports of scholars, and reputable institutions, and primary data collected through a survey carried out among 122 respondents coming from 14 municipalities in the Republic of North Macedonia. The survey was constructed based on the content of the Herzberg's Two Factor Theory of Motivation, but focusing only on the aspect of motivational factors. It was conducted during the second semester of the year of 2023. The primary data will be analyzed by using descriptive statistics and cross-tabulation.

Literature Review

People bring their human capital into organizations, regardless of whether they are governmental, non-governmental, or corporate, and organizations should carefully evaluate and develop it. An organization can have employees with tremendous abilities, but they may fail to make the contributions they are capable of. The concept of human capital, and the paradigm shift that Davenport (1999) explains, focuses on the relation of the worker-as-investor, where employees gain negotiating power and behave more like free-agent owners of investable capital. Based on their expectations, beliefs, ambitions, and obligations, they decide how much mental and physical resources to use (effort) to achieve a specific goal. In other words, motivation is found behind every employee's action that guides their behavior to-

wards effective and efficient performance. From this point of view forward, the main question in practical and academic literature would be: Who has the main role in determining the motivation of employees, employees themselves or the organization?. The Herzberg's Two Factor Motivation theory approaches this question by involving dual factors when analyzing the employees' motivation, i.e., it focuses on the needs of the people, whether they are fulfilled or not. On one hand, enhancing motivators, which are related to and are intrinsic to the job, arise within the employee (Tranquillo and Stecker, 2016) as employee acknowledgement, greater responsibility, recognition, opportunities for growth and self-actualization. If these motivators are present, they significantly boost the satisfaction with jobs and performance. In other words, based on these factors, employees decide whether, when, where and how much mental and physical resources they will apply. On the other hand, enhancing hygiene factors, or extrinsic factors to the job, which are related to the surroundings or the environment in which employees work, enable absence or reduction of dissatisfaction with jobs. Translated in other words, these factors come from the external environment of the individual and are the influence of the organization itself.

Since, in the public sector, hygienic or external factors, such as salary and working conditions are rigid due to bureaucratic procedures in the public administration, intrinsic motivators like acknowledgement, recognition, and responsibility might be critical in raising the employees' motivation levels (Hur, 2017). Thereby, the Herzberg's theory is particularly relevant when analyzing public sector servants' motivation. Furthermore, according to his findings, public managers' satisfaction with their jobs is significantly affected by intrinsic factors, while hygiene factors do not have a significant effect.

When investigating the factors that affect motivation in the public sector, Papadopoulou and Dimitriadis (2019) also used the content theory, i.e., the Self-Determination Theory. This theory focuses on three fundamental psychological needs, namely, competence, connectedness, and autonomy, according to which, if a person wants to grow as a person and there is a sense of belonging and autonomy in control of the person's actions, then this person is highly motivated. Papadopoulou and Dimitriadis's (2019) findings reveal that there is a statistically significant and positive relationship between intrinsic motivation, public service motivation and job performance.

In their findings, Hasso and Akbay (2020) reveal that education, job status, job security, training and development as well as justice, are the significant factors af-

fecting the motivation of employees. Furthermore, they have found that between motivation and practical training, goals, contribution to the mission and acknowledgement, there is a positive and statistically significant relationship.

According to the findings of Fernandes et al.(2022), motivation of health professionals in the public sector is under the greatest influence of salaries, poor working conditions and career advancement as extrinsic factors, and absenteeism, altruism and job security as intrinsic factors.

Discussion and Results

Led by the previous justifications of choosing this area of research, the paper investigates the motivational factors of public sector servants at local level, by using primary data collected through a survey based on the Herzberg's two factor theory. The survey was carried out by participation of 122 public sector servants in 14 municipalities on the territory of the Republic of North Macedonia. 46% of the respondents were male, while 54% were female. Each of the respondents expressed their level of agreement (on a scale from 1 to 5, where 1 - strongly disagree, 2- disagree, 3 – neutral, 4 – agree and 5 – fully agree) with the statements that describe the intrinsic factors of motivation, i.e., personal growth, recognition and responsibility, the work itself, advancement in the career, and achievement.

The findings show that municipality servants in the Republic of North Macedonia strongly agree and agree that their job at the municipality enables them to develop as persons (59.83%), 16.39% are neutral, while 23.77% disagree and strongly disagree. Overall, this finding shows a positive perception of job-related personal development which can further be exploited as a recommendation for investing in training and skill-building programs, which can enhance employees' satisfaction and performance. In other words, municipalities should prioritize professional growth opportunities.

When asked to assess the level of agreement with the statement that respondents are receiving appropriate recognition for the finished job, 25.41% agree and strongly agree, 59.83% disagree and strongly disagree, while 14.75% are neutral. The lack of recognition for finished tasks and duties may lead to demotivation and reduced productivity. Therefore, it is beneficial for municipalities to implement recognition programs or feedback mechanisms that can improve public sector servants' morale and job satisfaction.

When asked to assess the statement related to the work itself as a determinant of intrinsic motivation, 54.41% respond that they agree and strongly agree that their job is very interesting and that they have different tasks and responsibilities, 30.33% strongly disagree and disagree with this statement, while 19.67% are neutral. The fact that the majority of respondents find that jobs with diverse tasks are interesting highlights the importance of meaningful work, and therefore, municipalities should maintain engaging job roles and foster a sense of purpose among employees.

Related to the question about advancement in the career, 48.36% agree and strongly agree with the statement that they prefer advancing in career instead of monetary awards, 26.22% disagree and strongly disagree, while 25.41% are neutral. The preference for career advancement over monetary rewards indicates that employees value long-term growth and municipalities can align incentives with career advancement to retain skilled staff.

Nearly 65% of the respondents reply that they agree and strongly agree with the statement that they have a sense of professional achievement, 22.96% disagree and strongly disagree, while 12.30% are neutral. The sense of professional achievement positively impacts the employees' morale and commitment. Thereby, regular recognition of professional achievements can boost satisfaction with jobs and loyalty.

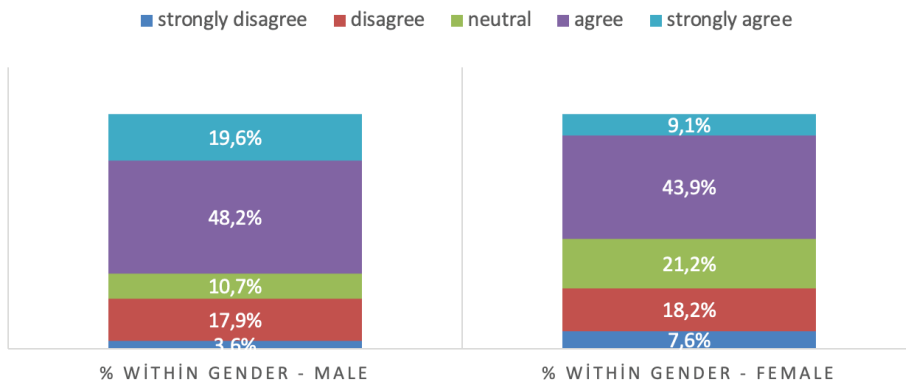
Gender-based Differences in Intrinsic Motivation

According to The State of Motivation Report (Attuned, 2023) conducted at a global level from 2018-2022, there are statistically significant gender-based differences in ranking of intrinsic factors of motivation regarding security, altruism, and competition (out of the total eleven that also include autonomy, innovation, financial needs, feedback, progress, rationality, social relationships, and status). Males ranked competition as the first factor, security as the third and altruism as the fifth one. Females, on the other hand, put security in the first place, altruism in the third place, and competition in the fifth place.

The findings of the research presented in this paper show a statistically significant difference between males and females (at a significance level of 10%) related to the intrinsic factor of motivation for personal growth. 67.8% of male respondents agree and strongly agree with the statement that their institution has enabled them to develop and grow personally, 10.7% are neutral and 21.5% disagree and strongly disagree. Within the group of females, 53% agree and strongly disagree, 21.2% are neutral and 25.8% disagree and strongly disagree. 4(see Figure 1).

Figure 1

Gender-based differences related to motivational factors of personal growth

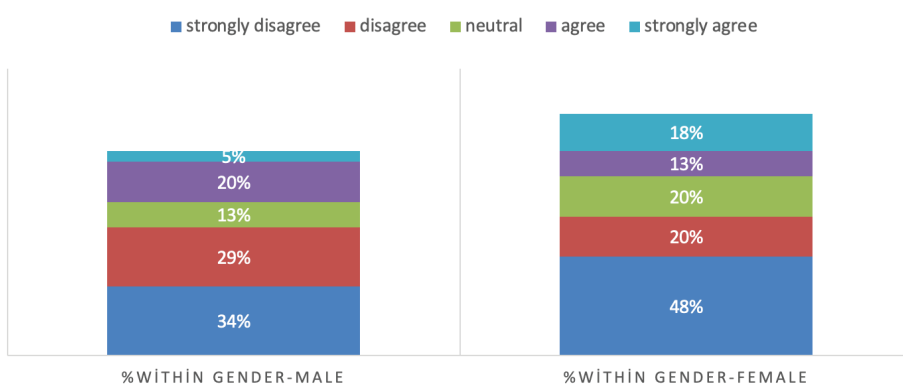


Source: Authors' research

There is no gender-based statistically significant difference related to the factor of acknowledgement. As shown in Figure 2, within the group of males, 25% agree and strongly agree with the statement that acknowledgement for finished jobs is received, 13% are neutral, and 63% disagree and strongly disagree with this statement. In the case of females, 26% agree and strongly agree with the statement, 17% are neutral and 58% disagree and strongly disagree with the statement that they receive appropriate recognition for their finished jobs.

Figure 2

Gender-based differences related to the motivational factor of recognition

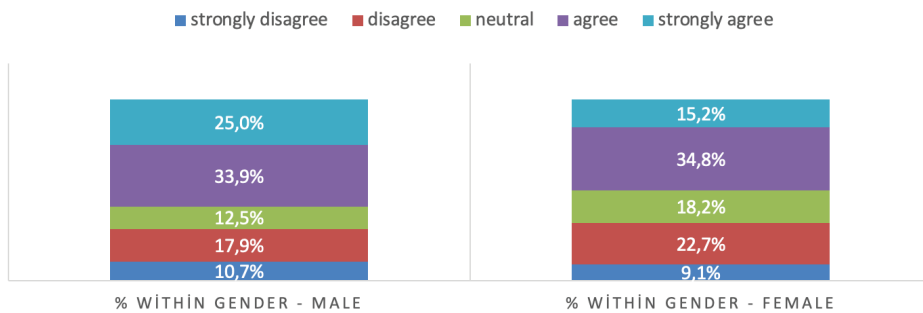


Source: Authors' research

Figure 3 shows that 58.9% of males agree and strongly agree that the work itself is interesting and full of different tasks and responsibilities, 12.5% are neutral, and 28.6% strongly disagree and disagree with this statement. 50% of the females agree and strongly agree with this statement, 18.2% are neutral, while 31.8% disagree and strongly disagree. With the crosstabulation, it was found that there was no statistically significant difference between males and females related to the intrinsic factor of the work itself.

Figure 3

Gender-based differences related to the work itself as a motivational factor

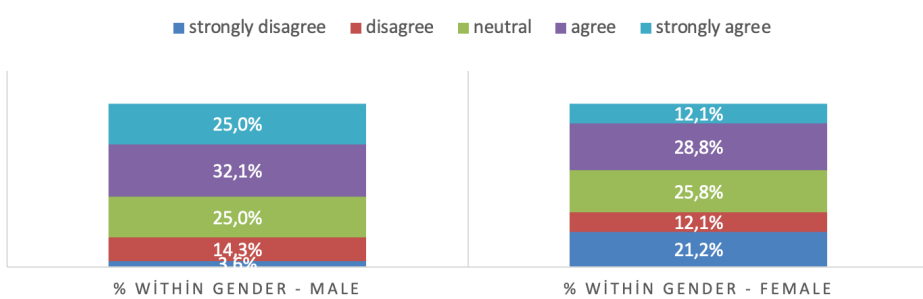


Source: Authors' research

There is a gender-based, statistically significant difference (at a significance level of 5%) related to the intrinsic factor of career advancement, where 57.1% of males agree and strongly agree that career advancement is more important than monetary rewards, 25% are neutral, and 17.9% disagree and strongly disagree (see Figure 4). 40.9% of the females respond that they agree and strongly agree that career advancement is more important than monetary awards, 25.8% are neutral and 33.3% disagree and strongly disagree.

Figure 4

Gender-based differences in career advancement as a motivational factor

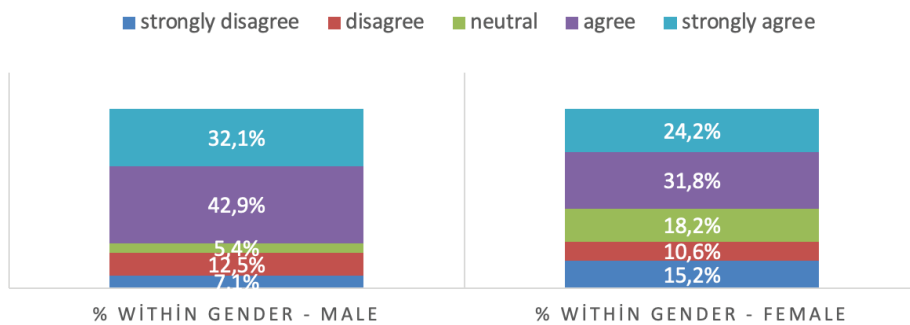


Source: Authors' research

Among female and male municipality servants in the Republic of North Macedonia, there is a statistically significant difference (at a significance level of 10%) when asked about achievement as intrinsic factor of motivation. As shown in Figure 5, 75% of males agree and strongly agree that they have a sense of achievement when realizing their work activities, 5.4% have a neutral opinion, while 19.6% disagree and strongly disagree with this statement. 56% of female respondents agree and strongly agree that achievement is present at their workplace, 18.2% are neutral, and 25.8% disagree and strongly disagree.

Figure 5

Gender-based differences related to achievement as motivational factor



Source: Authors' research

The findings reveal that, among municipality servants, there are statistically significant gender-based differences when analyzing the motivational factors of personal growth, career advancement and achievement. Additionally, male respondents are more motivated in terms of the above mentioned intrinsic factors than the female ones.

These differences should be recognized among municipality servants and a fair and more inclusive environment should be promoted and maintained. This means that the evaluation of performance and monetary and non-monetary rewards should be based on objective criteria. Recommendations in this area could additionally be found in developing training programs for gender differences in motivation and emphasizing that equal opportunities exist for both males and females. Moreover, successful women in the public sector should be used as role models and even as mentors for motivating and inspiring female municipality servants.

Conclusion

Intrinsic motivation of public sector servants is essentially important for providing efficient and effective services to the public. It implicitly contributes to the overall improvement of social well-being and economic development. The findings from this research reveal statistically significant gender-based differences in intrinsic motivation factors among public sector servants in North Macedonia, meaning that male respondents exhibit higher motivation levels related to personal growth, career advancement, and achievement. To address these findings, policymakers and municipalities should consider implementing gender-responsive policies, training programs, and inclusive leadership practices. Fostering gender equality in intrinsic motivation requires joint efforts of policymakers, organizational leaders, and employees. By implementing evidence-based strategies, a public sector that values and supports the diverse motivations of all individuals can be created.

However, to be able to truly understand the reasons for gender-based differences in intrinsic factors of motivation, these findings require further research of extrinsic factors, such as the organizational culture, the work environment, and societal norms. Gender equality in the public sector can be significantly enhanced by fostering an unbiased work environment, motivation, and job promotion.

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The Effects of Energy Prices on the Inflation Rate of Western Balkan Countries

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Abstract

The Western Balkan countries have experienced significant economic fluctuations in recent years. Among the primary contributors to these fluctuations is the volatility of energy prices. Energy, being a fundamental input in both production and consumption, has a direct and often disproportionate impact on inflation trends. Therefore, this study analyzes how energy prices have contributed to inflation in the Western Balkan (WB) countries in the period 2002 and 2022. The panel regression models, such as the fixed and random effects model as well as the Least Square Dummy Variables (LSDV), have been employed. The results reveal that there is a positive and significant relationship between energy prices and inflation. Variations in energy dependency, domestic energy policies, and economic structures lead to different inflationary responses across the Western Balkan countries. Countries with higher dependence on imported energy tend to experience more pronounced inflationary pressures.

Keywords: Inflation, energy prices, WB, panel regression, LSDV.

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Introduction

It is well known that inflation has often caused significant social disturbances and hot debates among economists and policymakers throughout history. Its causes have always been in the center of discussions and research. Jerome Powell, the head of the US Federal Reserve in 2021, has recently stated that "Inflation expectations are terribly important." Inflation expectations are observed by governments for extended periods of time. Why are these expectations so crucial? The usual policy approach holds that one of the primary functions of policy institutions is making economic predictions, which can be assisted by inflation expectations helping central banks and other institutions estimate future inflation rates (Weber et al., 2022). Thus, the current global surge in prices has not been unexpected. Governments considered many measures and fiscal stimuli to protect their populations from the consequences of COVID-19, however, there have been debates among economic experts regarding whether these measures would trigger a spiral of inflationary pressures (Ferguson and Storm, 2023). In 2022, inflation became widespread worldwide, but it was mostly attributed to Russia-Ukraine war that triggered the energy crisis, which in turn made huge pressures on the overall level of prices. The World Bank reported that it impacted all developed countries and 87% of emerging markets and developing economies. More than half of advanced economies and just over half of emerging markets experienced higher inflation than that predicted for 2021. This has led to higher interest rates and tightening of monetary policies, but with the rising costs of borrowing, there is a risk of occurrence of an upcoming financial crisis (Munteanu & David, 2023).

Western Balkans have faced abundant challenges in maintaining resilience and reducing the consequences of the energy crisis in their economies, in the last couple of years. The beginning of the conflict in Ukraine, witnessed an intensification of inflationary pressures in these countries. The price of all energy sources, including electricity, increased significantly. The electricity sector was particularly strained in 2021 due to low production from renewable sources (World Bank, 2022b). In response to the rising inflation, each country in the Western Balkans has enacted measures to limit its rise. Nevertheless, the sharp increase in energy prices has disproportionately affected Serbia, North Macedonia, and Kosovo. These countries are particularly vulnerable due to their heavy dependence on imported energy sources (World Bank, 2022). Thus, this study has been aimed at examination of the impacts of escalating energy prices on inflation rates within this region.

Literature Review

The impact of energy price shocks on inflation has consistently been a focal point of research interest. Several authors have carried out research utilizing different econometric models to empirically estimate how energy prices affect inflation, however, less studies have been conducted specifically for the economies of the Western Balkans.

An early empirical study of Bruno and Sachs (1985) thoroughly inquires the forces of aggregate demand and supply that determine the output, the employment, and the price level in the main industrialized countries. Among other findings, they argue that deterioration of the major economies during that period resulted from the supply shocks of the 1970s because of OPEC oil-price increases, and from the undertaken policies to decrease demand in response to inflationary pressures. Yıldırım et al. (2013) investigated weather inflation persisting in energy prices using panel unit root tests and analyzed the energy prices on an unbalanced panel for 34 OECD countries, between the period 1979Q1 and 2012Q1. They found that inflation was not uniformly persistent for all OECD countries. Nevertheless, independent testing verifies the assumption that countries such as the United Kingdom, Korea, Poland, Slovak Republic, Belgium, Czech Republic, Estonia, France, Germany, Italy, and Korea show a persistent inflation in energy commodities, whereas there is no persistent inflation in the total amount of energy commodities in the United States, Austria, Canada, Finland, Luxembourg, Norway, and Sweden. In 2022, Casoli et al. built a Bayesuan Structural VAR (SVAR) model to examine how the European inflation dynamics interacts in various energy shock types. They analyzed two energy markets, oil and natural gas, together with two important macroeconomic variables that measured inflation expectations and realized headline inflation. The results showed that shocks to energy prices especially referring to natural gas have had greater impact on the inflation in the Euro Area. Vlieghe (2024) investigated how rising costs of energy affected non-energy products and services pricing, or how increased energy prices indirectly affected inflation. The analysis was done for 38 OECD members by using two distinct approaches. Firstly, cumulative inflation was used throughout the relevant time to do basic cross-country regression that provided evidence on the long-term effects. The research paper of Munteanu & David (2023) reveals that direct influence of energy prices on inflation appears to be minimal, which reflects the relatively low proportion of energy expenses in the overall consumption basket. Furthermore, public perception reinforces this notion, given the significant increase in prices of essential food items in

daily consumption, while energy companies continue to report substantial profits. This discrepancy has led to calls for higher taxation of these companies. Despite the recognition of the energy crisis as a primary contributor to inflation, academic research has largely overlooked the actual impact of energy price shocks on inflation. Bigerna (2023) analyzed the impact of exchange rates, energy prices and inflation in the economies of 15 countries in the G20 Group, for the data spin from January 2010 until December 2021, using nonlinear VAR estimation. Their results suggest designing of a prudent monetary policy for understanding the movements in long-term inflation, which is the consistent rise in prices over time that respond to sudden changes in oil prices.

Moving to the Balkan region, Minasyan et al. (2023) investigate the inflation dynamics in the Western Balkans, using two empirical approaches such as the Phillips curve and the structural VAR model, considering quarterly data for the period of 2007Q1-2022Q3 for six economies of the WB. The approaches are adapted to the data availability and country specificities of the region. The study reveals that headline, core, and inflation predictions are all affected by global food prices. In the Western Balkans, aggregate demand shocks were due to the influence of global inflation, however, it was not only dependent on external shocks. Despite persistent high inflation, these findings suggest policies that may be used to limit the immediate and complete transmission of international food prices to domestic prices. Another study on the Western Balkan countries is that of Obradović and Lojanica (2022) where they analyzed the unit root properties of inflation and the existence of structural breaks and nonlinearity, from the first quarter of 2006 until the second quarter of 2020, in six Western Balkan Countries. The results showed that inflation manifested a nonstationary process and structural break in Montenegro and Albania. The inflation fluctuations in Bosnia and Herzegovina and Serbia are characterized by nonlinear mean reverting behavior. Kraja et al. (2022) investigated six Western Balkan countries from 2010 to 2020, evaluating the effects of macroeconomic parameters on economic development. Their analysis consisted of use of the Ordinary Least Squares (OLS) model to test the correlations. The results indicated that GDP was significantly influenced by inflation and unemployment. Petrovska and Nikolov (2018) analyzed the factors that influence core inflation in North Macedonia. Their empirical investigation underscores that the principal contributors to the cumulative core inflation are the underutilization of labor, as manifested by the prevalence of spontaneous part-time employment, alongside fluctuations in the headline unemployment rate.

Research Methodology and Data

The research methodology of this article consists of a quantitative research approach, specifically applying a panel regression analysis. Initially, both fixed and random effects will be examined, with Hausman's test used to identify the most suitable and consistent model for the Western Balkan countries. Additionally, the Least Squares Dummy Variable (LSDV) model will be applied to include country-specific dummy variables, enabling estimation of country intercepts, and capturing unobserved heterogeneity that could differentially impact inflation across the Western Balkan countries. The analysis was conducted within a period of 21 years, from year 2002 to year 2022, and the data were mainly provided from the World Bank, except the data on the non-household electricity prices that were provided from Eurostat. The following table represents the description of the variables that were used in the model, their abbreviations, unit of measurement and source.

Table 1

Definition of variables and description of data

Variable	Definition	Unit	Source
INFL	Inflation, as measured by the consumer price index that reflects the annual percentage change	*(Annual* (%)	World Bank
RGDPG	The annual percentage change in Gross Domestic Product per capita, reflecting the overall economic activity	(Annual %)	World Bank
INTR	Real interest rate, which influences borrowing costs and inflation expectations	*(%)*	World Bank
UNEMP	The percentage of the labor force that is unemployed, affecting consumer spending and wage pressures	*(%)*	World Bank
RENERGY	Renewable energy supply (% of total energy supply).	*(%)*	World Bank
ENPRICES	Non-household electricity prices as a proxy variable for energy prices	*(Annual % change)*	Eurostat

Source: Author's source

The specified econometric model is designed to analyze the impact of energy prices alongside other macroeconomic variables. The econometric model is specified as follows:

$$INFL_{it}=\beta_0+\beta_1 ENPRICES_{it}+\beta_2 RGDPG_{it}+\beta_3 INTR_{it}+\beta_4 UNEMP_{it}+\beta_5 RENERGY_{it}+u_i$$

where:

$INFL_{it}$ represents the inflation rate in country i, at time t, measured as the annual percentage change in the Consumer Price Index (CPI).

β0 - is the intercept term, capturing the baseline level of inflation when all explanatory variables are zero.

β1, β2, β3, β4, β5 are the coefficients for the individual independent variables, respectively, quantifying their impact on inflation. Whereas, is the error term capturing the unobserved factors affecting inflation. Energy Prices are used as the first independent variable representing the cost of energy, proxied by non-household electricity prices. These prices reflect the cost businesses incur for electricity, which can be a significant input in production processes. Energy prices are a critical determinant of inflation because they directly influence the cost of goods and services. Higher energy costs can lead to increased production costs, which businesses may pass on to consumers in the form of higher prices. The expected effect is positive, indicating that an increase in energy prices leads to higher inflation. This reflects the cost-push inflationary pressures arising from higher energy costs. The annual per capita growth rate of the real Gross Domestic Product (GDP) is the second explanatory variable, indicating the economic performance and the overall activity within a country that affect inflation through demand-pull mechanisms. Strong economic growth typically leads to higher demand for goods and services, which can push prices up. The expected sign is positive, suggesting that higher real GDP growth is associated with increased inflation, as higher economic activity boosts aggregate demand. The interest rate represents the policy rate set by the Central Bank, which influences the cost of borrowing and the return on savings within the economy. Interest rates are a tool for controlling inflation. Higher interest rates can reduce inflation by lowering consumer spending and business investment, while lower rates can stimulate economic activity and potentially increase inflation. The expected effect could be negative, implying that higher interest rates are associated with lower inflation. The unemployment rate influences inflation through the Phillips curve relationship, where lower unemployment can lead to higher inflation due to increased wage pressures and higher consumer spending. It is expected to be

negative, indicating that higher unemployment is associated with lower inflation. This relationship suggests that higher unemployment reduces demand pressures and wage growth, thereby reducing inflation. Renewable energy supply can influence inflation by stabilizing energy prices and reducing reliance on volatile fossil fuel markets. It can also lower the long-term cost of energy, contributing to more stable production costs and consumer prices. The expected effect is negative, suggesting that an increase in renewable energy supply is associated with lower inflation. This reflects the potential of the renewable energy to provide a more stable and sustainable energy cost structure, reducing inflationary pressures.

Results and Discussion

This section presents the regression results for the three models. Table 2 presents the regression results for analyzing the factors influencing the inflation rates across Western Balkan countries using three different models: Random Effects (RE), Fixed Effects (FE), and Least Squares Dummy Variable (LSDV). Each model provides insights into how variables such as energy prices, real GDP growth, real interest rates, unemployment, and renewable energy supply impact inflation. Additionally, the LSDV model includes country-specific effects to capture the unique influence of each country on inflation.

Across all three models, energy prices show a positive and significant effect on inflation. Specifically, in the Fixed Effects (FE) and LSDV models, the coefficients are both statistically significant with t-statistics close to 1.96. This implies that higher energy prices, proxied by non-household electricity prices, lead to higher inflation rates. The Random Effects (RE) model also supports this finding with a slightly higher coefficient (0.92790). This positive relationship aligns with the concept of cost pushing inflation, where rising energy costs increase the overall price level of goods and services.The impact of real GDP growth on inflation is positive in all models but is not statistically significant, as indicated by t-statistics, below the critical value of 1.96. This suggests that, within the studied period and countries, economic growth does not significantly drive inflation once other factors are controlled. This might indicate that the growth levels in these countries do not reach a threshold that generates substantial inflationary pressures.

Table 2.

Panel regression results

Variables	RE		FE		LSDV	
	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat
ENPRICES	0.92790**	2.11	0.5697**	1.95	0.5608**	1.96
RGDPG	0.06044	1.10	0.07115	1.44	0.07109	1.43
INTR	-0.95230***	-16.56	- 0.8698***	-14.2	- 0.8691***	-14.1
UNEMP	0.27713***	6.23	0.3023***	6.67	0.3023***	6.65
RENERGY	-0 .16001**	-2.08	-0.00805	-1.22	-0.00805	-1.20
Constant	1.45120	1.62	0.08843	0.39	0.0935	0.84
Albania	-	-	-	-	-	-
Bosnia&Herzeg.	-	-	-	-	-2.7314**	-2.76
Kosovo	-	-	-	-	1.094382	1.41
North Macedonia	-	-	-	-	-2.3168**	-2.21
Montenegro	-	-	-	-	-3.1221**	-2.56
Serbia	-	-	-	-	-.83969	-0.61
Hausman Test			0.0432			
Prob > F	0.0000		0.0000		0.0001	
R^2	0.88		0.79		0.82	
N	102		102		102	

t statistics in parentheses; * p<0.1, ** p<0.05, *** p<0.01

Source: Author's calculations

The real interest rate shows a strong negative and highly significant effect on inflation across all models. The coefficients are -0.9523 (RE), -0.8698 (FE), and -0.8691 (LSDV), all with very high t-statistics. This consistent negative relationship supports the idea that higher real interest rates, which reflect tighter monetary policy, effectively reduce inflation by cutting the aggregate demand and discouraging borrowing and spending. The unemployment rate has a positive and statistically significant impact on inflation in all models. This positive relationship is somewhat counterintuitive, as higher unemployment typically reduces inflation through reduced demand. However, in the context of the Western Balkans, this could indicate structural economic issues where high unemployment does not suppress inflation due to inefficiencies or other economic dynamics. The effect of renewable energy supply on inflation varies across models. In the RE model, the coefficient is -0.16001 and is statistically significant (t-statistic -2.08), suggesting that an increase in the supply of renewable energy might reduce inflation. However, in the FE and LSDV models, the coefficients are not statistically significant. This implies

that, while renewable energy might have a stabilizing effect on energy costs and, consequently, inflation, this effect is not robustly supported across different modeling approaches. The LSDV model provides additional insights into country-specific influences on inflation. The coefficients for Bosnia & Herzegovina (-2.7314), North Macedonia (-2.3168), and Montenegro (-3.1221) are negative and statistically significant, suggesting that these countries have lower average inflation rates compared to the reference country, Albania. Kosovo has a positive but not significant coefficient (1.094382), indicating a higher average inflation rate relative to Albania, though this is not statistically robust. Serbia's coefficient is negative but not significant (-0.83969), indicating no substantial difference in average inflation compared to Albania.

The Hausman test result (p-value = 0.0432) indicates that the Fixed Effects model is preferred over the Random Effects model, suggesting that the fixed effects are correlated with the explanatory variables, making FE and LSDV models more appropriate for interpretation. The high R^2 values indicate that these models explain a substantial portion of the variance in inflation. The overall models are statistically significant, as reflected by the Prob > F values being close to zero across all models.

Conclusion

This empirical study highlights the significant role of energy prices in shaping inflationary trends in the Western Balkans. It reveals that energy prices, real interest rates, and unemployment rates are significant determinants of inflation in Western Balkan countries. The chosen Fixed Effects and LSDV models highlight the importance of accounting for country-specific factors. The positive relationship between energy prices and inflation supports the cost-push inflation theories, while the negative relationship with real interest rates emphasizes the effectiveness of tight monetary policy in controlling inflation. The unexpected positive impact of unemployment on inflation suggests unique economic dynamics in the region that requires further investigation.Understanding this dynamics is crucial for formulating effective economic policies to stabilize prices and foster sustainable economic growth in the region. The findings suggest the need for Western Balkan countries to develop appropriate energy policies and diversify energy sources to mitigate the inflationary impact of volatile energy prices. Policymakers should also consider minimizing the dependency on imported energy as well as designing responsive and long-term policies.

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BALKAN JOURNALS

Prof. Savica Dimitrieska

Abstract

Generative artificial intelligence, the new buzzword in technology, is the next step in the evolution of traditional artificial intelligence. Unlike traditional AI that excels in data analyzing and automating processes, generative AI (GenAI) is a pioneer in creating new and original content. GenAI is very close to human intelligence, capable of logical thinking, imitating human behavior and armed with decision making capabilities. Generative AI creates new texts, images, music, 3D designs and codes, thus strongly influencing the activities, strategies, and consumer interactions of various industries. Key industries most affected by GenAI are banking and finance, retail and consumer goods, medicine and pharmaceuticals, education, media and marketing. In marketing, generative AI is significant in the process of personalization, content creation, audience engagement and interactions, performing the STP strategy (segmentation, targeting, positioning), market research, etc.

Although it has great advantages, GenAI also has significant limitations, such as unresolved ethical issues, the spread of outdated or imprecise data, lack of legal regulation and control, etc. This paper, with the aid of secondary research, is aimed at exploring the possibilities of GenAI and its impact on marketing, especially advertising.

Keywords: AI, generative AI, creative content, marketing, advertising

Introduction

Artificial intelligence (AI) is a branch of computer science that creates machines, which are able to imitate and perform human behavior. According to Miquido (2024), AI is a science that designs smart systems and algorithms that can perform intelligent tasks, such as problem solving, speech recognition, translating languages, decision making. The simplest definition of AI is that it is a "science of making machines smart." (Kaput, 2024). Traditional AI, often called "weak" or "narrow" intelligence, can analyze data, automate processes, make decisions based on specific inputs. It responds to a particular set of inputs on the basis of which it makes smart decisions within certain rules. (Marr, 2024) This kind of intelligence is used by voice assistants such as Siri, Alexa, recommendation engines of Netflix, Amazon, Google search. Traditional AI has evolved with the emergence of Generative AI (GenAI), which is considered a "strong" intelligence that focuses on creating new and unique content. This intelligence uses advanced deep learning techniques, neural networks to create something new, similar to what human intelligence creates. GenAI tools such as conversational agent Chat GPT, text generator GPT-4, image generator DALL-E can create new, high-quality and contextually relevant texts, images, music, video, 3D designs, codes. (Routray, 2024). The transition from AI to GenAI is a significant milestone in the history of technology. The path that AI has historically traveled from emergence to content creation is shown in the following Table.

The history of AI is a testament to human curiosity, innovation and the relentless pursuit of knowledge. (Haddad, 2023). AI is constantly pushing the boundaries of what is possible and what machines can do for humans. Today, it transforms the way of living, learning, working, and communicating between people. AI touches various aspects of human life, from virtual assistants to recommendation systems, to autonomous vehicles and healthcare diagnostics. It constantly penetrates into all the pores of society, offering its existing opportunities in personalized medicine, smart cities, marketing, communication, construction and architecture, as well as in the fine arts such as painting, sculpture, literature, music, film. AI, with its gradual integration into society, is attracting the attention of people and businesses. In doing so, it tries to address societal, ethical, legal and privacy constraints.

Table 1: The history of AI

HISTORY OF AI: A Timeline from 1950 to 2023		
I Period: The birth of AI and Symbolic reasoning and logic		
1950	Turing Test	Alan Turing proposed a concept of a thinking machine
1956	"AI" term coined	John McCarthy introduced the term AI for the first time
1960	Eliza	First chatbot that simulated a human conversation
II Period: Expert systems and Knowledge-based AI		
1970-1980	AI Winter	No new AI programs
1980	RNNs & LSTM	Machines learn from data, not programming, introduction of neural netwroks
III Period: Machine Learning Revolution		
1990	IBM Deep Blue	IBM's Deep Blue defeated chess champion Garry Kasparov
IV Period: Big Data and Deep Learning		
2006-2008	Cloud, Big Data, GPUs	
2011	Siri	Apple gave its iPhone 4s an intelligent language-based assistant: Siri. The software recognizes and processes natural language and can thus act as a personal assistant
2011	Watson	Supercomputer Watson, named after IBM founder Thomas J. Watson, won the US-American quiz show Jeopardy against two human competitors.
2014	Alexa	Amazon's Alexa digital assistance introduced
2014	GANs	Creation of Generative Adversarial Networks (GANs) in 2014 was a fundamental breakthrough in generative AI. A GAN is an unsupervised machine learning (ML)
V Period: The Birth of GenAI		
2015	Foundation of OpenAI	
2018	GPT1	Creation of LLMs such as GPT (Generative Pre-trained Transformer), first built by OpenAI in 2018. GPTs are neural networks using a deep learning architecture to generate text, engage in conversations with users and complete numerous language tasks.
2020	GPT-3, DALL-E	
2022	Chat GPT, DALL-E2, Midjourney, Stable Diffusion	ChatGPT, launched by OpenAI in November of 2022, enables machines to engage in coherent and context-aware conversations. Users can also ask ChatGPT to generate text and other content of a desired style, length, format and level of detail. DALL-E, Midjourney and Stable Diffusion are advanced generative AI models that create and manipulate visual content based on textual input.
2023	GPT4, Google's Bard, Microsoft Bing AI	

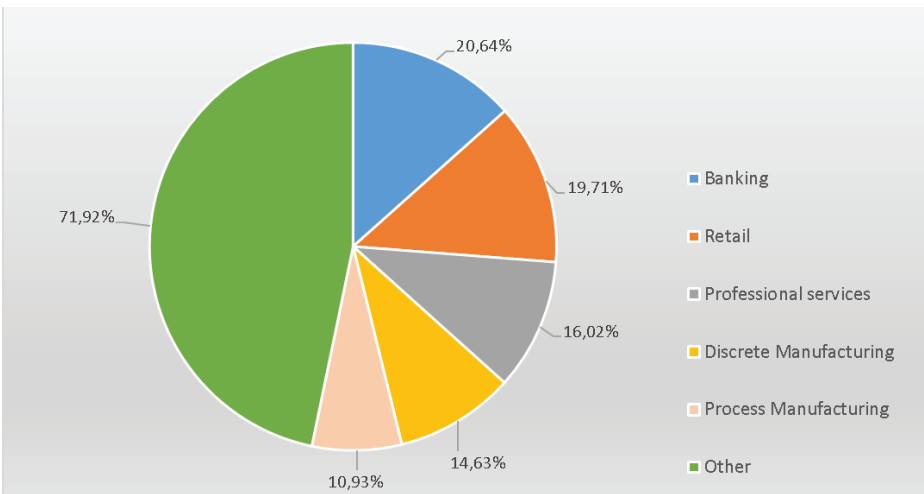
Source: Own research

Artificial Intelligence's Impact on Various Industries

If companies want to survive, develop and successfully fight the fierce competition, they will have to use the latest technology. This is especially important for companies in developed economies. (Roytray, 2024). New technology, and especially AI, provides a competitive advantage for companies in the market by offering them greater efficiency, effectiveness, productivity and creativity. Unlike humans, AI can, in a very short time, process and analyse large databases, automate specific and routine tasks, optimize operations, improve business processes, reduce labour costs, make significant market researches. In this way, AI helps management structures in companies to use the remaining time, energy, and resources for more strategic goals. (Lawlor & Chang, 2024). GenAI can fundamentally change strategies, operations and interactions with consumers across various industries. According to Bill Gates, "2024 is the year of GenAI". (Howarth, 2024).

Statistical data published by reputable houses confirm the tendency for a significant grow of the AI market worldwide. According to Statista (Thormundsson, 2024), the market for AI technologies is expected to grow beyond 1.8 trillion US dollars by 2030. For comparison, the UK GDP in 2021 was 3.1 trillion US dollars. This trend is also confirmed by Bloomberg Intelligence (2023), according to which Generative AI is to become a 1.3 trillion US dollars' market by 2032. The distribution of AI investments by individual industries is shown in the following Figure:

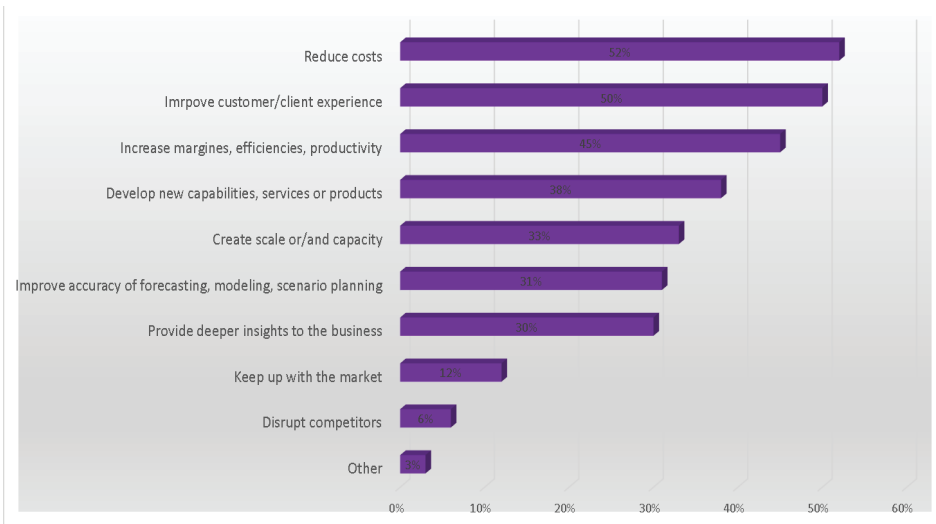
Figure 1: Worldwide spending on AI, by industries



Source: Statista, 2024

AI has the greatest impact on banking (20,64%) and retail industries (19,71%) measured by investments in billions of US dollars. According to the Deloitte Report (2023), 42% of companies are experimenting with GenAI, and 15% have actively included AI in their strategies. The same Report confirms that the most significant industries affected by AI are: a) Banking and finance, b) Retail and consumer goods, c) Media, technology and entertainment, d) Pharmacy and life sciences, e) Education, etc. According to Bretzfield (2023), in the field of finance and banking, AI helps in automating financial processes, improving risk management, increasing consumer experience and fraud detection. Just like banking, the retail industry reaps the benefits of AI in activities such as inventory management, personalized shopping experiences, recommendation systems and enhancing process automation. The following figure presents the answers of the companies about their expected benefits from the use of AI:

Figure 2: Expected benefits from the AI usage



Source: Deloitte, 2023

Industries expect AI to reduce costs (52%) mostly, then to improve the consumer experience (50%), and increase margins, efficiency and productivity (45%). In the future, AI is expected to increase its impact on other industries, such as construction, real estate, sports, aerospace, non-profit activities, government activities, etc.

Artificial Intelligence and Advertising

Advertising as part of a company's promotional mix is very important for attracting consumer attention. Advertising is the "magic" used by companies to inform, persuade and remind consumers to buy their products and services. Today, this task can be completed more easily with the help of generative AI, that adds value with its uniqueness, creativity, personalization, involvement of consumers in the purchase process. AI in advertising has a number of benefits, but the most significant are:

A) Content creation and personalization

AI helps companies generate new text, images, video and audio data, and even entire marketing campaigns. Unlike humans, it can complete the process of segmenting, targeting and personalizing consumers based on their data more efficiently and for less time. AI analyses a large set of consumer data and based on them, can predict consumer behaviour and create and deliver customized content that is relevant to a specific audience. Personalization means that AI targets the content towards specific interests, needs, wants, preferences and behaviours of individual consumers. By using multimodal inputs such as text, images, speech, technology, it creates what consumers want and demand. Relevant content attracts more customers, creates greater customer loyalty, and increases conversion and retention rates over traditional techniques. In this way, AI increases the productivity of companies by 5-15% of the total marketing spending (McKinsey Report, 2023). AI is used in personalizing content creation through chatbots, predictive analytics, natural language generation, recommendation algorithms that create personalized responses to specific consumer needs and wants. (AI Contentfy, 2023). Success stories of AI-powered personalized content are the examples of:

- Netflix, based on analysis of user data, recommends movie content that will best suit the tastes of individual viewers;
- Amazon, based on browsing and purchasing history, recommends which products and services are of interest to individual customers;

- The New York Times, based on previous experiences with readers, offers each individual reader a homepage and highlighted stories that are of interest to them;
- Sephora, based on previous experiences with consumers, recommends specialized offers of perfumes and cosmetics to individual consumers.

B) Operational efficiency and optimization of advertising budget and performances

According to Mint's research (2024), 92% of companies believe that the AI's biggest opportunity lies in improving the efficiency of existing processes. Greater operational efficiency is achieved with master automation and robotization of processes in the company, which will free up more time for managers to devote to other strategic tasks. Real-time automation can meet the demands of increasingly sophisticated consumers. AI can, on the one hand, perform repetitive and routine tasks, and on the other, generate smart solutions based on which managers can make informed decisions. In the field of budgeting, AI can better and faster analyze financial data, identify patterns and trends, and provide recommendations related to spending habits, ways to increase incomes, suggestions about how to save money, etc. According to Kaput (2024), machine's algorithms can analyze how ads perform across specific platforms, and then offer recommendations on how to improve performance. Unlike humans, artificial intelligence can change data in real time according to changes in the market or consumer behavior, optimize responses and make dynamic adjustment of advertising and personalization of customer interactions. In the function of optimizing the advertising budget, AI helps companies with predictive analytics, which can forecast the future behavior of consumers, new customer trends, purchasing behavior for priority segments, respondent-level purchasing behavior, make customer segmentation, model uncover insights. (Pecan blog, 2023).

C) Audience engagement and interaction

The greatest challenge for the companies is the audience engagement and interaction having in mind the facts that 70% of GenZ have tried generative AI tools, that nearly 9 of 10 of jobs worldwide would be impacted by GenAI, 95% of customer interactions will involve AI by 2025 and 73% of marketing departments nowadays use GenAI. (Howarth, 2024). Companies must be present where consumers are! (Dimitrieska et al., 2018). According to Ginzburg (2024), AI can create a more dynamic, responsive, engagement environment and involve customers more in the purchasing process. It

can offer customers content that closely matches their individual interests. AI can do this by examining a large set of data collected from browsing history, purchase patterns and social media interactions, categorizing them by preferences, interests and behaviour of customers. This kind of personalization is not static, but it is optimized by AI regularly, in real-time. The main goal is delivering better experience to consumers. Emerging technologies, such as AR (augmented reality) and VR (virtual reality) allow businesses to create immerse and engaging experiences for their customers in an entire new way. (Dimitrieska et.al, 2023)

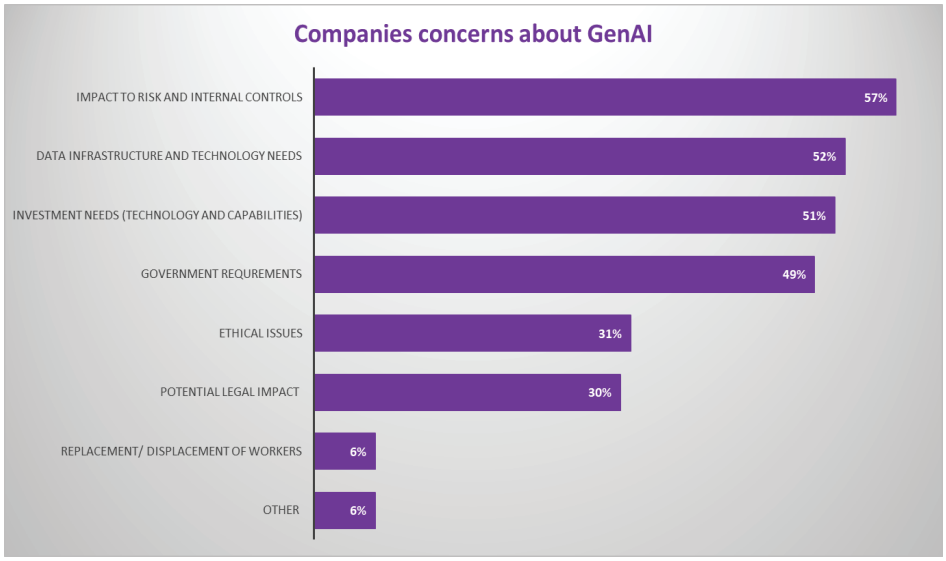
Other ways how AI can help the business are: (Kaput, 2024)

- Media buying,
- Building richer audience profiles,
- Getting insight into competitors' ad spend, creatives and strategies,
- Hyper-personalization of customer segmentation and targeting,
- Market research and data analytics,
- Creating ad copy, visual ad creative,
- Prediction of the effectiveness of ads in advance, etc.

Limitations of the Artificial Intelligence

Even though there are endless possibilities of the GenAI, there are some limitations and concerns that companies must consider when using it. According to Routray (2024), the most meaningful concerns are related to the quality of data, data privacy and security issues, biased and inaccurate content, ethical issues, high costs, possible IP and copyright violations and its emotionless nature. The usage of AI requires supervision because some data and predictions can really be wrong. The following figure presents the limitations of AI seen by companies:

Figure 3 Companies' concerns about GenAI



Source: Deloitte, 2023

It seems that ethical issues, legal impact and displacement of human workers do not pose a great challenge to the companies. They are far more concerned about the impact that AI has on risks and internal controls, investments in data infrastructure and technology needs as well as government requirements.

However, a lot of experts agree that the most powerful AI limitations are related to: (Routray, 2024):

- Lack of intentionality: AI cannot truly understand its output and cannot give a rationale and explanations about its outputs. It lacks critical thinking and judgment of what it creates. In this sense, it is still far from the human intelligence,
- Lack of consistency and coherence: Sometimes, AI can deliver unpredictable and nonsensical results. This warns people not to completely and solely rely on AI analytics,
- Biases on race, gender, ethnicity embedded in data that AI uses.

These limitations together with the lack of legal coverage and ethical issues make AI vulnerable and untrustworthy. However, the era of this new technology has just begun and its influence on the transformation of the advertising landscape looks promising.

Conclusion

GenAI, as the newest technology, has already begun to revolutionize various industries, from banking and finance, marketing and communications, to healthcare and aerospace. In the field of marketing, and especially advertising, AI improves efficiency, reduces costs, and enhances customer experiences. AI can analyse consumer data in no time. Based on that data, the technology can make predictions and recommendations that bring companies closer to consumers. Thus, company managers have more time, energy and capital to devote to other important business activities and strategies. AI makes people's jobs easier. (Dimitrieska et.al, 2018). And, the slogan of artificial intelligence's goal is really meaningful: "Empowering businesses to create smarter, not harder".

However, as with any new technology, some concerns and challenges must be addressed. In advertising, there are concerns about bias in decision-making, data privacy and security, ethical issues, regulation, outdated information, wrong AI analytics, emotionlessness. Computer companies are working to overcome these limitations of artificial intelligence. They are trying to establish best practices for responsible use of AI. To the question of what is the future of AI, she herself already answers that the "future is now".

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Circular Business Models: Drivers and Barriers to SMEs in North Macedonia

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Abstract

Running a business in an era increasingly concerned with climate change poses challenges for all stakeholders. Governments and intergovernmental organizations are enacting new regulations, compelling businesses to adapt. While some companies have proactively shifted to eco-friendly production systems, others face pressure to change. To meet these evolving demands, businesses are exploring models that align with the circular economy. This study is aimed at exploring the drivers and barriers to circular business models as well as the challenges small and medium sized companies face to achieve the environmental and business objectives. Through a survey conducted among small and medium-sized enterprises in North Macedonia, both closed and open-ended questions were utilized to gather insights. The findings reveal a spectrum of engagement, ranging from incorporating circular principles in product design to active involvement in material recycling. These results underscore a growing willingness within the business community to embrace sustainable and circular business models.

Keywords: Circular economy, business model, SMEs, drivers, barriers

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Introduction

The idea of a circular economy has been in discussion since the 1970s when the limitations of the traditional linear economic models began to be recognized. The linear model, also known as "take, make, use, and dispose" implies extracting resources, producing goods and services, consuming them, and then disposing of the waste and by-products. However, as the world's population and economy have grown, this model has become unsustainable, leading to the emergence of the circular economy as a new economic model. According to Antikainen et al. (2018), the first conceptualizations of a circular economy were based on the idea of industrial ecology and the principles of closed-loop systems. These early ideas were further developed in the 1990s and 2000s, with the introduction of new concepts such as "cradle-to-cradle" and "closed-loop supply chains." The circular economy is characterized by its restorative and regenerative design, which is aimed at keeping products, components, and materials at their highest utility and value for as long as possible. To meet these evolving demands, businesses are exploring models that align with the circular economy. Thus, the purpose of this study has been to explore the drivers and barriers to circular business models as well as the challenges small and medium sized companies in North Macedonia face to achieve environmental and business objectives.

Literature Review

The literature offers a wide range of definitions regarding circular economy and drivers as well as challenges for a shift to an eco-friendly production system. For instance, Kirchherr et al. (2017) analyze 114 definitions of the circular economy from various sources to identify the main elements and features of the circular economy concept. They found that many of the definitions emphasize the importance of resource efficiency and closed-loop systems, as well as the need to move away from the traditional linear economy model. They also found that definitions often stress the importance of designing products and systems that can be easily repaired, reused, and recycled, as well as the development of new business models that prioritize sharing and rental of products rather than ownership. Additionally, the authors found that the definitions often highlight the need for systemic change and collaboration across sectors to achieve a circular economy. Several other researchers have highlighted that the circular economy is not only an economic model but also a new sustainability paradigm. According to a study, circular economy

is aimed at preserving and enhancing natural capital, optimizing resource yields, and fostering system effectiveness (Gardetti, 2019). Furthermore, another study emphasizes that circular economy is a holistic and systemic approach that goes beyond traditional recycling, and is aimed at creating economic growth, jobs, and business opportunities while reducing environmental impacts (MacArthur, 2013).

Geissdoerfer et al. (2017) highlight that circular economy is not only an economic model but also a new sustainability paradigm, whose purpose is to keep products, components, and materials at their highest utility and value at all times, and to minimize waste and pollution through the use of closed-loop systems. Circular business models are becoming increasingly relevant as the world's population and economy continue to grow and the traditional linear economic model becomes unsustainable. However, the implementation of circular business models is not without challenges. Utilizing a structured comparative literature review and a multi-case study of 21 organizations, Geissdoerfer et al. (2022) developed a theoretical framework of drivers and barriers, identifying 25 barriers and 10 drivers categorized into seven clusters, providing valuable insights into the distinctive effects on different innovation types and offering novel empirical data to validate and enhance previous research, thus contributing to the transition towards a more sustainable and circular economy. Many other scholars have reviewed studies on drivers and challenges to circular economy, while some others have investigated them specifically (Hart, et al., 2019; Tan, et al., 2022). Through an empirical study of 183 consumer responses, a research study conducted in an emerging economy context, establishes a validated model for circular economy adoption, underscoring the substantial influence of consumer behaviour on acceptance of remanufactured products and embracing products as service models in these economies (Patwa, et al., 2021). Despite the challenges, companies should think about implementing circular business models since they have the potential to be resource-efficient, cost-effective, and ethical.

Research Methodology

To understand and get insight into drivers and barriers to circular business models of SMEs in North Macedonia, a survey was conducted by use of self-completion questionnaires as research instruments. This enabled collection of detailed data from the SME owners and managers, and gaining a better understanding of their experiences, opinions, and perspectives referring to circular business models. Ad-

ditionally, the survey enabled uncovering and exploring the factors that influence the adoption and implementation of circular business models in the North Macedonian context.

Purposive sampling approach was used in the selection process of companies, considering constraints of time and cost. This method allowed for a purposive selection of companies willing to participate in the study. The use of personal connections expedited the process, allowing efficient engagement of companies of different sizes and operational scopes. This approach ensured a balanced representation and enriched the study with insights from companies at different levels of circular practices.

For data collection, a comprehensive questionnaire was employed to extract personalized opinions from participants. The survey targeted 60 companies, however, only 37 responded to the request to fill out the questionnaire. The survey was carried out in Google forms and a link was sent to the participants, who agreed to take part in this research. Respondents were strategically chosen from among senior-level executives, including senior managers, directors, and owners. The questionnaire design adhered to the best practices for explorative studies, encompassing sections on company details, general information, circular economy activities, barriers, drivers of circular business models. The data analysis process involved extracting and interpreting descriptive results obtained from the Google forms, providing a quantitative overview of various aspects covered in the questionnaire.

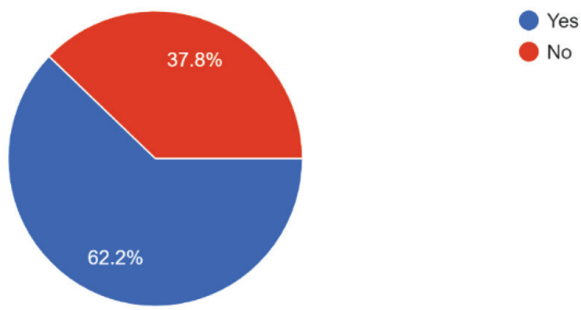
Results and Discussion

In this section, the results and discussion of findings are presented from an extensive exploration of companies across diverse sectors and industries. Most of the sampled companies were engaged in services and constituted 27% of the participants. Manufacturing played a significant role, accounting for 16.2% of the companies, reflecting a substantial presence of production-oriented businesses. The construction sector made up 13.5% of the profiled companies, highlighting the inclusion of firms contributing to the built environment. Wholesale and retail trade sectors collectively comprised 35.1%, emphasizing the significance of the distribution chain within the sampled cohort. Accommodation and food services accounted for 10.8%, reflecting a segment of companies associated with hospitality and dining. Transportation constituted 5.4%, representing businesses involved in logistics and movement of goods.

The survey revealed a notable engagement with circular economy practices among the participating businesses, with 62.2% affirming their active involvement in circular economy initiatives (see Figure 1). This positive response emphasizes a growing disposition within the business community toward embracing sustainable and circular business models. However, it is noteworthy that a significant proportion, comprising 37.8% of the respondents, indicated a lack of involvement in circular economy activities.

Figure 1

Rate of participants involved in circular economy (Q: Is your business/organization involved in circular economy?)

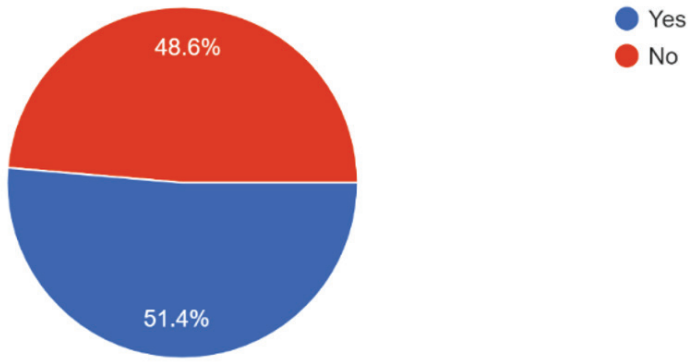


Source: Own research

Another result revealed from the survey is a near-even split in responses to the question "Does your company design products according to circular economy principles?". Figure 2 shows that 51.4% of the companies affirm, while 48.6% deny their commitment to circular design. This distribution underscores a noteworthy trend, indicating that a significant portion of companies are actively incorporating circular economy principles into their product design processes. This finding reflects a growing awareness and implementation of sustainable design practices within the business community.

Figure 2

Rate of companies designing products according to circular economy principles (Q: Does your company design products according to circular economy principles?)

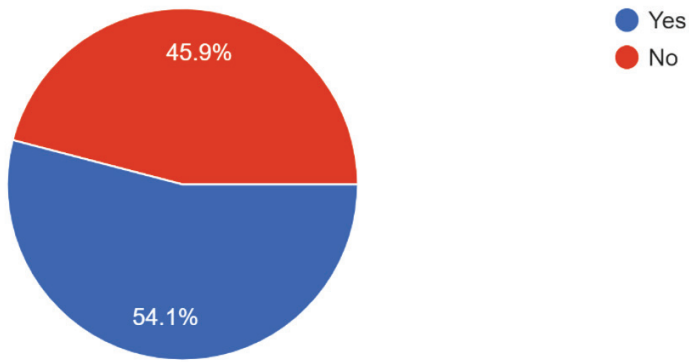


Source: Own research

The previous result regarding the adoption of circular economy principles in product design is further substantiated by another notable finding. According to (Figure 3), 54.1% of the surveyed companies affirmatively reported their participation in a sharing platform for goods and services, underscoring a significant portion of businesses actively engaging in collaborative consumption models. This aligns with the broader trend towards circular practices, emphasizing resource optimization and extended product utility. The connection between product design and participation in sharing platforms reflects a comprehensive adoption of the circular economy principles, highlighting the approaches businesses are taking to integrate sustainability into their operations.

Figure 3

Companies participating in a sharing platform of goods and services (Q: Does your company participate in a sharing platform of goods and services?)

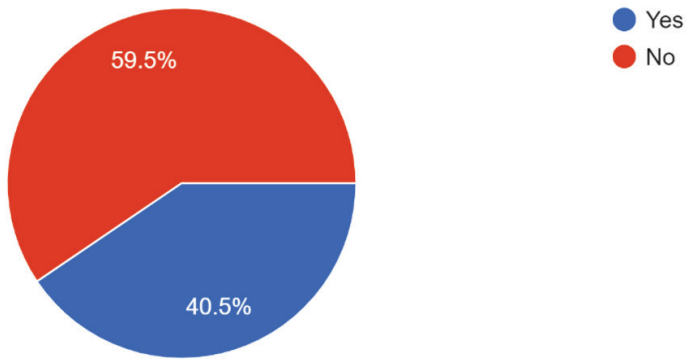


Source: Own research

In contrast to the affirmative responses observed in the preceding questions, the survey reveals a notable distinction in the practice of buying back or taking back goods for reuse among the surveyed companies. In Figure 4, approximately 59.5% of the respondents indicate that their companies do not engage in this practice, while 40.5% affirmatively report participation in the buyback or take-back of goods for reuse. This divergence underscores a varying degree of adoption and integration of circular economy practices, signalling that a substantial majority of companies, although active in certain circular activities, may not be extensively involved in the closed-loop systems of reclaiming and reusing products.

Figure 4

Companies involved in getting back goods and reusing products (Q: Does your company buy back or take back goods and reuse the products?)

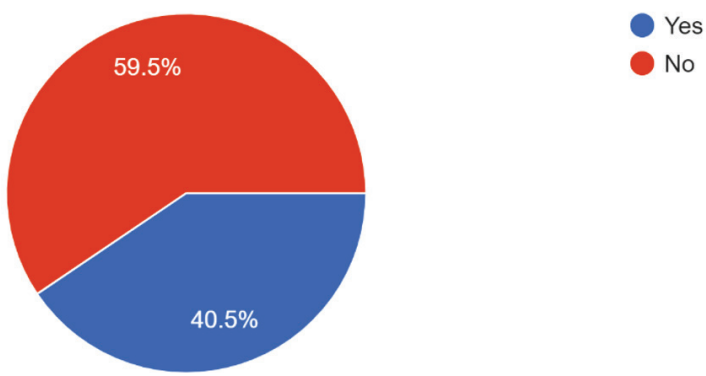


Source: Own research

The survey delved into the recycling and/or recovery of materials, revealing that a majority of companies, constituting 59.5%, do not engage in these circular practices. In contrast, 40.5% of the surveyed businesses affirmatively reported participation in material recycling and/or recovery. This outcome, depicted in Figure 5, underscores the prevailing gap in material circularity practices among the surveyed companies.

Figure 5

Companies involved in recycling (Q: Does your company recycle and/or recover material?)

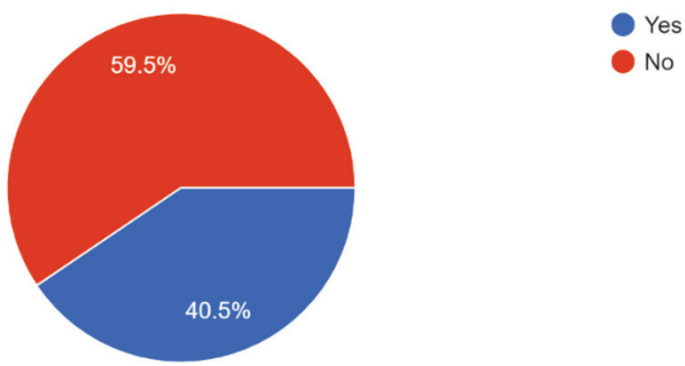


Source: Own research

Similarly, aligned with the previous question on recycling and/or recovering materials, the survey found that 59.5% of the companies do not employ recovered materials in the production of new products, while 40.5% do engage in this circular practice. These congruent patterns, illustrated in Figure 6, underscore the continuity of a substantial portion of companies not integrating recycled materials into their production processes. This observation accentuates potential areas for intervention and strategies to enhance the circularity of material usage in the surveyed businesses, suggesting a need for targeted initiatives towards promotion of the incorporation of recovered materials into new product manufacturing.

Figure 6

Companies involved in reusing recovered materials for new products (Q: Does your company use recovered material to produce new products?)



Source: Own research

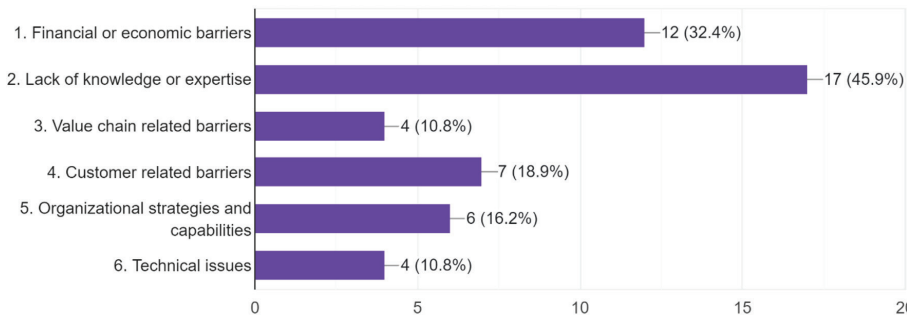
The exploration of barriers to circular business models reveals critical insights into the challenges impeding widespread adoption. As companies consider the terrain of circularity, understanding these obstacles becomes vital for informed decision-making and strategic planning. This section delves into the identified barriers, shedding light on the factors influencing companies' engagement with circular business models.

The internal barriers to companies attempting to transition to circular economy models is marked by distinct challenges. A significant 45.9% consider a lack of knowledge or expertise as a formidable internal barrier, underscoring the importance of awareness and education in fostering circular practices. Financial and economic barriers closely follow at 32.4%, indicating the fundamental role of eco-

nomic considerations in shaping the adoption of circular business models. As illustrated in Figure 7, these top two barriers explain key areas for intervention and support as companies struggle with internal difficulties in their circularity. Other barriers were identified in lower scores.

Figure 7

Companies' perceptions of internal barriers in shifting to circular economy (Q: What internal barriers do you face when trying to innovate or shift to circular economy business models?)

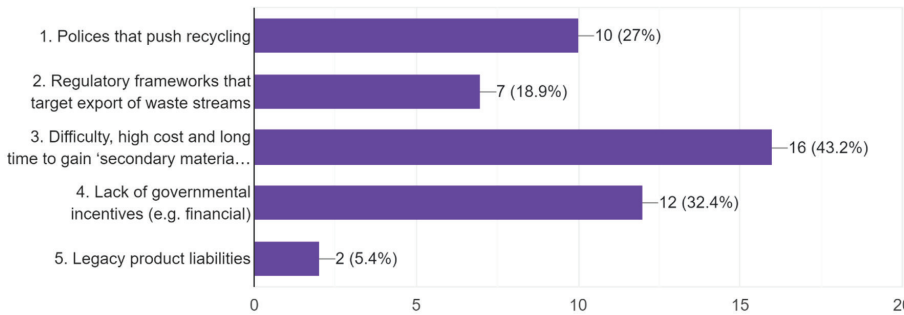


Source: Own research

Companies navigating the transition to circular business models encounter a range of external barriers that shape their strategies. As shown in Figure 8, a noteworthy 43.2% highlight the challenge of gaining 'secondary material' status over 'waste' status under the current environmental permit system, emphasizing bureaucratic hurdles as a substantial external constraint. Additionally, 32.4% express concerns about the absence of governmental incentives, shedding light on the role of supportive policies and financial stimuli in promoting circular initiatives. Policies influencing recycling efforts claim 27%, indicating the interplay between governmental frameworks and corporate circularity endeavours.

Figure 8

Companies' perceptions of external barriers in shifting to circular economy (Q: What external barriers do you face when trying to innovate or shift to circular economy business models?)



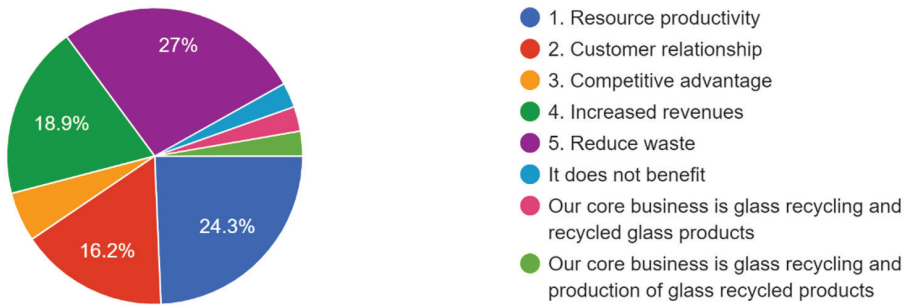
Source: Own research

These internal and external challenges clarify the complicated dynamics surrounding the implementation of circular practices in response to broader contextual factors. These results invite for institutional intervention in reshaping the circular business doing in North Macedonia. Transitioning from the challenges outlined in the previous section, companies embracing circular business models also draw strength from a range of drivers forcing their sustainable initiatives. Understanding these motivating factors becomes vital in crafting effective strategies that align with both internal organizational goals and external environmental imperatives.

The adoption of circular economy business models yields many benefits for companies as shown in Figure 9. While 24.3% emphasize enhanced resource productivity, 27% underline the crucial role of waste reduction. Moreover, 18.9% link circular practices to increased revenues, emphasizing both economic viability and environmental responsibility. On the contrary, a minority of 5.4% attribute the benefits to competitive advantage while only 2.7% see no tangible benefits, raising intriguing questions about the factors hindering their perception of advantages.

Figure 9.

Companies' benefits perceptions (Q: How does your company benefit from circular economy business models?)

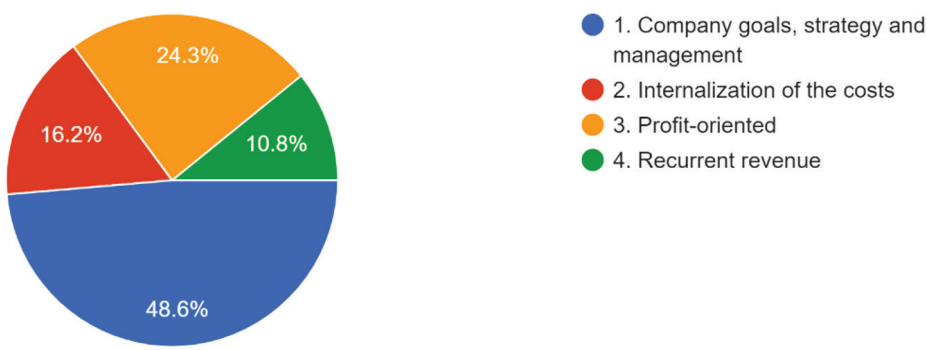


Source: Own research

When analysing the key economic and financial drivers pushing companies toward circular business models, a predominant 48.6% align their pursuits with overarching company goals, strategies, and management principles. This underscores the centrality of internal organizational dynamics in steering the circular transition. Additionally, a noteworthy 24.3% attribute their engagement in circular practices to profit-oriented motives, emphasizing the economic viability associated with sustainable approaches. As illustrated in Figure 10, only 16.2 % of the respondents attributed their answers to internalization of the costs and 10.8% to recurrent revenue.

Figure 10

Companies' perceptions on economic/financial drivers (Q: What does your company consider as a key economic / financial driver to circular business models?)

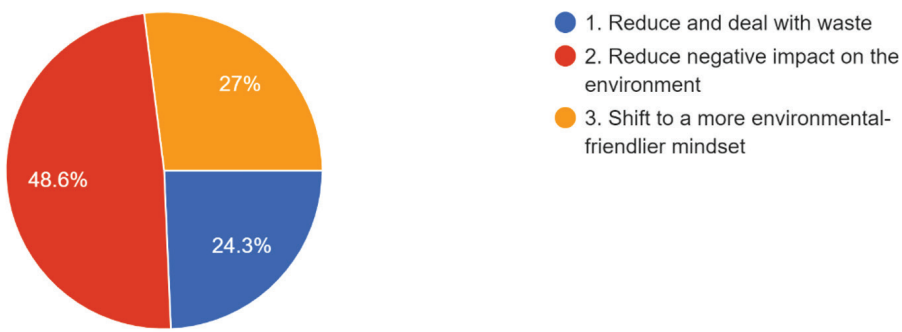


Source: Own research

In plotting the environmental issues of circular business models, an influential 48.6% highlight a commitment to reduce the negative impact on the environment as a pivotal driver (Figure 11). This confirms a collective shift toward an eco-friendlier mindset, underscored by 27% of respondents. Additionally, 24.3% emphasize the importance of addressing and minimizing waste, reaffirming the environmental imperative associated with embracing circular practices.

Figure 11

Companies' perceptions on environmental drivers (Q: What does your company consider as a key environmental driver to circular business models?)

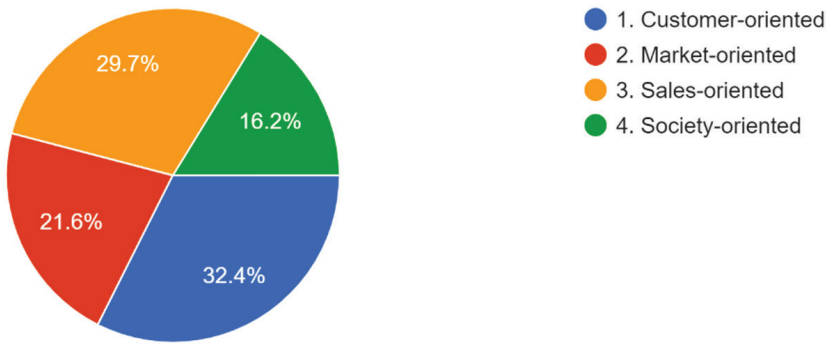


Source: Own research

Delving into the social and market dynamics, a noteworthy 32.4% align with customer-centric approaches as a key driver for circular business models, reflecting a market-responsive strategy. Fascinatingly, 29.7% lean towards a sales-oriented perspective, emphasizing the business potential within circular practices. In contrast, as shown in Figure 12, society-oriented focus stands at 16.2%, suggesting a nuanced interplay between market-driven forces and societal responsibility in steering companies toward circular endeavours.

Figure 12

Companies' perceptions on social and market drivers (Q: What does your company consider as a key social and market driver to circular business models?)



Source: Own research

The examination of circular business models has revealed a spectrum of both internal and external barriers influencing their adoption. Financial constraints, lack of expertise, and organizational limitations emerge as significant internal hurdles, while external factors such as policy frameworks and regulatory complexities present additional challenges. On the positive side, resource productivity, customer relationships, and waste reduction emerge as key drivers motivating companies to embrace circular practices. This analysis highlights the complicated path for businesses to direct the difficulties of integrating circular economic models.

Conclusion

In this comprehensive examination of small and medium sized companies of North Macedonia, an obvious and encouraging trend towards circular economy practices emerges. The diverse engagement observed, spanning from integration of circular principles in product design to active participation in material recycling and sharing platforms, shows a promising predisposition within the business community towards sustainable and circular business models. The analysis of internal and external barriers highlights the challenges companies face in adopting circular business models. The unsuitability between awareness and adoption suggests a difficult setting, highlighting the need for deeper educational efforts. On the positive side,

the identified drivers, ranging from economic benefits to environmental commitments, reveal a substantial willingness among companies to transition toward circular business models.

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BALKAN JOURNALS

Assessing the Impact of Non-Performing Loans and Capital Adequacy on Bank Profitability for the Case of North Macedonia

Edita Mustafa

Abstract

This study investigates the influence of non-performing loans on the profitability of banks operating in the Republic of North Macedonia, providing insights into the specific dynamics of the banking sector. Non-Performing Loans (NPL) represent a critical concern for banking institutions worldwide, reflecting potential credit risk and weakening of financial stability. In the context of North Macedonia, where the banking sector has a significant function in driving economic growth and development, understanding the relationship between NPLs and profitability is of great importance. Also, taking into consideration the importance of the ratio of Capital to Risk Weighted Assets (CRWA), this study also investigates the relationship between Capital to RWA and bank profitability. By employing an autoregressive distributed lag (ADL) model, the study intends to uncover the trends and the relationship between variables, by also considering how past values affect the current values of the bank profitability. The results of the analysis disclose a highly significant negative influence of the NPLs on the bank profitability indicators, such as Return on Equity (ROE) and Return on Assets (ROA). Thus, the findings reveal important insights for the policymakers and the banking industry in North Macedonia, aiding in the formulation of effective risk management strategies and regulatory policies aimed at mitigating the adverse effects of NPLs and capital needs on bank profitability. At the same time, the study is expected to contribute to the existing body of literature on the topic by offering empirical evidence specific for the Macedonian banking sector, thus filling the gap in the research landscape.

Keywords: Non-performing loans, bank profitability, capital, assets, bank risk.

Introduction

The banking sector plays an essential role in fostering economic growth and stability and it serves as a crucial intermediary between savers and borrowers. Central to the performance and resilience of banking institutions is the management of credit risk, with Non-Performing Loans (NPLs) representing the key indicator of asset quality and financial soundness. In North Macedonia, where the banking sector is integral to the country's economic development, understanding the effect of NPLs and capital to risk weighted assets on bank profitability is of great importance.

Non-performing loans represent loans where borrowers have failed to meet scheduled payments for a specified period, posing significant challenges to bank profitability and stability. High levels of NPLs can erode bank earnings through increased provisioning for loan losses and reduced interest income, ultimately impeding credit intermediation and hindering economic growth. Therefore, understanding the effect of NPLs on bank profitability is crucial for assessing the financial health and resilience of banks in North Macedonia.

Similarly, the Capital Adequacy Ratio (CAR), also known as the Capital to Risk-Weighted Assets Ratio (CRWA), is a fundamental measure of a bank's financial strength and stability. CAR compares a bank's capital to its risk-weighted assets, providing insights into its ability to absorb potential losses and maintain solvency. Thus, analyzing the impact of CAR on bank profitability is essential for understanding the relationship between capital adequacy and financial performance in North Macedonia's banking industry.

This study is aimed at analyzing the impact of non-performing loans on the profitability of banks operating in North Macedonia, offering insights into the specific dynamics and challenges faced by the Macedonian banking sector. By examining the interplay between NPLs and key profitability indicators, such as Return on Assets (ROA) and Return on Equity (ROE), this research seeks to provide empirical evidence to inform policymakers, regulatory oversight bodies, and strategic decision-making bodies within the Macedonian banking industry.

Brief Literature Review

The relationship between non-performing loans and bank profitability has been extensively studied in the global context, with a growing body of literature highlighting the significant impact of NPLs on financial performance. According to

Demirgüç-Kunt and Detragiache (1998), elevated levels of NPLs can impair bank profitability by eroding interest income, necessitating higher provisioning expenses, and constraining lending capacity. Similarly, Berger and De Young (1997) found a negative correlation between NPLs and bank profitability, emphasizing the importance of effective credit risk management in sustaining financial health. Also, Samir and Kamra (2013) found that non-performing loans adversely affect bank profitability by diminishing interest income and undermining both current profits and the capital base through necessary provisions.

In the European context, research by Altunbas et al. (2007) demonstrated a robust link between NPLs and bank profitability, particularly in the aftermath of financial crises. The study underscored the adverse effects of NPLs on both ROA and ROE, signaling the need for prompt remedial action and regulatory intervention to restore stability. Moreover, Karasulu and Altunbas (2010) highlighted the role of macroeconomic factors, regulatory frameworks, and bank-specific characteristics in shaping the relationship between NPLs and profitability, emphasizing the importance of a comprehensive approach to risk management.

Turning to studies specific to the Balkan region, research by Simeonov et al. (2019) explored the determinants of NPLs in Southeast European countries, including North Macedonia, and their implications for bank profitability. The findings suggested a significant negative impact of NPLs on bank profitability, underscoring the challenges faced by banks in managing credit risk amid economic uncertainty and structural reforms.

However, despite the wealth of research on the topic, there remains a paucity of studies focusing specifically on the Macedonian banking sector. Thus, this study seeks to address this gap by conducting a comprehensive analysis of the relationship between NPLs and bank profitability in North Macedonia, offering valuable insights for policymakers, regulators, and industry stakeholders.

Methodology

This section explains the research methodology for investigating the effects of Non-Performing Loans (NPLs) on bank profitability, specifically focusing on Return on Assets (ROA) and Return on Equity (ROE), as well as the influence of the capital to risk-weighted assets (CRWA) ratio on these profitability indicators. The analysis employs an Autoregressive Distributed Lag (ADL) model using data from the World Bank spanning the years 2000 to 2021.

Model Specification

To understand both the immediate and cumulative impacts of NPLs and CRWA on ROA and ROE, the study employs an Autoregressive Distributed Lag (ADL) model. The advantage of the ADL model is that it captures dynamic relationships and accommodating time series data, which include both autoregressive components and distributed lags of the explanatory variables. The ADL model for each dependent variable (ROA and ROE) can be expressed as:

$$Y_t = \alpha + \sum_{i=1}^{p} \beta_i Y_{t-i} + \sum_{j=1}^{q} \gamma_i X_{t-j} + \varepsilon_t$$

where:

- Y_t represents the dependent variable (either ROA or ROE) at time t.
- X_t represents the independent variables (NPLs or CRWA) at time t.
- α is the intercept term.
- β_i are the coefficients for the lagged values of the dependent variable.
- γ_i are the coefficients for the lagged values of the independent variables.
- ε_t is the error term.
- p and q are the lag lengths for the dependent and independent variables, respectively.

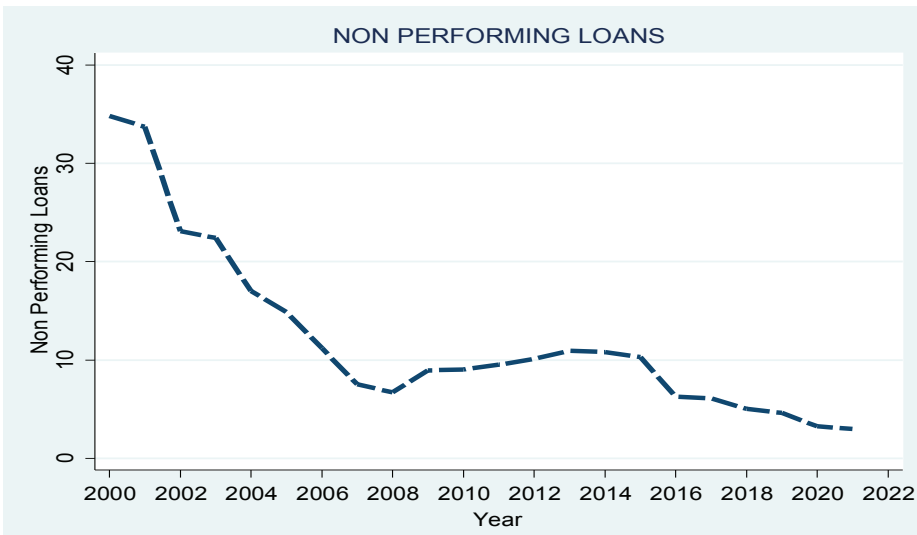
The ADL model is suitable for examining how past values of both the dependent and independent variables influence current values, thereby capturing both short-term and lagged effects. In the estimation procedure, the first to be tested is the stationarity of each time series using the Augmented Dickey-Fuller (ADF) test to ensure that the series are suitable for ADL modeling. The variables should be stationary or made stationary through differencing. Also, the appropriate lag lengths for both the dependent and independent variables are determined using criteria such as the Akaike Information Criterion (AIC) or the Bayesian Information Criterion (BIC). Finally, the ADL model is estimated using Ordinary Least Squares (OLS) regression. This involves regressing the dependent variable (ROA or ROE) on its own past values and the lagged values of the independent variables (NPLs or CRWA).

Empirical Results

The results section begins with a trend analysis of the key variables under study: Non-Performing Loans (NPLs), Return on Assets (ROA), Return on Equity (ROE), and the Capital to Risk-Weighted Assets (CRWA) ratio. This initial analysis provides a comprehensive overview of how these variables evolved from 2000 to 2021. The examination of these trends can provide a clear picture for the following econometric analysis and a better understanding of the dynamic relationships explored later. Each variable's trend is presented, highlighting significant patterns over the period, which set the stage for deeper analysis into the relationship between bank profitability, credit risk, and capital adequacy.

Figure 1

Non- performing loans



Source: World Bank

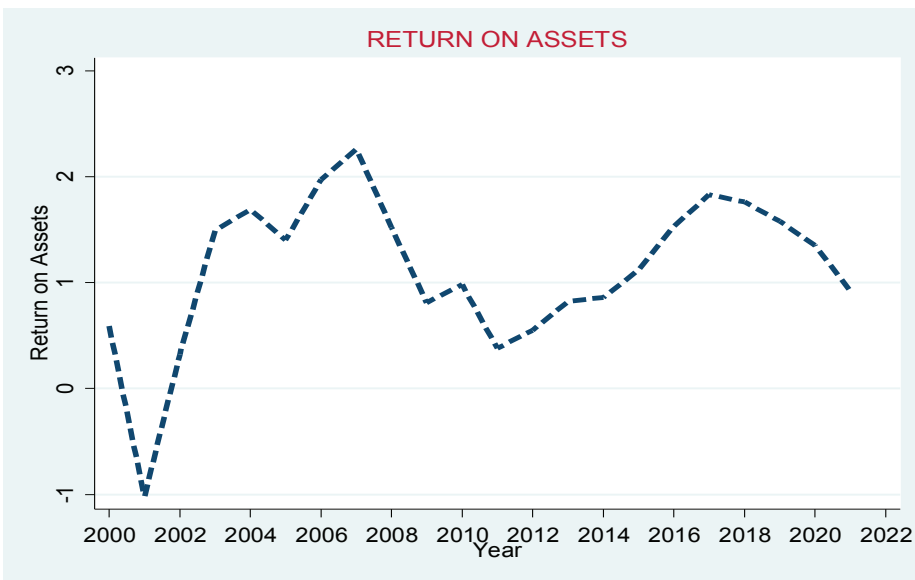
The level of non-performing loans in North Macedonia has undergone several changes over the last two decades (Figure 1). In the first part of the observation period, there was a continuous annual decrease, which was allowed by the implemented economic reforms such as privatization, financial liberalization and fiscal consolidation. As the overall financial stability was improved, this was also an effect seen in the level of the non-performing loans. An additional point was the increase in the government support programs and foreign investments and access

to finance. The decreasing trend continued until 2008 respectively, down to 7 from the level of 30, which was the highest point for the observation period. Following 2010, there was a consistent upward trend influenced by the Global Financial Crisis of 2007-2009 and the European Sovereign Debt Crisis of 2010-2012. In response to the 2008 crisis, the National Bank of the Republic of North Macedonia (NBRNM) implemented measures to curb credit activities and revised its methodology for calculating capital adequacy ratios. It also increased the required reserves for foreign currency liabilities (Boskovska & Gligorova, 2014).

To reduce the non-performing loans (NPLs), banks have shifted towards using credit derivatives instead of the traditional method of selling collaterals to settle outstanding debts (Sverko et al., 2010). This shift is viewed as a significant improvement, as there has been a steady decline in NPLs, except for the brief rise in 2017.

Figure 2

The level of bank profitability based on ROA

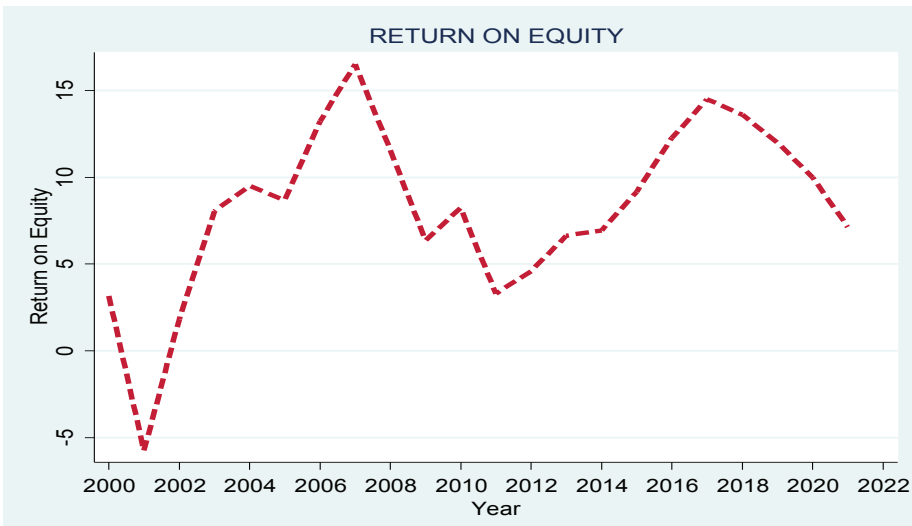


Source: World Bank

The movement of ROA in North Macedonia from 2000 to 2021 showed periods of both growth and fluctuation (Figure 2). The positive ROA values gave tracks that banks in North Macedonia were generally able to generate earnings from their assets, especially in the year of 2007, which was the highest point of the observation period, followed by a continuous increase from the year 2012 to 2017.

Figure 3

The level of ROE



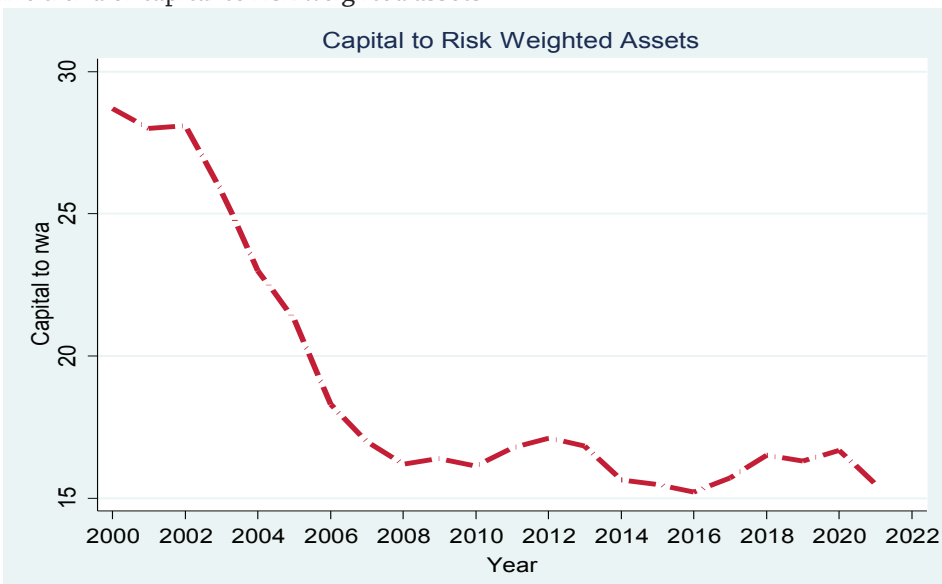
Source: World Bank

As there is a similar movement of return on equity related to ROA, that means that banks were also generally able to efficiently use their assets to generate profits, thereby making an increase in returns for their shareholders. This is seen from the period of 2002 to before the financial crisis which notes the highest point in ROE (Figure 3). Also, there is an increasing trend after 2012 until 2018 with the point of 14.

Regarding the capital to risk-weighted assets ratio, it was relatively high at 28.7% in 2000, indicating that banks in North Macedonia had a substantial capital buffer relative to their risk-weighted assets (Figure 4). From 2000 to 2006, there is a noticeable decline in CRWA, with the ratio dropping to 18.3% by 2006.

Figure 4

The trend of capital to risk weighted assets



Source: World Bank

Between 2006 and 2010, there is a slight increase in CRWA, but it remains relatively low compared to the levels seen in the early 2000s. This period is assumed to be a reflection of improvement of the capital adequacy in response to the global financial crisis. From 2010 to 2018, there was some fluctuation in CRWA, suggesting that banks in North Macedonia were able to maintain a moderate level of capital adequacy during this period. In 2020, it stands at 16.69%, indicating a slight increase compared to the previous years.

Regression Results

Based on the Dickey Fuller test, the time series were found to be stationary in their level, so it is not necessary to difference them. Concerning the optimal time lag for each variable, the BIC criterion was used and it was found that one time lag is optimal. (Table 1) presents the regression results based on the autoregressive distributed lag (ADL) model.

Table 1

Regression analysis results

Dependent variable	ROA		ROE		ROA	
Independent Variables	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
ROA_{t-1}	0.474538**	2.52	-	-	0.3514926	1.57
NPL_t	-0.1595957***	-3.22	-1.029631***	-3.34	-	-
NPL_{t-1}	0.114867**	2.69	- 0.6943684**	2.58	-	-
ROE_{t-1}	-	-	0.4580554**	2.35	-	-
$CRWA_t$	-	-	-	-	-0.31796*	-2.04
$CRWA_{t-1}$	-	-	-	-	0.2543901	1.93
Constant	0.9363646	1.43	7.379608	1.52	1.765835	1.92
R-Squared	0.6147	-	0.6832	-	0.4881	
F-Statistics	9.04	-	12.22	-	5.40	

*** p<0.01; ** p<0.05; *p<0.1

Source: Own research

The regression analysis provides insightful results regarding the relationship between non-performing loans (NPL) and bank profitability in North Macedonia. In the first analysis, the relationship between NPLs and bank profitability was investigated. The regression model demonstrated statistical significance with an F-statistics of 9.04, indicating that the model reliably captures the impact of NPLs on profitability. The coefficient of ROA with one time lag is positive and statistically significant meaning that past values of ROA positively affect the current values of it. The coefficient for NPL was found to be negative (-0.1595), suggesting that, for each unit increase in NPLs, the bank's profitability decreases by approximately 0.16 units, ceteris paribus. This negative relationship is statistically significant, as indicated by the p-value of 0.005, well below the significance level of 0.01. This implies that higher levels of non-performing loans are associated with lower profitability of banks in North Macedonia. Non-performing loans represent a portion of loans that are not generating income and may require write-offs, directly reducing profitability. Therefore, effective management of NPLs is crucial for maintaining or

enhancing bank profitability.

The second analysis was focused on the relationship between NPLs and ROE. This model also showed a statistically significant regression model, with an even greater F-statistics of 12.22. The coefficient for the lagged ROE_{t-1} is 0.4581, indicating that a 1-unit increase in the ROE from the previous period is associated with an increase of 0.4581 units in the current period's ROE, holding other factors constant. This positive relationship suggests that ROE tends to persist over time, with higher ROE in the past period contributing to higher ROE in the current period. The coefficient for NPL was also found to be negative -1.0296, indicating a more substantial impact on ROE. For each unit increase in NPLs, ROE decreases by approximately 1.03 units, ceteris paribus. Given the p-value, this relationship is highly statistically significant, emphasizing that higher NPL levels significantly undermine the bank's efficiency in generating returns on the shareholders' equity. ROE is a critical factor for investors, reflecting how well a bank uses its equity to generate profits. The pronounced negative effect of NPLs on ROE underscores the importance of managing NPLs to protect and improve shareholder value.

The third analysis examined the relationship between CRWA and bank profitability. The coefficient for the current period CRWA ratio is -0.3180, indicating that one unit increase in the CRWA ratio is associated with a decrease of 0.3180 units in the current period's ROA, holding other factors constant. This negative relationship suggests that higher capital adequacy may be linked to lower profitability in the short term, potentially due to the conservative use of the capital or higher costs of maintaining excess capital. The t-value of -2.04 and the p-value of 0.058 suggest that this effect is significant at the 10% level. The coefficient for the lagged $CRWA_{t-1}$ ratio is 0.2544, suggesting that one unit increase in the CRWA ratio from the previous period is associated with an increase of 0.2544 units in the current period's ROA, holding other factors constant. This positive relationship implies that higher capital adequacy in the past could contribute to better profitability in the subsequent period, possibly through enhanced financial stability and risk management.

Overall, these analyses settle several insights about the banking sector in North Macedonia. Firstly, there is a significant negative relationship between NPLs and bank profitability, suggesting that higher NPL levels reduce profitability. Secondly, NPLs also have a significant negative impact on ROE, indicating that rising NPLs erode the bank's ability to generate returns on equity. Lastly, while a higher CRWA is crucial for financial stability and meeting regulatory requirements, it tends to have a negative effect on profitability, indicating a need for the banks to balance

the capital adequacy with profitability goals. For banks in North Macedonia, these findings highlight the critical importance of managing NPLs and maintaining an optimal balance in capital allocation to sustain both stability and profitability.

Conclusion

Based on the results of the analyses conducted, several key findings emerge regarding the relationship between the Non-Performing Loans (NPLs), Return on Equity (ROE), Return on Assets (ROA), and Capital to Risk-Weighted Assets ratio (CRWA) in the context of North Macedonia. Firstly, the analysis reveals a statistically significant negative relationship between NPLs and both bank profitability indicators, ROE and ROA. This implies that, as the level of NPLs increases, both ROE and ROA tend to decrease, indicating a detrimental effect on the bank profitability. These findings are consistent with previous literature highlighting the adverse impact of NPLs on financial performance.

Secondly, the analysis of the relationship between CRWA and bank profitability indicates a statistically significant negative association between the two variables. As the CRWA increases, suggesting higher capital adequacy, ROA tends to decrease. This suggests that higher capitalization may not necessarily translate into improved profitability, which warrants further investigation into the underlying mechanisms driving this relationship.

Thus, the obtained results offer to policymakers, regulators, and bank industry stakeholders important insights as they can consider these findings when formulating policies and interventions aimed at addressing NPLs and improving bank profitability in North Macedonia. By implementing targeted measures to mitigate credit risk and optimize capital allocation, stakeholders can promote a more resilient and sustainable banking system, ultimately contributing to broader economic stability and growth.

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Investment Climate and Role of Technological Industrial Development Zones in Direct Foreign Investment Inflow in North Macedonia

Tirana Ameti

Abstract

This article investigates the establishment of Technological Industrial Development Zones (TIDZ) in North Macedonia. These zones are aimed at attracting Foreign Direct Investment (FDI) and represent an innovative strategy to promote business relations that were previously unavailable in North Macedonia. If their output is sold to international markets, companies operating within the TIDZ benefit from incentives and subsidies. In addition to the legally announced incentives available to investors within the TIDZ, the government offers extra incentives on a case-by-case basis, in agreements with significant overseas partners. Since the introduction of this approach, the government has made a public display of its benefits. The consequences of the implemented strategy for FDI attraction deserves an effort for its analysis by all available means. Using the available data and sources from relevant documents, the focus in the paper will be put on the impact of the creation of such zones on the FDI inflow. North Macedonia is an attractive investment destination for international investors because of the fiscal, economic, and financial benefits provided by the actual law, as well as the excellent business climate, as measured by the 'Doing Business' indicator.

Keywords: business climate, investing, FDI, North Macedonia, economic development.

Introduction

The North Macedonia's FDI growth rate remains low although the government provides a variety of fiscal and economic incentives and facilities to foreign investors. The fiscal and economic incentives for FDI attraction in North Macedonia consist of profit tax exemption, personal income tax exemption, VAT exemptions, local tax exemptions, land renting for more than a decade, subsidies and financial benefits for foreign investment based on the level of investment and the number of employees, which have not been calculated accurately due to lack of public data from government institutions and foreign investors. Despite the fact that these are attractive government policies in favor of FDI, the FDI levels in North Macedonia are not satisfactory and necessitate the use of independent professional expertise from relevant international institutions in the function of increasing transparency, removing investment barriers, and creating equal investment conditions for domestic and foreign investors. According to the data presented in the paper, the most recent strategy for attracting FDI, which included the creation of Technological Industrial Development Zones (TIDZ) as exemptions from the regular customs and fiscal areas of the economy, had some impact, but the inflow of FDI into the country is still low. However, it did result in some good changes, such as an increase in FDI inflows in the form of green-field investment in the TIDZ and acquisitions and mergers, which were the major type of FDI a decade before. The possibility of increasing the number of new employment opportunities also produced favorable changes in the structure of the workforce employed by TIDZ. The most serious disadvantage of TIDZ is that they openly discriminate against indigenous businesses in favor of international ones. It is obvious that, once favorable conditions for foreign investors are terminated, capital will flee out of the country, leaving all the old problems unresolved, such as high unemployment, a backward economic structure, outdated technology, low legal productivity, difficult access to foreign developed markets, and so on. Changes in comforts may not be motivated by economic or political concerns in the North Macedonian economy, but they will emerge in due course if full membership in the European Union becomes a reality.

With the spread of globalization processes in all fields of economic activity, the development of international trade and the international division of the labor process is becoming increasingly important. The apparent growth of international trade is marked by the following milestones: at the turn of the nineteenth century, global exports accounted for 1-2 percent of the global GDP; by the 1950s, they rose to around 7% of the global production; and by the turn of the twenty-first century,

they rose to 17 percent -20 percent of the global production, according to some estimates (Held, 2004). At the moment, the use of preferential international trade modes, such as those provided by the free economic zone concept, is particularly important when considering the expansion of foreign economic activity.

Among many challenges North Macedonia has faced, finding new ways for funding economic growth and development has been one of the most important. Faced with a severe lack of domestic accumulation and no access to international capital borrowing, North Macedonia, like all small economies in the Balkans and Europe, began to compete for the interest of foreign investors. North Macedonia appeared to be the least appealing economy in the region for foreign direct investment because it was a landlocked economy with a very limited domestic market, poor economic performance, and was plagued by numerous economic and political challenges throughout the transition period. At the turn of the century, the privatization process was nearly complete, which was thought to be the foundation for the entry of foreign capital in the form of FDI. Almost immediately, it became clear that foreign investors were not interested in green-field investment. They were looking for the opportunity to take control of companies that had a natural or state monopoly on the domestic market. Such firms were surpassed by minor amounts of foreign investment. Foreign investors were not interested in investing in the renewal of applied technology or in increasing productivity; they were only interested in the possibility of profiting from the economy's newly acquired dominant position.

According to the International Convention (Bruxelles, 1999) for Simplification and Harmonization of Customs Procedures, a free economic zone is a part of a state territory where goods are placed and considered as being outside the customs territory and not subject to normal customs control when levying import customs duties and taxes. Foreign practice in the development of such economic zones indicates that a unified approach to their designation has not been established yet.

One of the government's primary foundations for economic growth and job creation is attracting FDI. North Macedonia has a relatively lax regulatory environment, and its institutions treat foreign investors and indigenous commercial interests equally under identical conditions. In 2019, several countries and foreign companies announced new investments and operations in the Technological Industrial Development Zones in North Macedonia. Foreign car parts companies were drawn to North Macedonia because of its low labor costs, proximity to European automakers, and friendly government aid. The government's stance toward FDI, as well as its legislative and institutional structure, continue to be attractive also to

US investment, and as a result, a number of US enterprises operate successfully in North Macedonia.

Legal Aspects Related to TIDZ

The legal framework for foreign investors is provided by the Constitution, the Law on Trading Companies, the Law on Foreign Exchange Operations, the Law on Expropriation, the Law on Technological Industrial Development Zones, the Law Establishing the Agency for Foreign Investments and Export Promotion (known as Investment Macedonia), and a number of sectoral laws and international treaties. Except as otherwise provided by law, the Constitution provides equal rights to both domestic and foreign individuals and legal entities conducting economic operations in the country. Foreign investors can get property rights for buildings and other immovable assets used in their business through a locally established company, as well as complete ownership of construction land.

The Law on Trading Companies permits foreign companies (whether subsidiaries, branches, or representative offices) to receive post-establishment national treatment, unless otherwise stated in an international agreement and/or a statute governing foreign corporations with a defined sphere of activity. The five categories of trading firms recognized by law are limited liability corporations, joint stock companies, public trade (general partnerships), limited partnerships, and limited partnerships by shares. Under the Foreign Exchange Operations Law, foreign investors, who have registered their direct interests are free to transfer profits, proceeds from the sale or disposal of ownership shares in direct investments, and the remaining balance of a liquidated investment abroad. We have complied with all of the North Macedonia's legal obligations concerning taxes and social insurance contributions, as per this law. Within 60 days of the capital transaction, foreign companies and non-resident individuals are required to report their direct investments and any alterations made to them to the Register of Direct Investments. Similarly, within 60 days of the real estate acquisition, they must report their real estate purchases to the Register of Investments in Immovable Property. Apart from these two conditions, in most economic areas, the procedures for both domestic and foreign investors are the same.

While non-residents' foreign exchange operations are liberalized, inhabitants of North Macedonia are not allowed to open foreign deposit accounts (with some exclusions), buy real estate, or buy stocks that are not traded on foreign stock exchanges with whom the country has agreements.

The passage of the Law on Financial Support for Investments (LFSI) in May 2018 represents a new development. Its goal is to promote productive investment in order to boost economic growth, employment, and competitiveness. It specifies the quantities, eligibility rules, and requirements for various sorts of financial support measures for both domestic and foreign investments.

Several ministries and agencies make the North Macedonia's institutional framework for investment. The investment policy is developed by the Ministry of Economy and the Deputy Prime Minister in charge of economic matters. Invest Macedonia is the government organization in charge of creating and implementing plans for attracting foreign direct investment and boosting exports. Its purpose is to stimulate and assist new FDI in the country, build and strengthen business ties with local suppliers, and help local businesses realize their export potential. It serves as a one-stop shop for potential investors. The Directorate for Technological Industrial Development Zones promotes investment, particularly in the automobile components industry, which is the primary activity of TIDZ. In addition, three ministers without portfolios are involved in FDI issues, one of them being in charge of the Improvement Regulations.

Considering that North Macedonia has been a member of the World Trade Organization since 2003, it has implemented and honored the conditions of the agreement for investments in its legal system. The Law on Technological Industrial Development Zones (TIDZ) gives enterprises, who invest in designated TIDZ, a preferential tax treatment, customs exemptions, and other benefits. Investment Macedonia's operations to attract foreign investment and promote exports are governed by the Law Establishing the Agency for Foreign Investments and Export Promotion.

The Investment Climate in North Macedonia

To achieve greater economic growth and development as well as increased competitiveness, the government's strategic goals of attracting foreign direct investment (FDI) remain vital. The current government program places a lot of emphasis on creating backward connections between local businesses and foreign corporations doing business in the nation. The Government of North Macedonia has worked hard over the years to enhance the investment climate and make it more stable and predictable. These activities have received recognition. For instance, North Macedonia was placed the 10th out of 190 economies in the World Bank's 2017 and

2018 Ease of Doing Business index, respectively. In addition, the nation has implemented the second-highest number of modifications to corporation regulations since the early 2000s among the top 20 rankings.

North Macedonia was placed the 17th in the world for doing business in the 2020 World Bank Doing Business Report, down seven spots from the previous year. North Macedonia's previous credit rating was improved from BB to BB+ with a stable outlook by Fitch Ratings. Standard & Poor's affirmed its credit rating at BB- with a stable outlook. North Macedonia was placed the 106th out of 180 nations in Transparency International's Corruption Perception Index in 2019, down 13 spots from the previous year according to World Bank data and International Corruption Perception Index. According to the ease of doing business ranking taken from the Doing Business database from 2019 to 2020 displayed is the DB score for the top 20 rankings of 20 economies and North Macedonia stands in the 17th place with a score of DB 80.2.

Business Climate and Legal Aspects Related to FDI in North Macedonia

The legal environment for foreign investors in North Macedonia is mostly in conformity with international standards, and overseas investors are generally treated the same as domestic investors in identical circumstances. For significant international investors working in the TIDZ, North Macedonia maintains a simplified regulatory structure. Large international enterprises operating in the zones have generally positive investment experiences and maintain positive relationships with government officials. However, the overall regulatory framework of the country remains complex, and frequent regulatory and legislative changes, combined with varied interpretations of the rules, create an unstable business environment prone to corruption. Although the government typically upholds the law, there have been several reports that some officials continue to engage in corrupt practices.

Social and economic crises had a significant influence on North Macedonia's economy and ability to absorb international investments. Businesses were laying off staff, manufacturing was diverted to needs, and the government began to impose reforms on businesses in North Macedonia.

From May 2, 2018 to May 1, 2019, 115 economies implemented 294 business regulatory reforms across the 10 areas measured by World Bank Doing Business 2020. Reforms inspired by Doing Business have been implemented by the economies in all regions. The following are the reforms implemented in North Macedonia:

Table 1

Business Reforms in North Macedonia

Business Reforms by type and year	Explanation
DB2020 Enforcing Contracts:	North Macedonia made enforcing contracts easier by simplifying the calculation of enforcement fees as well as making the overall process less costly. Employing Workers: North Macedonia changed its labor regulations on probationary period, priority rules during redundancy dismissals, reemployment, and severance payments.
DB2019 Dealing with Construction Permits:	N. Macedonia made the construction permitting process less costly by reducing the land development fees.
DB2017 Getting Credit:	N. Macedonia strengthened access to credit by amending its laws to implement a functional secured transactions system, and allow parties to grant non possessory security rights in a single category of assets with general descriptions.
Protecting Minority Investors:	N. Macedonia, strengthened minority investor protections by increasing shareholder rights and role in major corporate decisions, introducing greater requirements for immediate disclosure of related-party transactions to the public, allowing greater access to corporate information during trial and clarifying ownership and control structures.
Enforcing Contracts:	N. Macedonia made enforcing contracts more difficult by adopting amendments to the Law on Civil Procedure that mandate mediation before filing a claim, thus lengthening the initial phase of judicial proceedings. Resolving Insolvency: FYR Macedonia made resolving insolvency easier by changing voting procedures for the reorganization plans and allowing creditors greater participation in insolvency proceedings.

DB2016 Starting a Business:	N. Macedonia made starting a business simpler by introducing compulsory online registration carried out by certified agents. Protecting Minority Investors: FYR Macedonia strengthened minority investor protections by providing for both fines and imprisonment of interested directors in prejudicial related-party transactions. Employing Workers: 1) N. Macedonia introduced amendments to its Labor Relations Act relating to social contributions, employment contracts, independent contractors, annual leave, overtime work, health inspections and labor disputes. 2) N. increased the minimum wage.

Source: Doing Business Database and Foreign Investors Council

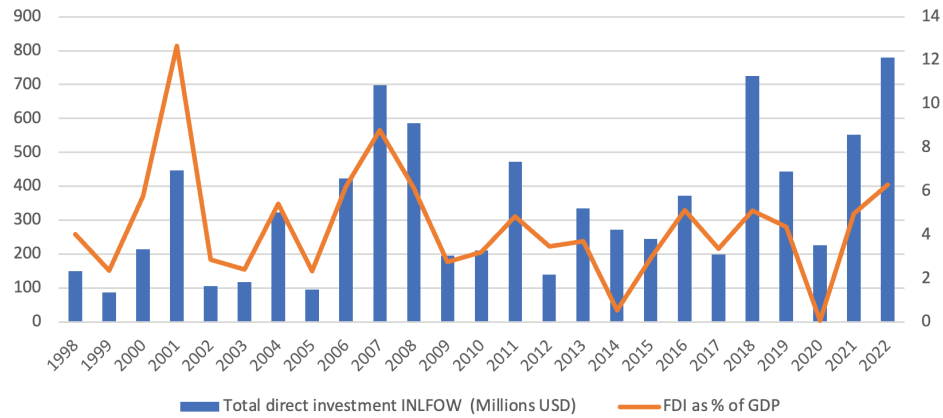
Direct Foreign Investment Inflow in North Macedonia (1998-2022)

The largest FDI influx in North Macedonian history occurred in 2001 (see Chart 1), when the government sold Macedonian Telecom to the Hungarian MATAV, resulting in FDI accounting for 12.66% of the country's nominal GDP. The second largest FDI inflow occurred in 2007, when the Austrian EVN invested in the privatization of a portion of the state monopoly for electricity production and distribution – Elektrostopanstvo from Skopje – generating about 8.81% (see Chart 1) of the nominal GDP.

Nonetheless, throughout the first decade of the new century, as we can realize from the data in the table, North Macedonia's FDI inflow as a percentage of GDP was consistently low. Except for two peaks in 2001 and 2007, FDI inflows in North Macedonia generated roughly 2.3 - 6.30 percent of the GDP per year (see Chart 1). According to Irena K. (2013), for example, over the same time period, the economy of the majority of the South-Eastern countries attracted a significant amount of foreign investment with around 25% of their GDP per year. The lowest FDI inflow, from 2010 until 2022, was in the year of 2020, with only 0.06% (see Figure 1).

Figure 1

FDI inflow per year (millions USD) and FDI as a percentage of GDP in North Macedonia



Source: World Bank Indicators and National Bank of the Republic of North Macedonia

Progress and Patterns of Investments (FDI) in North Macedonia

During the study period, the share of the Macedonian GDP attributed to merchandise imports and exports increased. Specifically, imports increased from 56.9 percent to 61.6 percent, while exports increased from 30.4 percent in 2012 to 45.5 percent in 2018 according to the World Bank data. While services imports rose, albeit more slowly, from 10.0 to 11.3 percent, services exports jumped from 14.0 to 14.6 percent. From 131.0 million EUR (1.5 percent of GDP) in 2012 to EUR 621.9 million in 2018, net inflows of foreign direct investment grew to 5.8% of the GDP. Following the conclusion of the country name issue and the ensuing improvement in the business climate, both the National Bank and the IMF anticipate a significant rise in foreign direct investment (FDI). The recently passed Financial Support for Investments Law is expected to facilitate this comeback.

During the period 2012-2022, FDI inflows rose in North Macedonia (Table 2). From the origin perspective, the European Union was by far the greatest investor with 658.6 EUR million in 2022, Turkey with 122.44 EUR million, Switzerland with 24.85 EUR million and China, which was almost absent in 2012, was in the fourth place with 18.77 EUR million (Table 2).

Table 2

FDI in North Macedonia by origin – 2012-2022

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Value in EUR million											
Europe	128.18	253.70	187.79	50.90	301.81	142.79	525.32	215.83	200.08	434.42	658.60
Türkiye	23.53	22.81	17.05	27.05	32.95	6.62	33.86	55.46	32.32	54.22	122.44
Switzerland	-15.05	-8.50	131.68	3.46	18.19	25.06	-12.30	-13.50	4.50	-2.90	24.85
China	-0.03	-0.08	-3.87	6.12	26.35	25.80	23.00	25.32	-27.22	-5.42	18.77

Source: National Bank of the Republic of North Macedonia

The leading economic sector in terms of FDI are the services, albeit its proportion dropped to 306.55 EUR million in 2022. Manufacturing is the second-largest source of FDI, with growing figures reaching 232.46 EUR million in 2022 and construction with 73.03 EUR million in 2022 (Table 3).

Table 3

FDI in North Macedonia by sector – 2012-2022

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Value in EUR million											
Services	38.53	96.57	74.77	311.22	16.49	112.82	151.14	159.89	104.58	263.63	306.55
Manufacturing	49.35	85.17	57.87	58.94	196.94	65.15	342.29	124.70	4.42	52.81	232.46
Construction	16.59	42.55	6.34	36.98	83.54	27.98	8.05	36.57	-7.51	22.19	73.03

Source: National Bank of the Republic of North Macedonia

Following the release of the IBM Institute's report "Global Location Trends" for 2018, North Macedonia was among the top ten countries worldwide with the highest number of foreign direct investment jobs. The research was focused on the impact of foreign investors, and North Macedonia was ranked the first in terms of the

number of new jobs created per million people. North Macedonia was ranked the tenth in 2017, with little more than 1.400 new jobs per million people, or a total of 2.800 new jobs in 2017 if the country's population of two million people is taken into account.

Despite this, North Macedonia according to Foreign Investors Council, was the only country in the top ten in 2017 that saw its total average fall from 2012 to 2016. During this time, foreign investors employed 2.650 persons per million, on the average.

TIDZ and Their Influence on Business Climate in North Macedonia

TIDZ (Technological–Industrial Development Zones) are hubs for highly productive clean manufacturing activities and development of innovative technologies. In addition to the advantages generally connected with free economic zones, North Macedonia provides additional incentives for development of TIDZ. Personal and corporate income tax exemptions are available to TIDZ investors for the first ten years. For commodities, raw materials, equipment, and machineries, investors are exempted from paying VAT and customs taxes. Furthermore, depending on the amount of investment and the number of employees, up to €500.000 in building costs can be provided as an incentive. Long-term leases for up to 99 years have been offered for land to a TIDZ in North Macedonia. Other advantages include completed infrastructure that allows for free natural gas connection. Water, power, and major international transportation network are all available. Investors are also excused from paying a charge for the construction site preparation. TIDZ offers quick procedures for registering business activities, lowering startup expenses even more. Production activities, IT-related activities (software development, hardware assembly, digital recording, computer chips, and so on), scientific research, and new technologies with high environmental standards are all given special attention by the government, with additional benefits planned in the TIDZ. TIDZ investors operating in certain areas are excluded from the requirement to submit a guarantee as collateral for any customs arrears.

Incentives and Taxes from the Government of North Macedonia to Foreign Investors in TIDZ

With one of the lowest corporate income tax rates in the world, the Republic of North Macedonia enjoys an extremely favorable tax environment. North Macedo-

nia also has many Investment Zones that offer 10-year tax vacations on corporate earnings, employee income, VAT, customs duties, and other items.

- Personal income tax is 10%.
- Corporate income tax is 10%.
- General VAT rates are 18%.
- Incentives such as taxes, customs, and other incentives
- Tax holiday for ten years – For a period of up to ten years, investors in the free zones are entitled to a 10-year tax vacation for profit and corporation tax, as well as a 100 percent reduction in personal income tax. In the free zones, investors are excluded from paying value added tax on items imported and traded. In addition, investors are excluded from paying customs duties on machinery, equipment, and spare parts.
- Land in the Republic of North Macedonia's free zones is available for long-term lease at concessionary pricing for up to 99 years.
- Investors are excluded from paying utility taxes and costs for land building licenses to the local municipality.
- Unrestricted use of the water, sewer, and natural gas systems.

The main instrument utilized by the government to encourage and facilitate exports are the Technological Industrial Development Zones (TIDZ). These mostly draw multinational companies that process parts for global value chains (such as those in the automotive and industrial industries), import most of their inputs and almost entirely re-export their output. In contrast, other export promotion tools are smaller in scope, especially those targeted at small and local businesses. However, as part of the 2019–27 industrial strategy and the Law on Financial Support of Investments from May 2018, the Government planned to strengthen and restructure the institutional framework for export promotion and develop new subsidy programs in order to better include local businesses and SMEs. These plans are described below.

Foreign investors benefit from TIDZ in the following ways:

- A ten-year tax holiday for corporations;
- A VAT and customs duty exemption for imported raw materials, equipment, and building materials;

- No personal income tax for ten years;
- No property tax;
- A 0% excise tax;
- A free utility connection;
- A construction cost subsidy of up to EUR 500,000;
- A border-to-border green-light customs conduit for quick exports to EU members;
- Up to 99-year land leases; and
- Funding for employment creation and training.

Table 4

Taxation in North Macedonia – 2019

Corporate taxation		
Profit tax	10%	A profit tax of 10% is applied on realized profits. Corporate income tax is also levied on non-deductibleexpenses
Withholding tax	10%	Domestic withholding tax of 10% on certain payments toforeign residents. Double taxation treaty relief is possible
Special features		Transfer pricing rules impose severe penalties on both corporations and responsible persons for the underestimation or false reporting of the taxable base
Value added tax		
General rate	18%	On most goods and services
Reduced rate	5%	Only on a few goods, such as food, drinking water, publications, seeds, agricultural machinery, fertilizers, wood pellets, computers and software, baby products, school supplies, pharmaceuticals and medical equipment, the transport of passengers, accommodationservices, half-board and full-board services provided by hotelkeepers, etc.

Refund period	30 days	
Individual taxation		
Personal income tax	10% 18%	On income up to MKD 90,000 a month On the portion of the income tax base that exceeds MKD90,000 a month
Mandatory social securitycontributions	27.5%	18.4% - pension and disability fund;7.4% - health insurance; 1.2% - unemployment contribution; and0.5% - additional health insurance
Other taxes		
Property tax	0.10%-0.20%	The tax base is the property's market value
Transfer tax	2%-4%	The tax base is the property's market value

Source: WTO Secretariat, based on information in KPMG, Investment in Macedonia 2018.

These advantages must be approved by the Commission for the Protection of Competition. Every contract that a company enters into requires its approval since it attests to the fulfillment of the state aid requirements, which are based on the EU acquis. These areas are designed with export in mind. Forty-four (44) businesses that operate there are free to sell their goods locally, but normal customs, taxes, and fees will still be imposed. Four TIDZ are operationally complete. Three of them—Skopje 1, Skopje 2, and Shtip—are run by the Directorate for Free Trade Zones, while the Tetovo Zone is maintained by a public-private partnership with a Norwegian company. At different stages, further eleven zones are being constructed. The extent, variety, and total investment in the zones that are currently functioning are described in Table 5.

Table 5

TIDZ which is active in North Macedonia

Zone name	Area (ha)	No. of investors	Cumulative investment (in EUR million)	Main operating industry
Skopje 1	140	12	208	Automotive
Skopje 2	97	1	25	Automotive
Stip	206	3	12	..
Tetovo	95	1	..	..
Prilep	67	2	20	Automotive/plastics
Struga	30	2	15	..
Strumica	25	1	..	..
Kichevo	30	1	15	Electronic/cables
Gevgelija	50	..	15	Automotive

Source: Data by the OECD

Thirty-two (32) foreign companies are currently operating in the TIDZ, employing 12,500 people and making up 36% of the workforce of the entire export value, especially for machinery, chemicals, and transportation equipment. According to an OECD study, TIDZs made up about 45% of all manufacturing FDI in North Macedonia during the preceding five years. Increased spillovers from these zones to domestic firms, especially SMEs, which have remained mostly inconsequential up to this point, are the goal of the new industrial plan, which was adopted in 2018. During the period under review, InvestMacedonia consolidated the network of thirty "economic promoters" dispersed throughout the embassies, with an emphasis on business-to-business (B2B) meetings, especially in the textile, ICT, and machinery sectors, as well as support participation in industrial fairs. Increasing manufacturing exports is one of the new industrial strategy's five objectives. To achieve this, the action plan suggests fortifying the institutional structure for export promotion. In order to create an export plan that identifies the subsectors, goods, and nations to target, the Ministry of Economy will collaborate closely with InvestMacedonia on promotion and with the Ministry of Foreign Affairs on commercial diplomacy. As an exclusive point of contact for exports, InvestMacedonia will be acknowledged, and its Export Promotion Department will undergo a review and reform to allocate greater resources and capabilities to export promotion initiatives. A projected EUR 100,000 were allocated to these actions in 2019–20.

According to Intel iNews (2021), companies operating in North Macedonia's free economic zones accounted for 48% of the nation's total exports. This indicates that prior attempts to establish and operate in the region had an impact on the country's economy. This was revealed by analysis of the TIDZ evolution process. As of December 2020, the share was 3 percentage points (pp) more than it was, and more growth was anticipated. According to a TIDZ release, total exports from the zones increased by about 17% year over year in February 2019, which is 1.6 percentage points more than the yearly increase in exports the previous month. In February 2019, businesses in TIDZ made up over 40% of all imports into North Macedonia, totaling €249.3 million in imports—a 2% year-over-year increase. The companies employ more than 14,000 people in the free zones, and some of them are actively employing new staff. The companies are required, according to their current agreements with investors, to generate 7,500 new jobs. "The TIDZ state in the statement that the Directorate is putting into practice a new model of promoting foreign investments, which focuses on the needs of investors and adjusts state support and measures accordingly." The Directorate have also stated that they are intensively working on a new set of measures for development of human capital, which will contribute to greater productivity and higher wages. In the last three months alone, the Directorate has received letters of intent from several existing and new investors for new projects that could bring new investments of €80mn-100mn, if realized. TIDZ currently supervise 14 free zones in various stages of development. The biggest one, Bunardzik, is located near the capital Skopje.

Conclusion

It can be stated that the global experience with the international economic relations development cannot be envisioned without the functioning of TIDZ, and research indicates that the same is true for North Macedonia. These economic zones are a unique way of development and operation of economic relations that were previously absent in North Macedonia, and there is no doubt that their importance is critical. In countries with varying levels of economic development, different types of special economic zones are used. North Macedonia is an attractive investment location for foreign investors due to the fiscal, economic, and financial incentives that the actual law provides, as well as the excellent business climate as measured by the 'Doing Business' indicator. The fiscal and economic incentives for FDI in North Macedonia consisted of profit tax exemption, personal income tax exemption, VAT exemptions, local tax exemptions, land rental for more than

a decade, subsidies and financial benefits of foreign investment based on the level of investment and the number of employees, which were not calculated accurately due to the lack of public data from government institutions and foreign investors. Additionally, due to lack of publicly available local and regional data, it was also impossible to compare the financial, fiscal, and economic data of North Macedonia's zones with those of the region. Even though the government provides a variety of fiscal and economic incentives and facilities to foreign investors, North Macedonia continues to have a low FDI level. This fact requires the use of independent professional expertise from relevant international institutions in the function of increasing transparency, removing investment barriers, and creating equal investment conditions for domestic and foreign investors. According to the data presented in the paper, the most recent strategy for attracting FDI, which included the establishment of Technological Industrial Development Zones had some effect and resulted in some positive improvements. This can be seen in the increase of FDI inflows through green-field investment in the TIDZ and acquisitions and mergers, which were the primary types of FDI a decade before. Additionally, they increase the number of new jobs created and make positive adjustments to the structure of TIDZ workforce.

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