JSD Volume 12, Issue 28 June 2022, Skopje

INTEGRATED BUSINESS FACULTY - SKOPJE

JOURNAL OF SUSTAINABLE DEVELOPMENT

UDC 330

ISSN 1857 – 8519

Journal of Sustainable Development

Journal of Sustainable Development

Volume 12, Issue 28, Pages: 84

June 2022, Skopje

Published by: Integrated Business Faculty, Skopje, Republic of North Macedonia
Boul. 3ta Makedonska Brigada, 66a, Skopje

Available at the website: www.fbe.edu.mk

Abstracted/Indexed in: EBSCO Academic Database Service, CEEOL (Central and Eastern European Online Library), SJIF (Scientific Journal Impact Factor), ISI (International Scientific Indexing)

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UDK 502.131.1(497.7)
332.146.2(497.7)
https://doi.org/10.54442/JSD221228003d

ASSESEMENT OF SDGs PUBLIC AWARENESS IN THE REPUBLIC OF NORTH MACEDONIA WITH WARD METHOD

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ABSTRACT

The Sustainable Development Goals (SDGs) are various 17 integrated global Goals for the environment, society and economy, which were adopted by the United Nations Member States in 2015. Higher public awareness is crucial for successful implementation of integrated SDGs both on national and global levels.

The main subject of this paper is public awareness regarding the SDGs 17 in Republic of North Macedonia, while the aim is to identify citizen's awareness and to differentiate homogeneous groups.

On the relevant data basis (the survey method has been used in the sample of 1.200 respondents), the cluster analysis is performed using the Ward clustering method, dividing the sample into three different clusters (homogeneous groups). According to the characteristics of each cluster, policy and decision-makers could develop strategies and measures to increase the SDGs awareness of the population in the Republic of North Macedonia.

KEYWORDS: Sustainable development goals (SDGs), awareness, Republic of North Macedonia, cluster analysis, Ward's clustering method

JEL CLASSIFICATION: I31, Q56

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INTRODUCTION

The Sustainable Development Goals (SDGs) or Global Goals are various global sustainable development targets for the environment, society and economy. Global goals are urgent call for action against poverty, for peace, prosperity and planetary protection that enable social, economic and environmental sustainability by 2030.

Raising awareness of the SDGs among the public, including awareness of specific SDG targets is necessary for citizens to be able to hold their government accountable for the 2030 Agenda. All individuals in society should be aware and understand the commitments of their government have made under the 2030 Agenda and how they can meaningfully engage in SDG implementation and accountability processes. It also becomes essential to foster the political and social change.

Raising SDG awareness may enhance pro-sustainability behavior. However, little is known regarding the extent to which related information affects the perceptions of stakeholders toward supporting the implementation of the SDGs (Tomomi, Shingi, 2020). To date, several research studies have been conducted on SDG awareness.

The Republic of North Macedonia, as a full-flagged member of the UN, has taken the obligation to implement Global Goals. It is important to know and understand them, so that they can assess how each individual can contribute to their achievement. Therefore, it is particularly important to assess the awareness of the Sustainable Development Goals (SDGs). This will enable interactions among all stakeholders in society to be initiated, improved and maintained, which will provide a platform for taking appropriate action to achieve them by 2030. The main subject of this paper is Macedonian population and its SDGs awareness. The aim is to inquire public awareness of the 17 SDGs in the Republic of North Macedonia and to identify homogeneous groups (clusters) with similar characteristics and awareness for each SDG.

1. LITERATURE REVIEW

The 5Ps (people, prosperity, planet, peace and partnership) are intended for all countries in the world in initiating integrated actions that should involve every individual nationally and globally in achieving the Global goals (Akinlolu, Grace, Damilola, Esther, 2017). The role of education and communication in raising the awareness is to empower citizens so that they can face the complex and key challenges

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of the 21st century, including enabling change, making informed decisions and collectively building a sustainable future (UN, 2017).

The findings of one survey study on SDG awareness show that only a small proportion of respondents are familiar and know their meaning. The worldwide average level of the SDGs is just under 50% (European Union: 56%; Germany: 46%), which is an opportunity and challenge for governments, businesses, educational and research institutions. Although the SDGs are of great value to these institutions in terms of aligning their policies and communication with them, this does not always seem to be recognized or implemented. If achieving the 17 goals requires a joint action by people around the world, the study shows that much work remains to be done to raise SDG awareness, as a way to ensure that all sectors work together toward the same direction and contribute to achieving these goals (YCBE, 2018-19).

By using different methods and covering different sets of countries, the selected findings from another Public Opinion Survey find that respondents between 28- 45% have heard about Global Goals. Young people have a higher level of SDG awareness than the average. Across 24 countries, only around 1 in 100 citizens know the SDGs 'very well', while 25% say they know the name only. Just over 1 in 10 Europeans know what the SDGs are. Additionally, there are major disparities between countries (OECD Dev Com, 2017).

Another study of the World Economic Forum (WEF, 2019) was conducted on a sample of nearly 20.000 people aged between 16 and 74 from 28 countries. The findings show that 74% of the adult respondents are aware of the SDGs. Great Britain and Japan rank lowest in terms of familiarity, with 51% having never heard of the SDGs. The SDG awareness rank is also low in the US, with 50% of the respondents declared that have never heard of the SDGs. Also, the top-ranked SDGs are those related to humanitarian human needs, including zero hunger, clean water and good health. In China, 90% of the respondents have heard of the SDGs, including 52% who were either very or somewhat familiar. The study was also had a significant demographic variance in responses, with respondents under the age of 35 as the most aware of the SDGs- 9.6% reporting that they were "very familiar" compared to 6.3% of those aged 35 to 49 and 2% of those aged 50 to 74. Only 23.1% of those aged under 35 said they have never heard of Global Goals, compared to 25% of 35 to 49 year olds and 29% of those aged between 49 and 74. The Survey also found that the global public prioritized SDGs

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are related to immediate human needs, such as zero hunger, clean water and good health, whereas goals such as gender equality, reduced inequality and industry, innovation and infrastructure, were among the lowest ranked.

Another Global Survey reached as many people around the world as possible to inquire about their personal and professional perspective on the status of sustainability in their country, their knowledge, acceptance and expectations of the SDGs. The objective is to create awareness to initiate and accelerate the necessary decisions to implement sustainable development. The survey sample consists of 26.000 respondents, most of them female (almost 60%), between the ages of 20–39 (62%), and with higher education (over 75%). Responses were collected from more than 175 countries, although the distribution varies across regions, led by Europe (59%) and followed by the Asia Pacific and North America (both 14%). The findings show that SDGs are not well recognized around the world, with average awareness just under 50%. Europe and North America show high levels of concern with climate change, i.e., 55% and 65%, respectively, identifying the climate change as a top six priorities. The results have direct implications for governments seeking to address climate change. They suggest that building public support for climate change solutions is more difficult if more direct environmental and socio-economic issues are not simultaneously addressed (YCBE, 2018-19).

In April 2020 when the COVID-19 pandemic started, SDSN surveyed the SDG community on progress made and major challenges and barriers faced in implementing the SDGs. In total, 715 respondents from 104 countries participated. Respondents represented university and research organizations (32%), non-governmental organizations (22%), the private sector (14%), students (14%), governments (8%), international organizations (5%), and other (5%). They identified three major challenges that impede further implementation of the SDG transformations and progress toward the SDGs: lack of political leadership to implement the 2030 Agenda, lack of awareness of the SDGs among policymakers and the public and short-termism and a focus on responding to immediate events over the pursuit of longer-term objectives such as the SDGs. (Cambridge University Press, 2020).

There are many actions to raise awareness in order to further accountability for 2030 Agenda, as the identification of target audience and tailor awareness-raising

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initiative appropriately by considering the most effective methods to raise awareness of the SDGs (TAP, 2019). Already, all the principal actors are revising their policies and preparing for the implementation of the SDGs. Each government should prepare its national strategy, and a region like the Balkans would benefit greatly from cooperation and concerted action across the region. The SDGs need to be appropriated by individuals, communities and civil society to start a bottom-up process, translating the goals into local realities (Dahl, A. L, 2015).

2. METHODOLOGY AND DATA COLLECTION

Methodological approach for this paper is based on quantitative methods, using a research survey to collect needed information from a sample of individuals through their responses to questions. Collected data were then used in statistical analysis called the minimum *variance method* or *Ward's minimum variance-clustering method*. Adopted methodological approach provides statistically significant information in terms of the awareness of Sustainable Development Goals (SDGs) in the Republic of North Macedonia

2.1 Research survey

An on-line social media-based survey has been conducted, with a questionnaire administered between September 2021 and December 2021. Being the Republic of North Macedonia is relatively small; we targeted all territory (bigger and small cities).

The questionnaire contained 10 questions primarily concerning respondents' awareness, perceptions, knowledge and attitudes regarding SDGs, along with basic demographic data (gender, age), the city of residence, educational attainment and employment status. Only the question regarding the city of residence was open-ended, all others were multiple choices, close-ended questions. The multi-choice questions allowed full coverage of all SDGs and saved time for the respondents since each questionnaire was estimated to take less than 10 minutes of their time. In order to make the answering of multi-choice questions user friendly and easier, the questionnaire was designed in a form format and the official UN icon of each SDG was attached to the relevant question. To avoid missing data, respondents losing interest, and low response rate, the questions were short, clear and unambiguous. In the form

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of introductory text, the questionnaires also give brief explanation of the objectives of the survey.

Being that aim of the research was to provide a snapshot of awareness of the citizens of the Republic of North Macedonia regarding the 17 SDG, the survey was administered to a sample of individuals at a single point in time (cross-sectional survey).

2.2 Clustering method

Since the research aimed to classify Macedonian population into homogenous but distinct groups, with variable under consideration in terms of their SDGs awareness (aware, less aware and not aware), we applied the methodology of the statistical analysis called the minimum variance method or Ward's minimum variance clustering method *(*Murtagh, Fionn, Legendre, Pierre, 2011). Being that we received 120.000 valid questionnaires, one of the reasons we opted for Ward's method, is because unlike most other clustering methods, it has significantly fewer computations. Additionally, comparing the Ward method to other methods, it offers higher accuracy concerning the results and minimizes the variance between elements. Hands and Everitt et al. (1987) pointed out that between five clustering techniques comparing their capability to form the original clustering structure, Ward's method did better overall than other hierarchical methods. Blashfield et al. (1976) simulated on many datasets that Ward's method performed significantly better than other clustering procedures.

The Ward clustering method in the case of sampled 120.000 Macedonian citizens, used squared Euclidean distance on the first chosen variables (aware, less aware and not aware for each SDG), for which the eigenvalues were higher than 1. We started Ward's method with *n* clusters, each containing a single object. These *n* clusters were combined to make one cluster containing all objects. In each next step, the process makes a new cluster that minimizes *the variance*, measured by an index called *the sum of squares index* (E).

To select a new cluster at each step, every possible combination of clusters has been taken into consideration. The characterization of each homogeneous group of respondents for the major discriminating variables made it possible to identify and describe comprehensively the distinguished groups of Macedonian citizens that differ among them to geographical, gender, education and social characteristics, as well as by

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their employment status. In this sense, with the application of Ward's clustering method 120.000 responders were grouped into three homogenous but distinct groups in terms of their awareness regarding each SDG.

3. RESULTS

Results obtained using the on-line social-media-based survey demonstrate that the public awareness of Sustainable Development Goals (SDGs) in the Republic of North Macedonia is low, since 82% of the respondents do not have knowledge, or know a little bit about the term SDG. Analysis regarding each SDG reveals that most of the respondents (79%), are aware of the SDG 4 (*Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all),* followed by 71% of the respondents aware of SDG 3 (*Ensure healthy lives and promote well-being for population of all ages).* Awareness of the SDG 15 (*Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss)* is ranked third, with the share of 64% of the respondents.

According to the results from the respondent's opinion, how they assess the situation with SDGs compared to the previous year, the survey reveals that most respondents stated that there is no improvement in SDGs, and to a lesser part, there is even a deterioration of the situation. The insignificantly small number of respondents answered that there is an improvement, and that is most noticeable concerning the SDG 5.

Asked about which public actor should be responsible for SGDs' implementation in the country, almost 70% of the respondents think that the Government and its institutions should be primarily involved. According to the responders, other stakeholders, such as civil society, business, education and research institutions, media and friends and family, do not play a significant role for the implementation of the SDGs.

As mentioned before, by applying Ward's minimum variance-clustering method and using data from 120.000 valid questionnaires obtained using an online survey, the aim is to differentiate the Macedonian population into homogenous but distinct groups, regarding their SDGs awareness. This method enabled to group a set of characteristics from one group (a cluster) that are similar, but different from those in

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other groups (clusters) and divided the sample into three clusters: Cluster 1, Cluster 2 and Cluster 3 (see Table 1).

Table 1. Descriptive statistics of the clusters identified using the Ward clustering method

Cluster	1	2	3
Objects	488	520	192
The sum of weights	488	520	192
Within-class variance	8.5329	7.7388	8.8634
Minimum distance to centroid	0.9651	0.7954	1.2487
Average distance to centroid	2.7817	2.5603	2.7771
Maximum distance to centroid	4.9667	4.8722	4.5701

Source: Authors' calculations

As shown in Table 1, regarding the size, the biggest is Cluster 2 that covers 43% of the sample, the second is Cluster 1 (41%) and the third is Cluster 3 (16%).

As previously explained, these three clusters are actually distinguished groups of Macedonian citizens that differ among them to geographical, gender, education and social characteristics, as well as by their employment status. However, regarding the variable under consideration in terms of their SDGs awareness (aware, less aware and not aware), most distinct cluster's characteristic are the level of education and employment status of the respondents. Having sat this, at Figure 1 we provide accurate and comprehensive assessment of the awareness regarding each of the SDGs, distributed among clusters.

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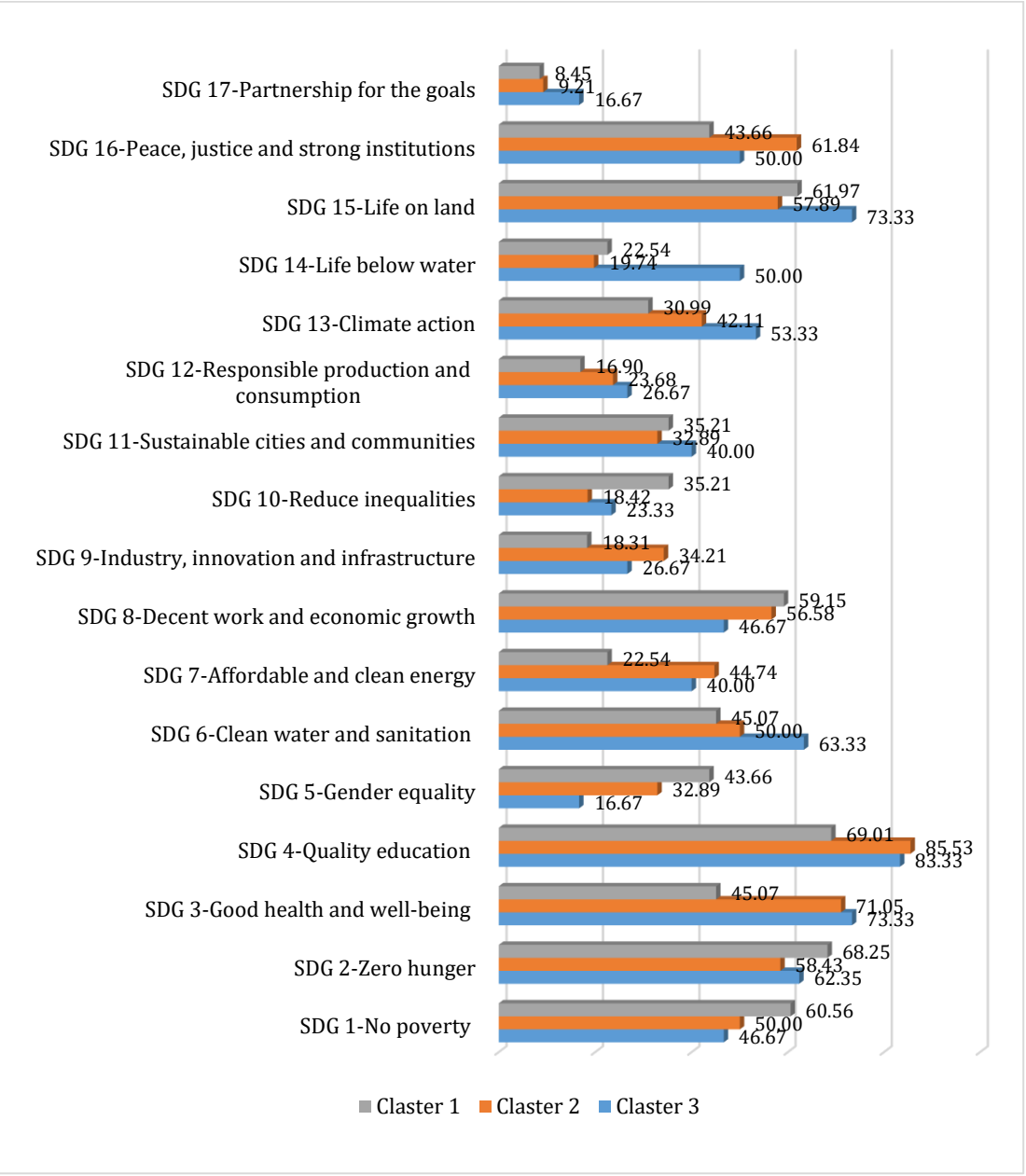
Figure 1. Cluster analysis regarding SDGs awareness



Source: Authors' calculations

As seen, responders agglomerated in Cluster 1 are characterized by a high level of education (70%) and more than half of them are employed (60%). Individuals with these characteristics have higher awareness concerning SDG 1, SDG 2, SDG 4, SDG 8 and SDG 16. They are less aware of SGD 7, SDG 9, SDG 12 and SDG 14.

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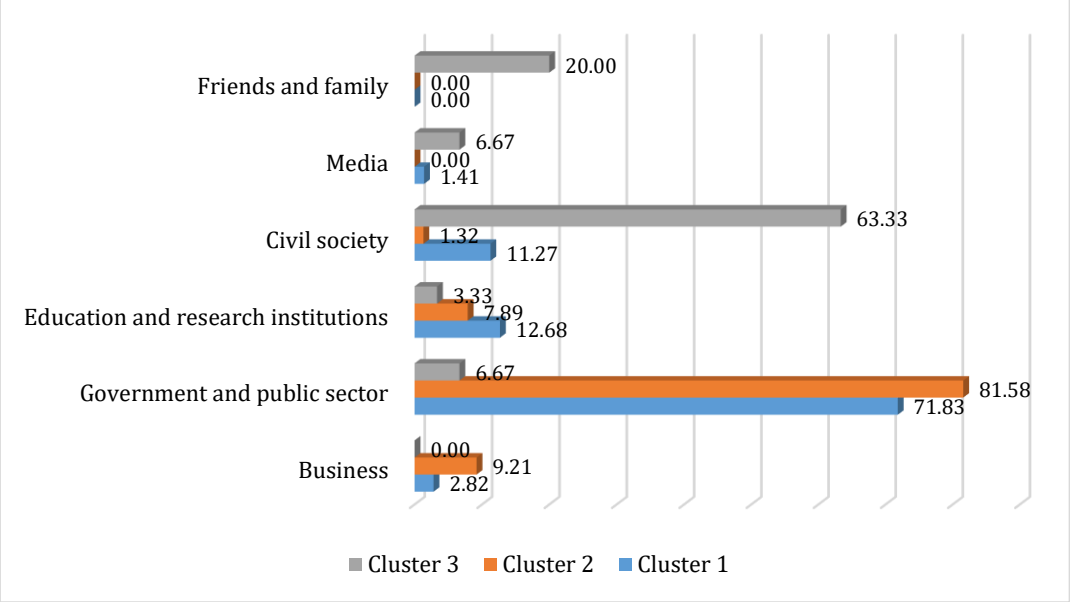
In Cluster 2, more than 90% of the respondents have a high level of education and more than 80% are employed. They opted to be aware of SDG 3, SDG 4, SDG 15, SDG 16 and less aware of SDG 10, SDG 14 and SDG 17.

Regarding their binding characteristics, 80% of the responders from Cluster 3 have a high level of education and 90% are employed. They show an awareness of SDG 2, SDG 3, SDG 4, SDG 6, SDG 15, while are less aware of SGD 5 and SDG 17.

In addition to the awareness of the SDGs, survey also analysed the opinion of respondents regarding the engagement of the stakeholders (civil society, business, government and its institutions, education and research institutions, media and friends and family) for the implementation of the SDGs in the country. Figure 2 provides accurate and comprehensive assessment of cluster's opinion regarding the national stakeholders' engagement in the implementation of 2030 Agenda and its SDGs.

Figure 2. Cluster analysis regarding the national stakeholders' engagement in the implementation of the SDGs



Source: Authors' calculations

The findings presented in Figure 2 show that only responders agglomerated in Cluster 3 recognize the civil society as relevant stakeholder for SDGs implementation. Responders from Cluster 1 and Cluster 2 have firm opinion that government and its institutions should be responsible for the implementation of SDGs in the country.

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4. DISCUSSION AND CONCLUSION

Sustainable development goals or SDGs stand for creating a better world and building sustainable future. The goals refer to different parts of most global problems nowadays, from abolishing poverty to creating sustainable and environmentally friendly cities, as common goals for making a world better place for all.

The research results show that the level of awareness of Social Development Goals in the Republic of North Macedonia is low. While 82% of respondents do not know or know little about the term SDG, the comparison to other global studies is that the world, average is 50% (YALE Center for business and the environment, 2018-19) or even 74% of respondents are aware of SDG (WEF, 2019). It is also important to note that globally and in the Republic of North Macedonia, there are differences in terms of awareness and knowledge of certain SDGs (OECD, 2017). Compared to previous studies, SDG 3 in terms of ensuring a healthy life and promoting well-being for populating all ages is among the best-ranked goals in the Republic of North Macedonia (WEF, 2019).

Unfortunately, the general opinion of the respondents is that there is no improvement in SDGs, compared to the previous year. Compared to the opinion on the global level, there is progress in some areas, while in others has been too slow or has even been reversed. For instance, even though the extreme poverty has reached its lowest point since monitoring began, we are still not on track to end it by 2030; meanwhile, malnutrition rates are creeping upwards again for the first time in years, even as the amount of food produced per capita increases. The unequal impacts of the COVID-19 pandemic may push further 100 million people into extreme poverty, effectively wiping out progress made since 2017 and exacerbating child hunger (UNDP, 2020)

In this research, by using the Ward clustering method, three homogeneous groups of respondents are identified concerning the level of education and employment status, which has considerable impact on the awareness for each of the SDGs (Cluster 1, 2, 3). In addition to awareness, most of the respondents (clusters 1 and 2) believe that government with its institutions is the most important stakeholder for the implementation of the 2030 Agenda.

This data could be used for initiating activities to raise awareness in order to further accountability for the 2030 Agenda, as the identification of target audience and tailor awareness-raising initiative appropriately by considering the most effective methods (SDG Accountability Handbook, 2019). There is no doubt that awareness rising for all

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SDGs is embedded in their effective implementation. However, the differentiation of the responders according to the awareness of individual SDGs brings in light SGD 5, SGD 7, SDG 9, SDG 10, SDG 12, SDG 14 and SDG 17 as goals less familiar to Macedonian citizens and should be given more attention.

Raising SDG 17 awareness is in fact raising the awareness about country's capacity to build networks within the region and with the world, as well as partnerships between governments, the private sector and civil society. This includes financing development, connecting people through information technology networks, international trade flows, and strengthening data collection and analysis. Even though SDG 17 is about strengthening the means of implementation and revitalization of the Global Partnership for Sustainable Development, Macedonian citizens must be aware that it also mean strengthening the responsibility for domestic resource mobilization, including the improvement of domestic capacity for tax and other revenue collection.

Findings of the research make it clear that majority of Macedonian population considers national government and institutions as paramount to the effective implementation of the 2030 Agenda and the SDGs. This is in accordance with the findings on the global level, where many people expect governments to act first, as was the case with the implementation of the Sustainable Development Goals. Psychologists call this an external locus of control-the sense that change can be generated only by a powerful external entity (UNDP, 2020). However, continuous efforts are needed to raise the awareness of SDGs as basic strategic goals, whose fulfilment requires initiating integrated actions that should involve the government, civil sectors, education centres and every individual to be aware and involved in the implementation of the Sustainable Development Goals on national and global levels.

If the required regulatory framework is established, the necessary level of awareness in the public is raised, concrete and feasible initiatives are identified and a partnership relationship with all stakeholders is built, we can expect a successful and sustainable implementation of sustainable development goals and a more successful society that will ensure prosperity and progress for all (UN, North Macedonia, 2020).The presented findings open the possibility of developing certain policies for awareness-raising measures of the population, as a prerequisite for the implementation of the Global Goals on national level. Simultaneously, in the process of developing policies for raising public

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awareness of SDGs, all the relevant stakeholders should pay attention to the respondents' opinion that SDG 4, SDG 5 and SDG 15 are from their particular interest.

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INTEGRATED BUSINESS FACULTY - SKOPJE
JOURNAL OF SUSTAINABLE DEVELOPMENT

JOURNAL OF SUSTAINABLE DEVELOPMENT, VOL. 12, ISSUE 28 (2022), 17-37
UDK 551.58:339.727.22(497.7)
https://doi.org/10.54442/JSD221228017n

INTERNATIONAL CLIMATE FINANCE: ESTIMATION IN THE CASE OF THE REPUBLIC OF NORTH MACEDONIA

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ABSTRACT

International climate finance is funds provided to support developing countries to respond to the challenges and opportunities of climate change aiming to reduce greenhouse gas emissions and/or adapt to the impacts of climate change. In this paper, we estimate the received international climate financial support in the Republic of North Macedonia. Data for the analysis are collected using survey approach on a project-based level for the 2018-2020 period. We applied the OECD DAC Rio climate markers methodology for weighing climate relevance of project budget and used two-year averages to smooth out annual fluctuations in data. Our findings show that, in the analysed period, a total of 61 projects have been implemented or are in some stage of implementation, which are related to climate activities for which international financial support of USD 34.4 million is obtained. The pandemic of COVID-19 has a negative impact on both, the number of projects which fell from 38 in 2018/2019 to 23 in 2019/2020, and to the international climate financial support received, which declined from USD 23.2 million to USD 11.2 million.

KEYWORDS: international climate finance, UNFCCC, Enhanced Nationally Determined Contributions (ENDCs), North Macedonia

JEL CLASSIFICATION: H72, Q51, Q54

INTRODUCTION

Providing funding for climate activities on a consistent basis is essential. In this regard, international support for financing climate activities is crucial for developing countries. Undertaking climate action is equally necessary in developing countries as well as in developed industrialized countries. Reducing Greenhouse Gas emissions (GHGs) in any country benefits the whole world because GHGs do not recognize

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country borders. Thus, reducing emissions in developing countries is also to the benefit of developed countries. The lack of own resources of developing countries discourages and limits them in undertaking climate activities at an appropriate level or in general. The United Nations Framework Convention on Climate Change (UNFCCC or Convention hereafter) clearly recognizes the weaknesses of developing countries as well as the enormous benefits of the inflow of foreign resources, primarily financial, in addition to technical, technological, and capacity building, from developed countries to developing countries to support the execution of their nationally determined contributions (NDCs). The Convention established a strong financial mechanism, presented in Figure 1 below, to stimulate and direct finances from developed to developing countries to support their activities to mitigate and adapt to climate change, in addition to bilateral support. As a non-Annex I country to the Convention, the Republic of North Macedonia is a recipient of international support and is therefore required to report the amount of support received in the subsequent two-year period. In the last three-year period, the bilateral support from the European Union denotes the highest contribution to financing climate activities. In particular, the Instrument for Pre-Accession Assistance (IPA) has enabled many municipalities, NGOs, and ministries to implement projects, especially in the field of energy efficiency, and thus contribute to the global fight to reduce greenhouse gas emissions and mitigate the adverse effects of climate change. In fact, much of the support that has been received has been used to finance projects predominantly to mitigate the effects of climate change. One of the Convention funds, the Global Environment Facility (GEF), is the second largest provider of climate financial support in North Macedonia. Large amounts of funds have also been received from the Food and Agriculture Organization of the United Nations (FAO), generally aimed at supporting activities to mitigate the adverse effects of climate change. Nevertheless, it must be emphasized that the amount of support received in the developing countries is far from sufficient to meet the needs of undertaking more serious mitigation and adaptation climate activities required towards green transition, which is a commitment to greater engagement in the future.

Climate finance in the Paris Agreement

Article 9 of the Paris Agreement stipulates that developed country Parties shall provide financial resources to assist developing country Parties with respect to both mitigation and adaptation in continuation of their existing obligations under the

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Convention. Other Parties are encouraged to provide or continue to provide such support voluntarily (United Nations, 2015). Furthermore, as part of a global effort, developed country Parties should continue to take the lead in mobilizing climate finance from a wide variety of sources, instruments and channels, noting the significant role of public funds, through a variety of actions, including supporting country-driven strategies, and considering the needs and priorities of developing country Parties. Such mobilization of climate finance should represent a progression beyond previous efforts. In addition, Article 9 states that the provision of scaled-up financial resources should aim to achieve a balance between adaptation and mitigation, taking into consideration country-driven strategies, and the priorities and needs of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change and have significant capacity constraints, such as the least developed countries and small island developing States, bearing in mind the need for public and grant-based resources for adaptation.

Regarding ex-ante communication of information, developed country Parties shall biennially communicate indicative quantitative and qualitative information related to paragraphs 1 and 3 of Article 9, as applicable, including, as available, projected levels of public financial resources to be provided to developing country Parties (United Nations, 2015). Other Parties providing resources are encouraged to communicate biennially such information on a voluntary basis. The global stocktake referred to in Article 14 of the Agreement shall consider the relevant information provided by developed country Parties and/or Agreement bodies on efforts related to climate finance. Regarding the issue of transparency of support, developed country Parties shall provide transparent and consistent information on support for developing country Parties provided and mobilized through public interventions biennially. Other Parties are encouraged to do so.

The Financial Mechanism of the Convention, including its operating entities, and the Standing Committee on Finance, shall serve as the financial mechanism of this Agreement. In addition, Article 9 stipulates that the institutions serving the Agreement, including the operating entities, shall aim to ensure efficient access to financial resources by means of simplified approval procedures and enhanced readiness support for developing country Parties, in particular for the least developed countries

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and small island developing States, in the context of their national climate strategies and plans.

Underdeveloped and developing countries face several economic, political, and existential problems. Undertaking climate activities in these countries facing a shortage of climate finance is supported by developed industrialized countries. In line with the "common but differentiated responsibilities and respective capabilities" principle (Article 4, UNFCCC), developing countries have articulated their financial and capacity-building needs in their NDCs and made their contributions conditional on receipt of international support. At the 15th Conference of Parties (COP15) of the UNFCCC in Copenhagen in 2009, developed countries committed to a collective goal of mobilizing USD 100 billion per year by 2020 to assist and address the needs for climate action in developing countries, in context of meaningful mitigation actions and transparency in implementation. The goal was formalized at COP16 in Cancun (UNFCCC, 2010) and was reiterated for 2020 and extended to 2025 at COP21 in Paris (UNFCCC, 2015).

At COP 21, it was also decided that developed countries intend to continue their existing collective mobilization goal through 2025 in context of meaningful mitigation actions and transparency on implementation, and that prior to 2025 the Conference of the Parties serving as the meeting of the Parties (CMA) to the Paris Agreement shall set a new collective quantified goal from a floor of USD 100 billion per year, considering the needs and priorities of developing countries.

Furthermore, the COP resolved to enhance the provision of urgent and adequate finance, technology, and capacity-building support by developed country Parties in order to enhance the level of ambition of pre-2020 action by Parties, and in this regard strongly urges developed country Parties to scale up their level of financial support, with a concrete roadmap to achieve the goal of jointly providing USD 100 billion annually by 2020 for mitigation and adaptation while significantly increasing adaptation finance from current levels and to further provide appropriate technology and capacity-building support. Parties also decided to conduct a facilitative dialogue in conjunction with the twenty-second session of the Conference of the Parties to assess the progress in implementing decision 1/CP.19, paragraphs 3 and 4, and identify relevant opportunities to enhance the provision of financial resources, including for technology development and transfer and capacity-building support, with a view to

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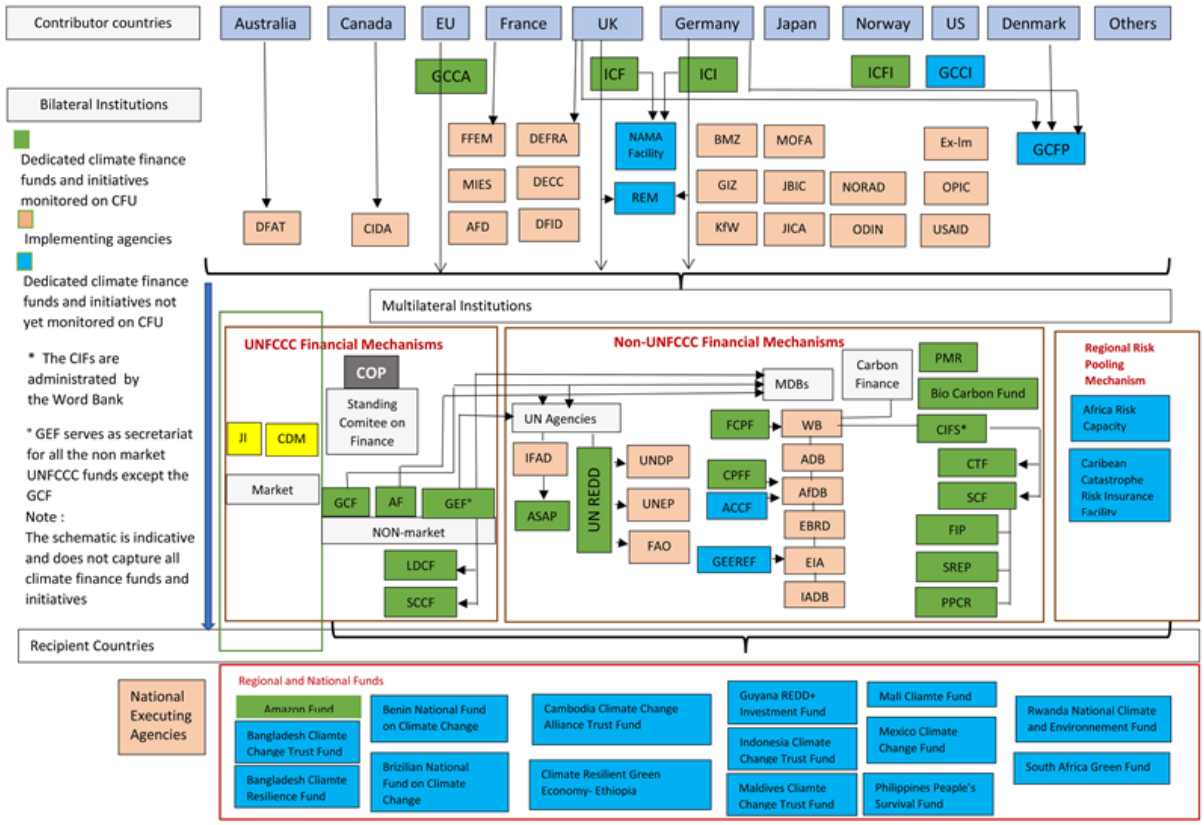
identifying ways to enhance the ambition of mitigation efforts by all Parties, including identifying relevant opportunities to enhance the provision and mobilization of support and enabling environments (UNFCCC, 2014).

Figure 1. Global climate finance architecture



Source: Watson et al. (2022)

The fight against climate change is high on the agenda of the Government of the Republic of North Macedonia, which is strictly committed to the green transition and the achievement of carbon neutrality. The preparation of the new law on climate action is in the final stage, which will thoroughly pave the way, but also the commitment and obligations of all stakeholders from the public and private sector for the implementation of climate actions. In 2021, the Government submitted its Enhanced Nationally Determined Contributions (ENDCs), providing a clear roadmap to reduce greenhouse gas emissions by 51% by 2030. Their effective implementation is provided through 63 mitigation policies and measures (PAMs) (MASA, 2020). The estimated amount of funds needed for their execution is EUR 25.03 billion, where the funding structure is planned to be by Government only (4%), other source of financing only (no

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government) (43%), and mixed financing (government + other - private sector, donors, consumer) (54%) (McClellan, 2021). The Republic of North Macedonia is a country that faces many development challenges and a great lack of its own resources. From the planned financial structure, it is clear that the implementation of ENDCs will mostly depend on the inflow of international climate finance.

INTERNATIONAL CLIMATE FINANCE GLOBALLY AND THE IMPACT OF COVID-19 PANDEMIC

Climate Policy Initiative's Global Landscape of Climate Finance provides the most comprehensive overview of global climate-related primary investments. In their annual reports, they provide two-year data, but use biannual averages to smooth out the annual fluctuations in data. Global climate finance in 2019/2020 reached a record USD 632 bn, which is an increase of 75% compared to 2011/2012, but only 10% compared to 2017/2018. In previous years, the average growth was 25% per year, while this slowdown in growth is due to impact of the global pandemic of COVID-19's virus on climate finance (Naumoski and Angelova, 2022). To meet the climate objectives to limit the global temperature rise to well below 2° C and pursuing efforts to limit it to 1.5° C by 2030, annual climate finance must increase by 588% to USD 4.35 trillion, and 1,078% to USD 7.45 trillion (mean scenario) by 2050. Domestic climate finance flows reached USD 479 bn, and international climate finance amounts to USD 153 bn with an increase of USD 13 billion from 2017/2018, primarily driven by increased public investments from multilateral and national DFIs (CPI, 2021).

The COVID-19 pandemic has drastically altered the context for international climate finance. It has resulted in the most damaging humanitarian and economic crisis since the Second World War and its impacts have been particularly severe on emerging markets and developing economies (EMDEs). They have suffered large losses of revenue with knock-on effects on their fiscal and debt positions (IEGCF, 2020). Global COVID-19 pandemic negatively affected the growth of the global climate finance in 2020 and lowered the level of public climate finance in many developing countries. They were impacted negatively since the implementation of their national NDC mostly rely on international support. International climate finance has decreased during the pandemic since many developed countries cut these flows. For example, in July 2020 the United Kingdom announced a total cut of £2.9 billion in its planned ODA budget for

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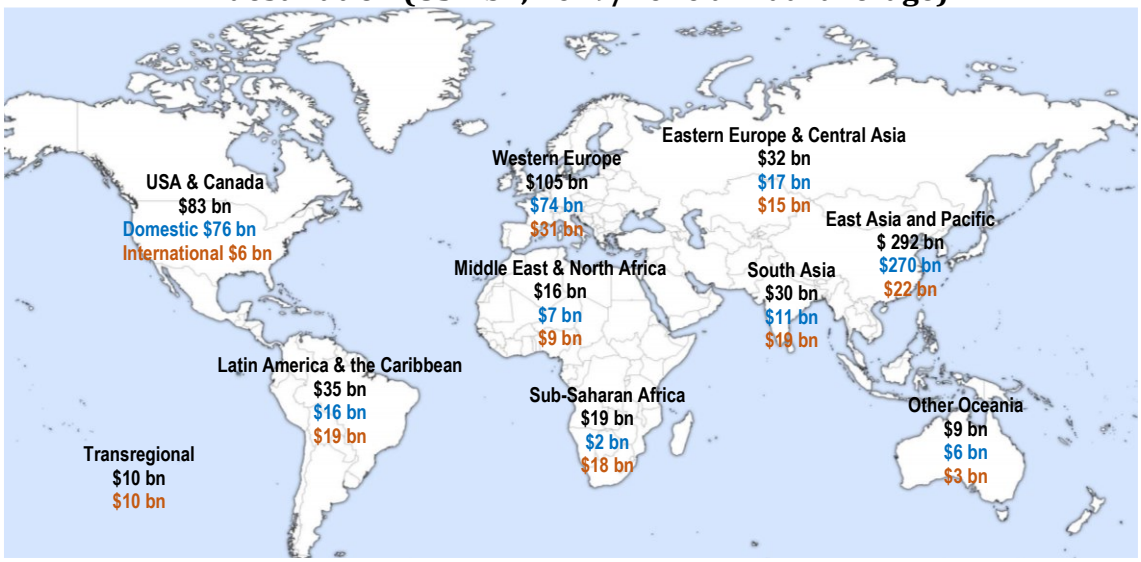
2020 (FCO, 2020). This caused the proportion of ODA to projects with a significant focus on climate adaptation or mitigation to fall from 25% in 2019 to 17% in 2020, while ODA to projects with climate as a principal objective fell from 18% to 14% (DI, 2021). Most of the funding of domestic climate finance in developing countries took the form of loans, and they have reallocated or decreased their domestic climate flows because of the high costs of responding to the pandemic (Alayza and Caldwell, 2021). As a result, climate-related projects have been delayed.

Figure 2. Domestic and international climate finance flows by region of destination (USD bn, 2019/2020 annual average)



Source: adapted from CPI, 2021

In 2020, International Development Finance Club (IDFC) institutions committed USD 185 billion in green finance (of which USD 178.5 billion relate to climate finance), representing a 6% decrease from 2019, primarily due to the unprecedented challenge posed by the COVID-19 pandemic and the need to reallocate public resources to emergency response and economic recovery. While the COVID-19 pandemic may have negatively impacted green finance flows in 2020, in 2021 IDFC members have made strong pledges to climate action and green finance (IDFC, 2021).

At the request of developed countries, the OECD has, since 2015, produced analyses of progress towards this goal. The most recent historical OECD figures indicate that climate finance provided and mobilized by developed countries reached USD 79.6 billion in 2019, up by only 2% from 2018 (OECD, 2021). OECD has developed two forward-looking scenarios for climate finance provided and mobilized by

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developed countries to developing countries in 2021-2025 where significant growth is forecasted between USD 83 billion – USD 117 billion annually (OECD, 2021).

DATA AND METHODOLOGY FOR ESTIMATING INTERNATIONAL CLIMATE FINANCE IN NORTH MACEDONIA

Definition and scope of climate finance

Finance for climate change related activities, or climate finance, is a diverse concept. It is in some instances discussed separately, or often integrated with related and overlapping concepts of green finance, sustainable finance, or low-carbon finance. Climate finance refers to local, national, or transnational financing - drawn from public, private, and alternative sources of financing - that seeks to support mitigation and adaptation actions that will address climate change.

While there is no single definition of climate finance, the closest one can get is provided by the United Nations Framework Convention on Climate Change (UNFCCC) Standing Committee on Finance, which defines it as: "finance that aims at reducing emissions, and enhancing sinks of greenhouse gases and aims at reducing vulnerability of, and maintaining and increasing the resilience of, human and ecological systems to negative climate change impacts." (Climate Change Secretariat, 2014, p. 2). This definition represents finance for climate change in its broadest form as it relates to the flow of funds to all activities, programmes or projects that support climate change related projects, whether mitigation or adaptation, anywhere in the world.

Climate finance is needed for mitigation, because large-scale investments are required to significantly reduce emissions. Climate finance is equally important for adaptation, as significant financial resources are required to adapt to the adverse effects and reduce the impacts of a changing climate.

Climate change mitigation activity: An activity should be considered as climate change mitigation related if it contributes to the objective of stabilization of GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system, by promoting efforts to reduce or limit GHG emissions or to enhance GHG sequestration (OECD, 2011)

Climate change adaptation activity: An activity should be considered as adaptation related if it intends to reduce the vulnerability of human or natural systems to the impacts of climate change and climate-related risks, by maintaining or

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increasing adaptive capacity and resilience. This encompasses a range of activities from information and knowledge generation, to capacity development, planning and the implementation of climate change adaptation actions (OECD, 2011).

International climate finance is funds provided to support developing countries to respond to the challenges and opportunities of climate change aiming to reduce greenhouse gas emissions and/or adapt to the impacts of climate change. These finances cover all foreign inflows provided by developing countries bilaterally, through multilateral development financial institutions (MDFIs), or through the multilateral climate funds of the UNFCCC financial mechanism.

Data

Given that there is no single centralized system for automatic data collection of received support (list of projects, purpose, the amount of support, source, i.e., provider), the biggest challenge is the approach to obtain relevant, reliable, and comprehensive data, so that accurate assessment of the international financial support received can be made. The approach adopted here to collect the data on international financial support received was through a survey that was sent to all potential support users (government institutions, line ministries, municipalities, NGOs, etc.). As usual, some of the respondents did not respond. Consequently, much of the data was collected from research on the websites of beneficiaries of the international financial support, and, especially, from the websites of funders (donors and lenders). The support received was aimed on project financing, so support for climate activities was assessed at project-based level. All amounts are expressed in USA dollars.

In our survey, entities were required to provide more detailed general information on projects (name of the project, purpose of the project, the description of the project, implementing organization, donor or creditor, project start and end date), financial data related to the project (amount of the total budget, separate amounts spent in 2018, 2019 and 2020, total international funder contribution), the climate purpose of the project (mitigation, adaptation, capacity building, technical support, technology support, general). Not all respondents provided complete data on the amount of funds spent by years, so the assessment was conducted as a combination of committed/received funds, according to the data provided. Greater problem in the assessment was that there are projects that have started before 2018 and have not yet

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been completed, but also projects that have started in 2018 or 2019 and would continue after 2020.

All pieces of information provided in this estimation are related to active and ongoing projects, mostly by the amounts received and spent in this three-year period. When there is no such data, the committed amount was taken. North Macedonia is a beneficiary of significant amounts of funds from the EU Instrument for Pre-Accession Assistance, especially in the field of cross-border cooperation. For these EU IPA funded projects, which relate to funding two or more countries, we managed to extract and allocate only the amount committed/spent in North Macedonia for each project. We excluded from the analysis all those projects where only the committed amount was reported, but without any implementation in this two-year period. Likewise, projects where there is only a contract with the funder (donor or lender), with a commitment to the amount, but for which funds have not yet been received in the analysed period, have been excluded from the analysis.

OECD DAC Rio markers methodology for weighing climate relevance

The second step towards accurate estimation of the international climate financial inflows into North Macedonia was to determine what part of the spent project budget expenditures is related to climate change. This means that the entire project budget cannot be anticipated ex-ante as climate-related. Some projects are fully climatical, but in other projects part of the budgets may be spent on non-climatic purposes or only part of the project budget may be related to climate activities. Closer specification of climate relevance and weighting of amounts by climate relevance was performed by applying the OECD DAC Rio Markers Methodology (OECD, 2011).

The OECD Development Assistance Committee (DAC) collects statistics on aid and other resource flows to developing countries from bilateral and multilateral donor agencies every year. The data are publicly available in the Creditor Reporting System (CRS) database. Since 1998, the DAC has monitored aid targeting the objectives of the Rio Conventions through the CRS using the so-called "Rio markers". The Rio marker on climate change mitigation was established by the DAC in close collaboration with the Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC). It tracks aid flows that support the implementation of the Convention. In December 2009, the DAC approved a new marker to also track aid in

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support of climate change adaptation. This complements the climate change mitigation marker, and thus allows the presentation of a more complete picture of climate-change-related aid.

These climate markers indicate donors' policy objectives in relation to each aid activity. A principal objective (mitigation or adaptation) score is given when promoting the objectives of the UNFCCC is stated in the activity documentation to be one of the principal reasons for undertaking the activity. In other words, the activity would *not* have been funded but for that objective. Activities marked "significant" have other prime objectives, but have been formulated or adjusted to help meet climate concerns.

The markers allow an approximate quantification of aid flows that target climate objectives. In marker data presentations, the figures for principal and significant objectives should be shown separately, and the sum referred to as the "estimate" or "upper bound" of climate-change-related aid.

Data collection on the climate markers is based on a scoring system with three values:

- principal objective (marker 2),
- significant objective (marker 1),
- not targeted to the policy objective (marker 0).

An activity can be marked as "principal" when the objective (climate change mitigation, climate change adaptation, biodiversity, combating desertification) is explicitly stated as fundamental in the design of, or the motivation for, the activity. Promoting the objective will thus be stated in the activity documentation to be one of the principal reasons for undertaking the activity. In other words, the activity would not have been funded (or designed that way) but for that objective.

An activity can be marked as "significant" when the objective (climate change mitigation, climate change adaptation, biodiversity, combating desertification) is explicitly stated but is not the fundamental driver or motivation for undertaking and designing the activity. The activity has other prime objectives but has been formulated or adjusted to help meet the relevant environmental concerns.

The score "not targeted" ("0") means that the activity was examined but found not to target the objective in any significant way. For activities that have not been assessed with the Rio markers in mind, the "0" value should not be used, but rather the marker field should be left empty. Thus, there is no confusion between activities that do not

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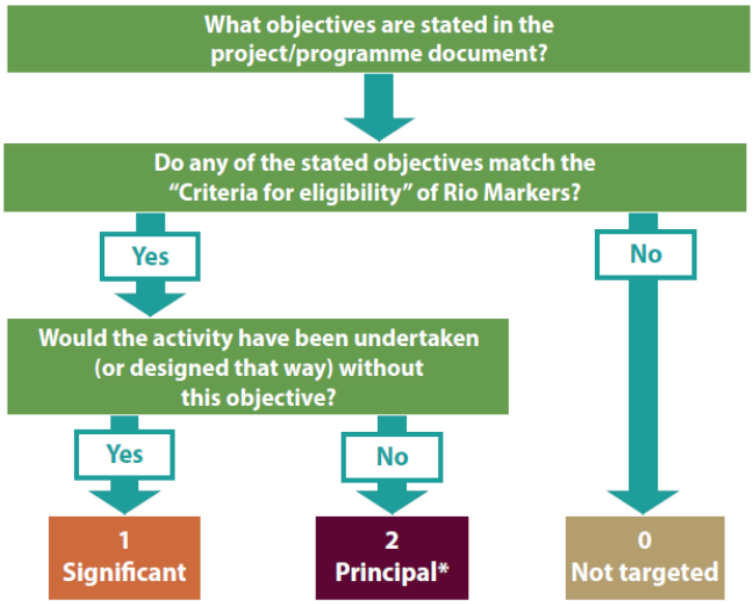
target the objective (score = "0"), and activities for which the answer is not known (score = "null"). This important distinction has implications for statistical presentations of Rio marker data.

Figure 3. The scoring system of OECD DAC Rio Climate Markers



Source: OECD (2011), p.7

Markers identify activities contributing to meeting the objectives of the corresponding Rio Convention(s). Activities are thus to be marked according to their stated objectives and purpose and not primarily in relation to their relevance or outcomes or possible positive side-effects, i.e., the methodology is purpose-based.

Weighting the climate relevance. If an activity is marked as principal for mitigation or adaptation, 100% of the support is considered and reported as climate finance. If an aid activity is marked as significant for mitigation or adaptation, then only 40% of the support is considered and reported as climate finance. To avoid double counting, any activity can only count as 100%, 40% or 0%. There is no separate category to mark projects, which are at the same time relevant to both mitigation and adaptation as "cross-cutting." If an activity has dual objectives and is marked for both mitigation and adaptation, in that case the estimated amount of climate finance is divided in half between mitigation and adaptation.

Despite the general approach of the Rio Markers, in practice there is arbitrary determination of weights. Thus, several methodological differences in the approaches used by EU Member States to produce their climate finance figures became obvious during the analysis of MMR data. Different coefficients are used for Rio Markers

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(counting of 100%, 20%, 40% or 50%) (European Commission, 2016). In our analysis, we implement the original approach of the methodology.

ANALYSIS OF INTERNATIONAL CLIMATE FINANCE FLOWS IN NORTH MACEDONIA BETWEEN 2018-2020

The analysis of the collected data for the received international financial support for financing the climate activities in North Macedonia was performed on two-year averages to smooth out annual fluctuations in data. Our analysis covers the period 2018 - 2020 for which data are collected on climate change projects that have been fully implemented or implementation has begun. We have registered a total of 61 projects that have been implemented or are in some stage of implementation, which are related to climate activities, and are funded by international sources for the entire three-year analysed period. In 2018/2019, we registered a total of 38 climate-related projects that are funded with international support, while in 2019/2020 their number is 23 projects. This drastic reduction is due to the negative impact of the global pandemic of Covid-19, the lock down of economic activity around the world and reduced support from international financiers because of the relocation of funds to support their own economies.

Given that the number of projects has declined, the aggregate total budget for all projects is almost identical in the two years, which can be seen in Table 1. The total inflow of international climate finance for the three-year period is USD 34.4 million. However, it is obvious that the international financial support received for financing climate projects in North Macedonia has declined by half. In 2018/2019, it amounts to USD 23.2 million, while in 2019/2020 it was USD 11.2 million. On the other hand, the domestic contribution for co-financing of these climate projects has increased seven times.

Table 1. International financial support in North Macedonia for climate actions between 2018 –2020, biannual averages (*in USD*)

	2018/2019	2019/2020	Total
International climate finance	23,175,988	11,237,550	34,413,538
Total domestic contribution	1,969,425	13,805,516	15,774,940
TOTAL BUDGET	**25,145,413**	**25,043,065**	**50,188,478**

Source: author's own presentation

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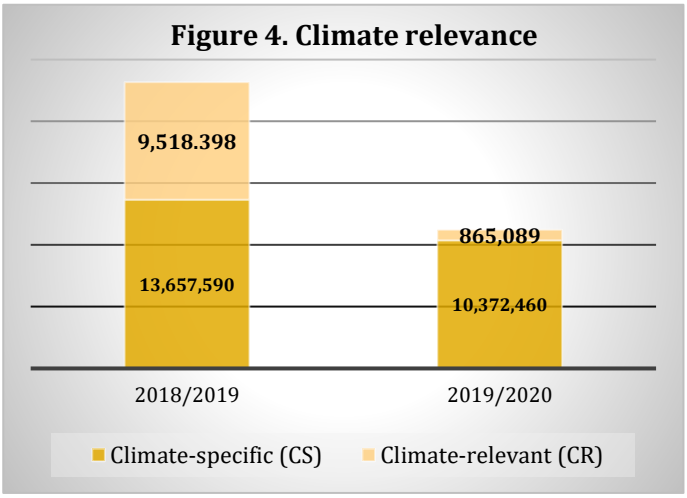

Source: author's own presentation

Climate-specific (CS) are those projects that are fully climate-targeted, while climate-relevant (CR) are those that are not labelled as climate, but with their implementation have significant climate benefits either for mitigation or adaptation to climate change.

Financial support related to climate-specific projects is higher in both periods. Figure 4 shows that the financial support related to climate-specific projects is decreased by 24% on an annual basis, while the financial support related to climate-related projects is decreased by 91%.

The European Union and the Global Environment Facility (GEF) together provide 73% of the total international climate support in North Macedonia for the entire three-year period. Most of the international financial support inflows came from the European Union in the amount of USD 14.4 million which is 42% of the total support received. The second largest financier is the Global Environment Facility (GEF), which provides USD 10.5 million that is 30.6% of the total support received.

In 2018/2019, the largest funder is the European Union, which provided as much as 58% of the total inflows of international climate finance. Most of these funds are provided through IPA cross-border cooperation funds. But in 2019/2020 the funds received from the EU are drastically reduced. This is because of the Covid-19 pandemic when developed countries have reduced support for developing countries by relocating domestic funds to support their own economies. In Table 2, there is a drastic reduction of bilateral funds received from Germany and Switzerland.

Table 2. Funders of international financial support (*in USD*)

FUNDER	2018/2019	2019/2020	TOTAL
European Union	13,566,181	818,159	14,384,340
Global Environment Facility (GEF)	2,933,387	7,592,545	10,525,932
Switzerland	2,614,360	32,327	2,646,687
UNDP	2,258,990	33,072	2,292,062
Food and Agriculture Organization of the United Nations (FAO)		1,939,000	1,939,000

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Germany	1,355,824	29,501	1,385,325
Green Climate Fund (GCF)	300,000	699,742	999,742
World Bank	147,245		147,245
Others		65,516	65,516
United Kingdom		27,688	27,688
TOTAL	**23,175,988**	**11,237,550**	**34,413,538**

Source: author's own presentation

Figure 5.1 International funders 2018/2019

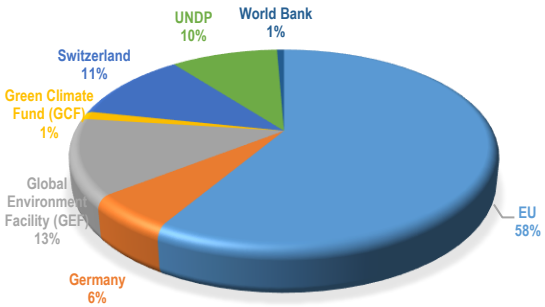
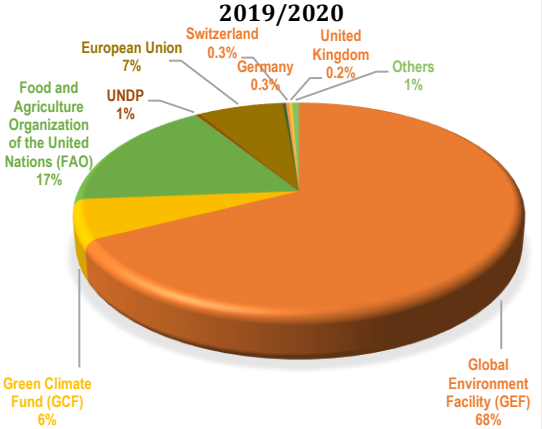


Figure 5.2 International funders 2019/2020



Source: author's own presentation

Global Environment Facility (GEF) was the second largest support provider in 2018/2019 with 13%, while becoming the largest provider of international financial support in the next year 2019/2020 with USD 7.6 million, which is 68% of the total received financial support. In this year, the second largest provider is the Food and Agriculture Organization of the United Nations (FAO) with the amount of USD 1.9 million or 17%. Most of the money received from FAO is aimed at adapting agriculture to the negative impact of climate change.

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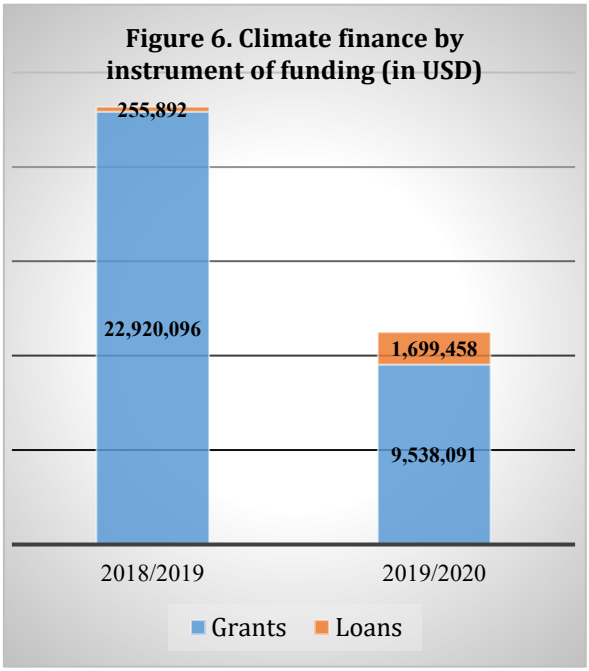

Figure 6. Climate finance by instrument of funding (in USD)

Source: Author's own presentation

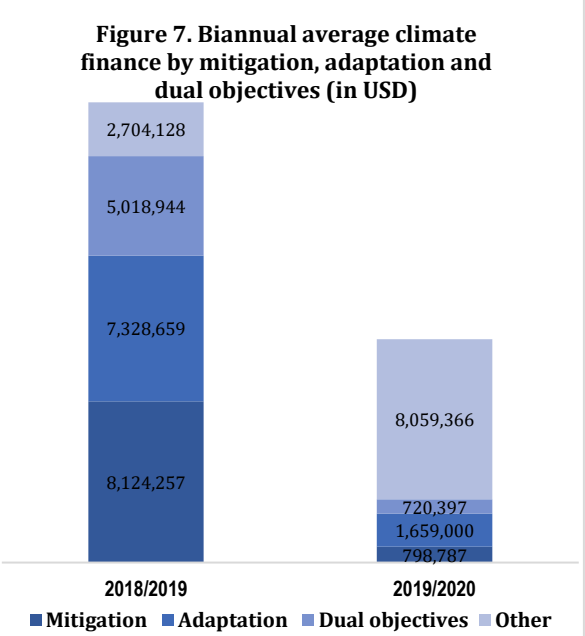

Figure 7. Biannual average climate finance by mitigation, adaptation and dual objectives (in USD)

Source: Author's own presentation

Grants have become the dominant type of international financial support, which in 2018/2019 amounted to 98%, and in 2019/2020 to 85%. Here, we point out that the state-owned JSC Power Plants of North Macedonia has contracted two large loans with the German KfW Bank to finance two major energy projects that will greatly contribute to climate change mitigation: i) Project: District Heating of Bitola, Mogila and Novaci - first stage, total budget EUR 46.3 mil. (EUR 39 million from KfW and EUR 7.3 million own funds); and ii) Extension of the Wind Park – Bogdanci, stage II, with a total budget of EUR 21 million (EUR 18 million from KfW and EUR 3 million own funds). Despite the signed loan agreement, the projects have not yet started in the analysed period, and therefore have not been included. If we include this committed amount, it will unrealistically overestimate the amount of support received, although under the contract this amount will be relevant and if executed.

For the entire three-year period of 2018-2020, mitigation finance is equal to adaptation finance and amounts to USD 8.9 million.

In 2019/2020, mitigation finances have fallen sharply from USD 8.1m to USD 0.79 million, adaptation finances have shrunk from USD 7.3 million to USD 1.66 million, as well as those with cross cutting nature with dual objective falling from USD 5 million to USD 0.72 million.

JOURNAL OF SUSTAINABLE DEVELOPMENT, VOL. 12, ISSUE 28 (2022), 17-37
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There is a large increase in the received international financial support for financing projects that fall in the category with other objectives, which increased from USD 2.7 million to USD 8.1 million. This category includes projects whose main goal is capacity building, technical support, technology support, and general objective, but their implementation contributes to the fight against climate change.

The greatest part of international financial flow for the three-year analysed period of 2018-2020 came from bilateral support amounting to USD 18.5 million, while the multilateral support received amounts to USD 15.9 million. European Union provides 77.7% of the bilateral support, which at the same time is 41.7% of the total international financial support. The rest of the bilateral support is provided by Switzerland (14.3%), Germany (7.5%), Others (0.5%).

Figure 8. Climate finance by bilateral or multilateral support received

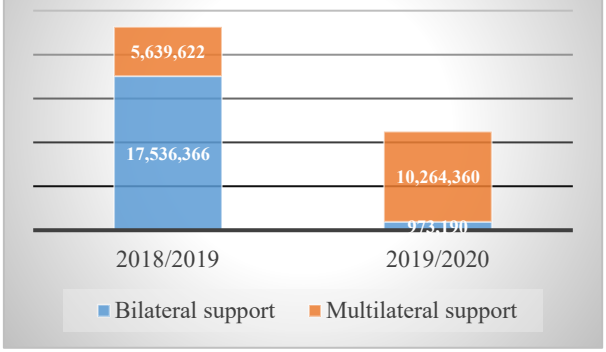
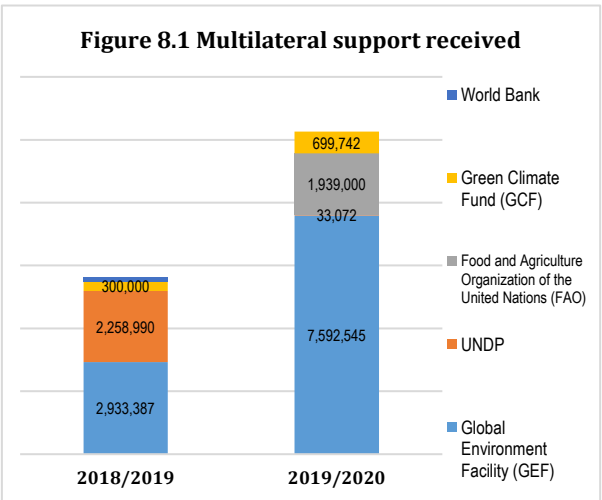


Figure 8.1 Multilateral support received



Multilateral financial institutions that are part of the financial mechanism of the Convention play a particularly important role in financing climate projects in North Macedonia. The role of the Global Environment Facility (GEF) is especially important, which for the three-year analysis period of 2018-2020 provided USD 10.5 million or 66.2% of the total multilateral support and 30.6% of the total international financial support received. The Green Climate Fund (GCF) in the entire period provided 6.3%, while FAO provided 12.4%.

Source: Author's own presentation

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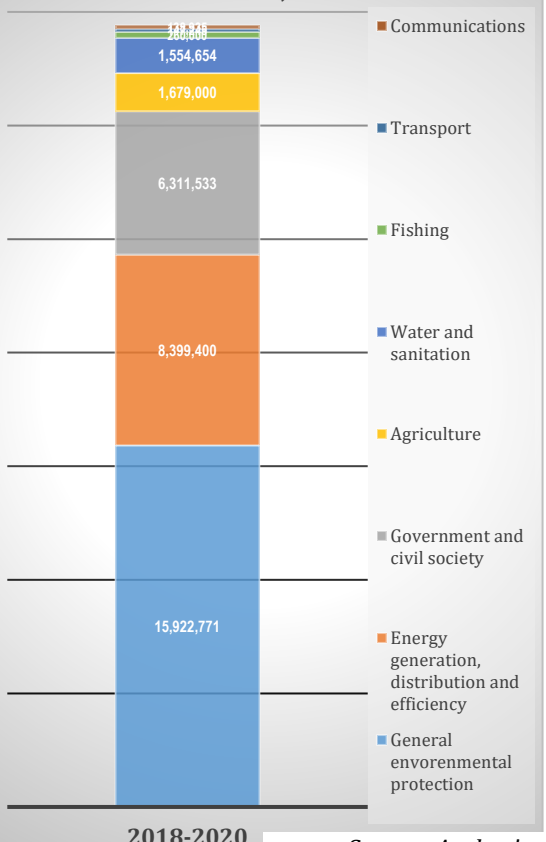
Finally, we analysed the structure of the distribution of the international financial support according to the sectors. The sector definition used in this analysis is according to the OECD DAC Rio Markers methodology (OECD, 2011).

Figure 9 shows the distribution of international climate finance by sectors for the entire three-year analysis period of 2018-2020. Most of the received international financial support belongs to projects from the General Environmental Protection sector, which is 46.3%. In the sector of Energy generation, distribution and efficiency it amounts to 24.4%, Government and civil society 18.3%, Agriculture 4.9%, Water and sanitation 4.5%, Fishing 0.8%, Transport 0.4%, and Communications 0.4%.

Figure 9. International financial support according to sectors, period 2018-2020, in USD



Source: Author's own presentation

Figure 9.1 International climate finance by sector 2018/2019

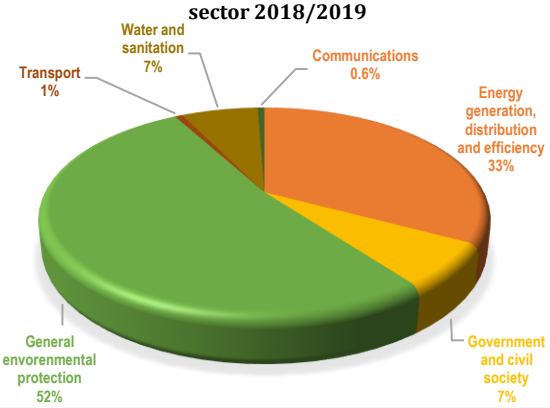
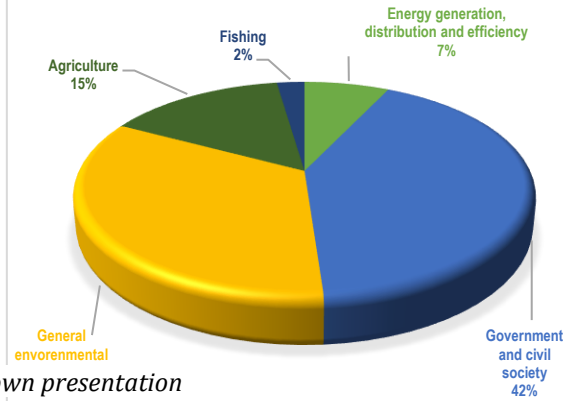


Figure 9.2 International climate finance by sector 2019/2020



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CONCLUSION

Effective and efficient implementation of climate activities relies on providing climate finance on a consistent basis. This is a particular problem for developing countries facing other economic and social development priorities and a severe shortage of climate finance. To meet the Paris Agreement's long-term goals, it is crucial that developed countries support developing countries in achieving their Nationally Determined Contributions (NDCs) and mobilizing the required climate finance.

COVID-19 pandemic had negative impact on climate finance in developing countries. Developing countries have struggled to implement their NDCs while facing a global pandemic that affected every country's health and economy in unprecedented ways. COVID-19 drastically slowed down economic activity, closed borders, and required countries to redirect budgets, increasing their debt in some cases, to address the financial needs created by the pandemic (UNDP, 2021). Climate finance was insufficient before the pandemic. The goal of mobilizing USD 100 billion annually by 2020 to address the needs of developing countries would not be met (IEGCF, 2020). The most recent report showed that total climate finance, which was provided and mobilized, reached USD 79.6 billion in 2019 (OECD, 2021a). During the pandemic, some countries announced ODA climate-related cuts that further reduced climate-finance flows.

The climate-finance needs of developing countries, based only on an assessment of the current NDCs' quantitative data communicated to the UNFCCC Secretariat, are estimated at USD 4.6 trillion for developing countries (Alayza and Caldwell, 2021). The Republic of North Macedonia is a small developing country with clear commitment to combating climate change. With its Enhanced Nationally Determined Contributions (ENDC) to reduce GHGs emissions by 51% by 2030, 63 mitigation policies and measures (PAMs) have been planned, which require green investments of EUR 25.03 billion. With an annual GDP of USD 12.1 bn, domestic financial and other capacities are far from needed to meet climate goals. Most of the required capital is planned to be provided from international sources, especially through the UNFCCC financial mechanism.

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UDK 330.59:331.5(497.7)
https://doi.org/10.54442/JSD221228038l

EMPLOYMENT ASPECTS RELATED TO QUALITY OF LIFE IN NORTH MACEDONIA

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ABSTRACT

The purpose of this article is to identify the aspects of employment in the Republic of North Macedonia in terms of the quality of life. Therefore, certain features of the quantity and quality of employment for the last ten years have been taken into account, covering the working age population aged 15 to 64, vis-a-vis EU-27 (excluding the United Kingdom). The analysis refers on data indicators about the quality of life provided by Eurostat. Employment, hence the possibility for productive activity and earning income, is prerequisite for better life quality. Also, the improvements in terms of higher wages, permanent job and job arrangements that correspond to the relevant education and skills are paramount for person's life quality.

The Covid-19 pandemic drastically changed everyday life and caused changes in work, so the perceptions of the employees in Macedonia on this issue, obtained as a result of an online survey, are also presented in this paper. The findings of the survey confirm that the pandemic caused changes in work, as well as job losses, but also other qualitative changes in employment, such as work from home, which significantly affect the quality of life.

This research doesn't cover all aspects of employment and unemployment in terms of quality of life. There are other relevant issues on this theme which can be topics for further studies and analysis.

KEYWORDS: quality of life, employment rate, unemployment, income, skills mismatch, types of work

JEL CLASSIFICATION: O15, I310

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INTRODUCTION

Indicators that illustrate the economic achievement in economy, like GDP growth, GDP per capita and other relative indicators associated with production factors, development of goods and services and their monetary value, no longer reflect the actual situation in a country, especially the standards of living and the welfare degree for an individual member of the society (Hagerty at al., 2001; Stiglitz at al., 2009). The quality of life can be evaluated through economic indicators, but it is also related to social, ecological and sustainable economic welfare.

One of the economic indicators that is important to measure quality of life is person's economic activity. In that context, it is particularly important to consider how paid or unpaid work as a productive activity, affects an individual's life. Therefore, it is necessary to measure quantity and quality of employment. The improvements in the quantity of employment mostly refer to the unemployed, who turn from unemployed into employees. The unemployment and long term unemployment is a base to estimate the scope or inadequacy of employment. Persons from these categories usually face negative aspects such as poverty, loss of human capital, impasse, which have a direct impact on the quality of life. When it comes to improving the quality of employment, improvements should be made for those who work in direction to create better working conditions. It should be noted that the quantity and quality of employment are complementary and therefore should not be substituted when it comes to measuring improvements in quality of life.

METHODOLOGY

In this paper the conclusions are provided using several scientific research methods. The overview of the labour market in the Republic of North Macedonia is made using data statistics of Eurostat, in order to provide comparability with EU-27. The analysis is focused on the indicators that consider the productivity or main activity of the working age population (15 to 64 years), for the period 2010 – 2020. Productivity or the main activity of the population is one of the nine quality of life indicators prepared by Eurostat for the European Union. This indicator refers to the work of employees, self-employed or unpaid family workers, but also includes the unpaid work (caring for family members or volunteering) and other types of activity for example, studying or retiring (Eurostat, 2021). The observed data are graphically

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presented and the comparative analysis for Republic of North Macedonia and EU-27 (excluding the United Kingdom) is made.

Also, in this paper, an empirical analysis of a questionnaire was performed. The online questionnaire was aimed to the employees in North Macedonia and contents questions on the economy and changes in jobs during the Covid-19 pandemic period. It was sent online to more than 2000 respondents, by email and through social networks (Facebook, Instagram, LinkedIn), in the period from October 15 to November 30, 2021. Although a longer period of time was left for collecting answers, only 388 completed questionnaires were received. For the purpose of this paper, the analysis focuses only on several questions from the questionnaire which concerns the quality of life of the respondents. Received answers are statistically prepared and graphically presented.

The inductive-deductive method and the methods of analysis and synthesis of the available relevant domestic and foreign literature and research on the topic are applied and the conclusions are made.

1. Quantitative aspects of employment and unemployment in terms of quality of life

The country's welfare depends on its economic and labour market policy, and from its ability to ensure income for its people. Employment is the most important method to fully, actively and on equal rights participate in the life of the society. The more people participate on the labour market, the larger their contribution to ensuring the accessibility of the necessary social security (Bilevičienė T., Bilevičiūtė E., Drakšas R., 2016). The employment status is an essential way to provide income. Therefore, the quantitative aspects of employment related to the quality of life are seen in terms of the main labour market indicators such as: employment and unemployment rate, long-term unemployment and their structural characteristics. Higher employment accompanied with lower unemployment are good foundation to expect better employment quality and consequently, positive impact on the person's life in future.

The employment rate in North Macedonia in the last decade is increasing from 43.9% (2011) to 54.7% (2020). This growth trend is characteristic for both males (52.3% to 63.7%) and females (35.3% to 45.3%) (Figure 1). According to the data, as a consequence of the Covid-19 pandemic in the past two years, there was a slight decrease only in the employment rate among men (by 0.7 percentage points).

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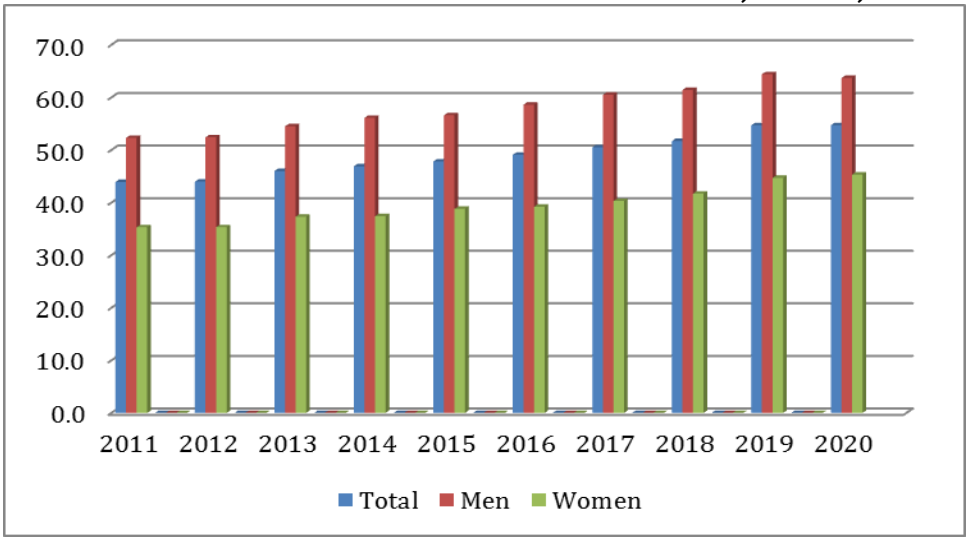
FIGURE 1 EMPLOYMENT RATES IN NORTH MACEDONIA, BY SEX, 2011-2020



Source: Eurostat,
https://ec.europa.eu/eurostat/databrowser/view/lfsa_ergaed/default/table?lang=en

Compared to the situation in the EU-27, employment rates in North Macedonia were and remain significantly lower, because in 2020, their value in EU-27 was 67.6% (total population), 72.8% (men) and 62.5% (women).

According to Eurostat data, the unemployment rate in North Macedonia is characterized by a continuous downward trend, whereby in the period 2011-2020 it decreased by 15 percentage points, both for the total population and by gender. In 2020 the values were 16.6% (total population), 16.9% (men) and 16.1% (women) (Figure 2). The unemployment rate in North Macedonia is also significantly different from the average unemployment rate in EU-27 which is much lower (7.2%, 7.0% and 7.5%, respectively).

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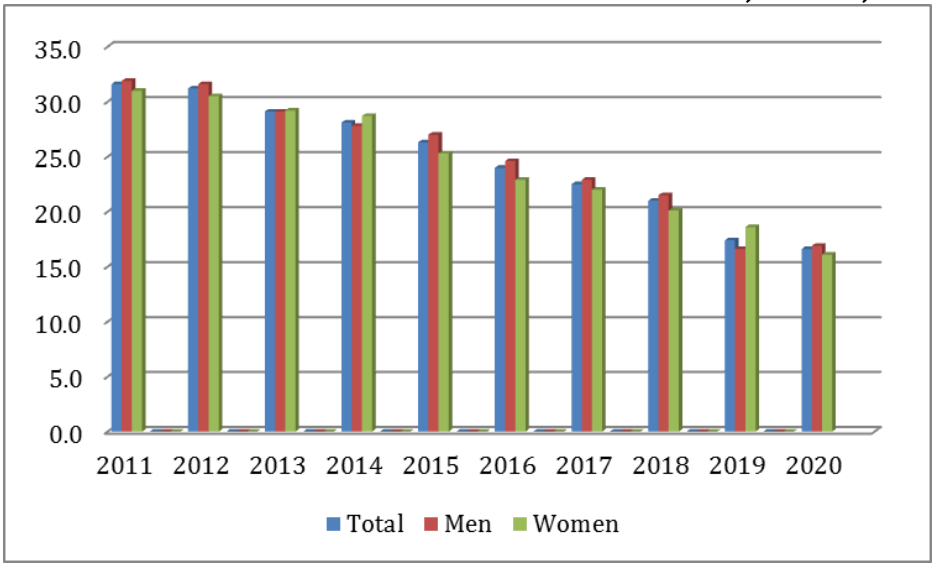
FIGURE 2 UNEMPLOYMENT RATES IN NORTH MACEDONIA, BY SEX, 2011-2020



Source : Eurostat,
https://ec.europa.eu/eurostat/databrowser/view/lfsa_urgaed/default/table?lang=en

Regarding the unemployment rate according to the level of education, different intensity of changes is noticeable. Thereby, the unemployment rate among persons with low level of education[1] is moving downwards and from 38.2% (2011) decreased to 22.3% (2020), among those with secondary level of education[2] almost halved (from 31.6% to 16.2%), while among persons with high level of education[3] this decrease is significantly lower (from 23.0% to 13.8%, respectively) (Figure 3).

The comparison with the EU-27 indicates on significant differences. The unemployment rates by education in 2020 in the Union are much lower and amount: 13.9% (low level of education), 6.5% (medium level of education) and 4.8% (high level of education).

[1] Low level of education according to the ISCED classification of education covers levels from 0-2 (Less than primary, primary and lower secondary education)
[2] Secondary level of education according to the ISCED classification of education covers levels of 3-4 Upper secondary and post-secondary non-tertiary education)
[3] High level of education according to the ISCED classification of education covers levels of 5-6 (Tertiary education)

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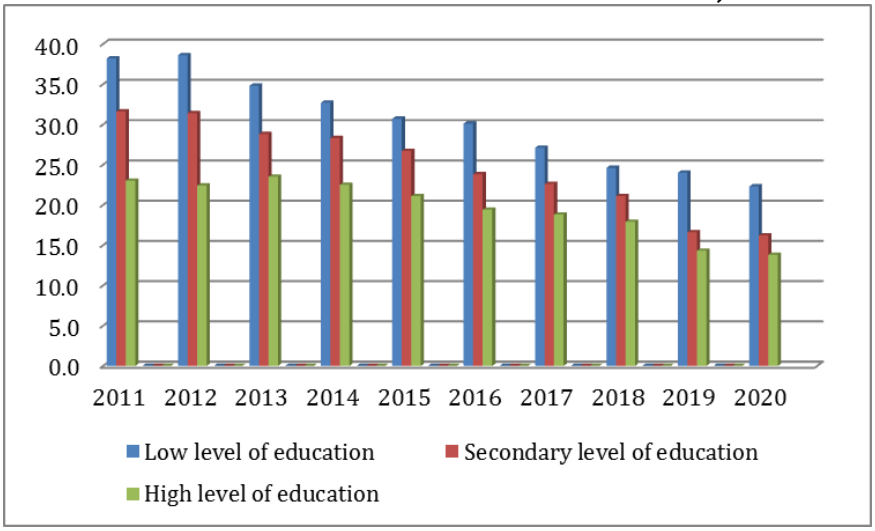
FIGURE 3 UNEMPLOYMENT RATES BY EDUCATION, 2011-2020



Source: Eurostat,
https://ec.europa.eu/eurostat/databrowser/view/lfsa_urgaed/default/table?lang=en

The long-term unemployment rate, as a share of the total labour force, also tends to decrease, from 26.1% (2011) to 12.4% (2020). Within the EU-27, however, the values of this indicator are incomparably lower (4.2% and 2.4%, respectively). However, despite the downward trend in long-term unemployment, the share of long-term unemployed (unemployed for more than a year) in total unemployment is still very high. This indicator for North Macedonia is 84.3% (2011), i.e. 76.5% (2020), while in the EU-27 it has values of 43.5% and 34.9%, respectively (Eurostat database, 2021a).

2. Quality of employment in relation to quality of life

Development of the necessary productive employment opportunities and ensuring steady livelihood are one of the most important and difficult tasks of each society. Inclusion of as much people as possible into good quality employment is the best way of increasing their economic and social opportunities, as well as their quality of life. In the analysis of how much the quality of employment contributes to the quality of life, several key aspects are covered through which the quality of employment is perceived.

2.1. Types of work

Temporary work means that the employee has a certain time period to work and determined tasks to be completed, before its employment is terminated. Therefore, temporary employment contracts are made, but they are with limited duration, i.e. for a definite period of time. Such agreements are a good basis for entering the labour

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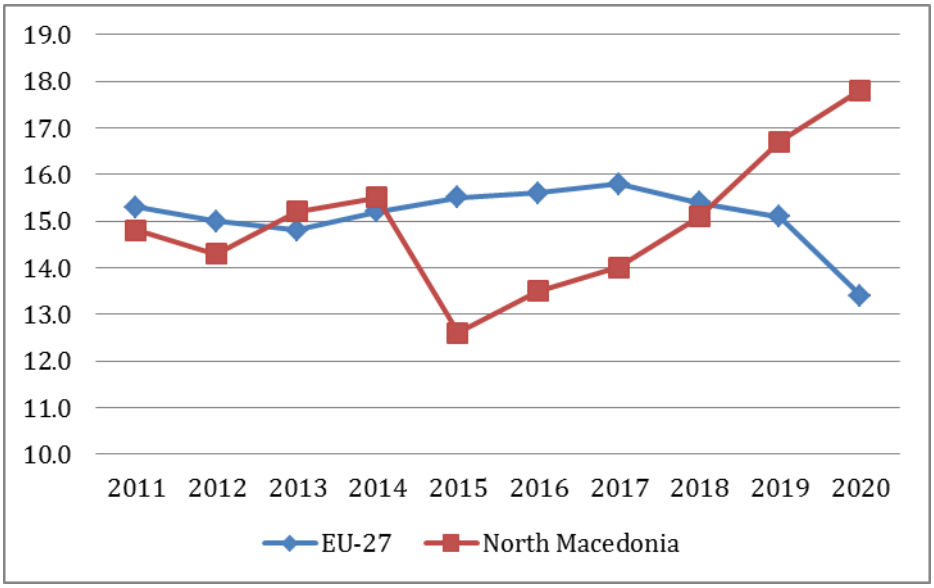
market for people who have just left the education process, who have little or no work experience, unemployed people or those who have been out of the labour market for a long time and are looking for a way to reintegrate. Temporary contracts achieve some flexibility in the work, gain different work experience, enable the persons who have signed such contracts to balance more easily between work and private life, etc. However, these agreements may also mean different treatment for temporary compared to permanent employees, in terms of wages, benefits, training, job security, establishing collegial relationships, etc. All of these may have a significant positive or negative impact on the quality of life, which depends on people's perceptions and needs.

Available data show that the share of temporary employees in the total number of employees is characterized by oscillations. During the period from 2011 to 2020, with the exception of 2012 and 2015, this indicator had an upward trend, reaching a value of 17.8% in the last analyzed year (Figure 4).

FIGURE 4 SHARE OF TEMPORARY EMPLOYEES IN TOTAL EMPLOYMENT



Извор: Eurostat,
https://ec.europa.eu/eurostat/databrowser/view/lfsa_urgaed/default/table?lang=en

Unlike the situation in North Macedonia, in EU-27 the share of temporary employees in the total number of employees decreases from 15.3% (2011) to 13.4% (2020).

Part-time work particularly when forced, doesn't meet the employee's needs, presents an insufficient employment and is a very important indicator of the quality of life. Namely, if people work fewer hours than they would like, it has implications on

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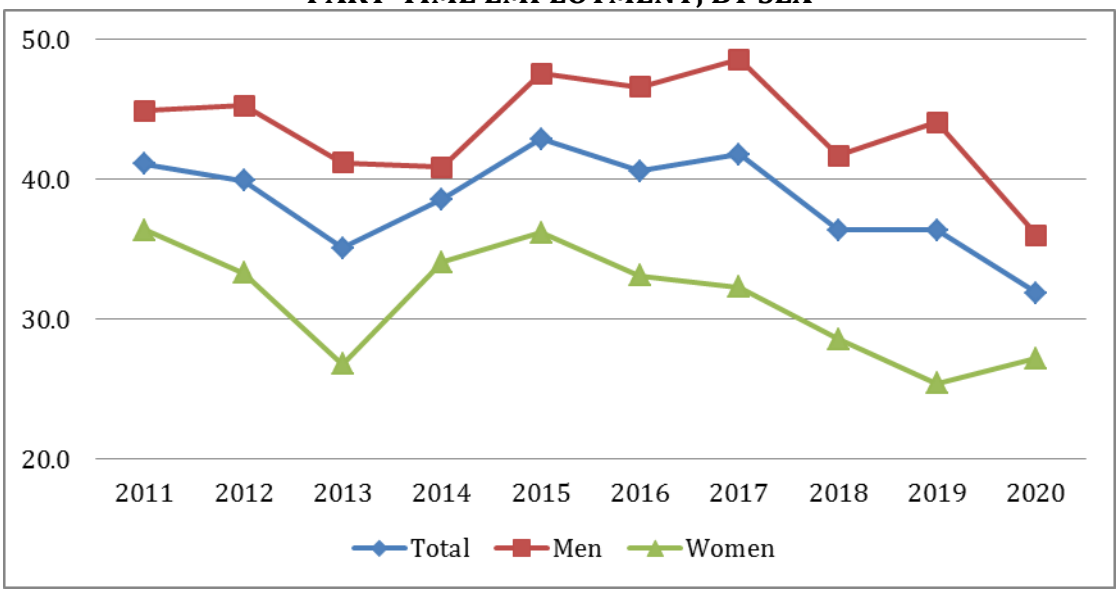
their income, their sense of belonging in the workplace, gaining experience, access to benefits and opportunities for training and career development, and thus on their quality of life. However, sometimes people are forced to accept part-time work due to the lack of full-time alternatives.

The share of persons forced to work part-time in the total number of persons who are working part-time, in the observed period, with certain oscillations, decreased by almost ten percentage points (from 41.1% in 2011 to 31.9% in 2020). This trend of changes is also characteristic for men (from 44.9% to 36.0%) and for women (from 36.4% to 27.2%), respectively (Figure 5).

FIGURE 5 INVOLUNTARY PART-TIME EMPLOYMENT AS SHARE OF THE TOTAL PART-TIME EMPLOYMENT, BY SEX



Извор: Eurostat,
https://ec.europa.eu/eurostat/databrowser/view/lfsa_eppgai/default/table?lang=en

Decline in the share of employees with forced part-time work is also characteristic for EU-27, but is less intense (3.6 percentage points-total, 5.4 p.p. - men and 3.3 p.p. - women.

Within the analysis of the quality of employment, a significant segment is the *incidence of low wages*. According to the Eurostat definition,[4] this category includes those who earn two thirds or less of the national average earnings (earnings rate per hour, relative to which half of the country's population earns less and the other half earns more).

[4] Eurostat, https://ec.europa.eu/eurostat/cache/metadata/en/earn_ses_main_esms.htm

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The data in table 1 show noticeable differences in the share of low wages in total employment by individual age groups. In the period 2010-2018, the largest share of low wages is observed among employed persons under 30 years of age, but with very pronounced decrease (by more than 18 percentage points). This situation is due to the fact that these people are usually with less work experience and cannot find a job quickly after completing their education, so they accept to work for lower wages. In this way, they create opportunities to enter the labour market and provide better position on it.

TABLE 1 SHARE OF LOW WAGE EARNERS IN TOTAL EMPLOYMENT

	2010	2014	2018
Total			
EU-27	15.8	16.36	15.22
North Macedonia	28.25	25.13	16.06
Less than 30 years			
EU-27	27.46	27.91	26.17
North Macedonia	37.57	34.27	19.53
30-49 years			
EU-27	13.31	13.67	12.51
North Macedonia	30.22	26.55	16.74
50 and more years			
EU-27	13.41	14.78	13.85
North Macedonia	21.17	19.09	13.32

Source : Eurostat,
https://ec.europa.eu/eurostat/databrowser/view/earn_ses_pub1a/default/table?lang=en

The tendency of decrease in the share of people with low wages is characteristic for those aged 30-49 (from 30.22% in 2010 to 16.74% in 2018) and older than 50 (from 21.17% to 13.32%, respectively). On the EU-27 labour market, the decline in the share of low-wage workers in the total number of employees is relatively lower.

One of the aspects of work that affects the quality of life, especially the balance between private life and work, is the *number of working hours*. People are willing to work up to a certain number of working hours, which when overtaken starts to reduce their job satisfaction and productivity. The average working time expressed as working hours in a week, in the Republic of North Macedonia in 2011 was 42.8 hours, while in 2020 it decreased to 40.8 hours. In the EU-27, the average weekly working hours are lower, at around 37 hours (Eurostat database, 2021b).

In the context of quality of life, the *night work* often has a negative impact on life. It reduces the pleasure of work, affects the mood, and shortens the time for family

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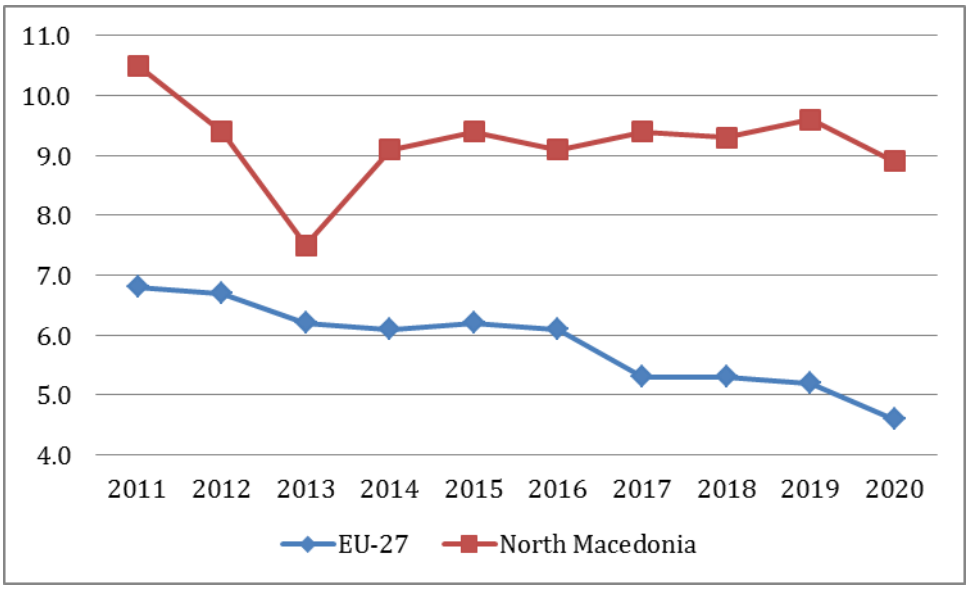
and leisure activities, because the day is usually used for rest before or after night work. The data show that the share of employees working night work in the total number of employees in North Macedonia ranges from 10.5% (2011) to 8.9% (2020), versus 6.8% and 4.6%, respectively, within the EU-27 (Figure 6).

FIGURE 6 EMPLOYED PERSONS WORKING AT NIGHTS AS A SHARE OF THE TOTAL EMPLOYMENT



Source: Eurostat,
https://ec.europa.eu/eurostat/databrowser/view/lfsa_ewpnig/default/table?lang=en

2.2. Skills mismatch

One of the key features that determine the quality of employment is the ability of employees to possess and use qualifications and skills in accordance with the needs of their job. In this way, they are expected to be more productive, motivated to work and to improve the quality of their work, and therefore of their lives. The current mismatch between skills supply and demand on the labour market indicates the need for more precise measures and ways to overcome it.

Skills supply and demand mismatch can be vertical or horizontal. *Vertical mismatch* refers to having higher qualifications required for a job. The indicator that measures vertical non-compliance shows how many of the highly qualified employees (20-64 years) who have completed tertiary education according to the ISCED classification are employed in positions that do not require this level of education (over-qualified).[5]

[5] Eurostat, Skills mismatch experimental indicators-Methodological note, https://ec.europa.eu/eurostat/documents/7894008/9596077/Methodological_note.pdf

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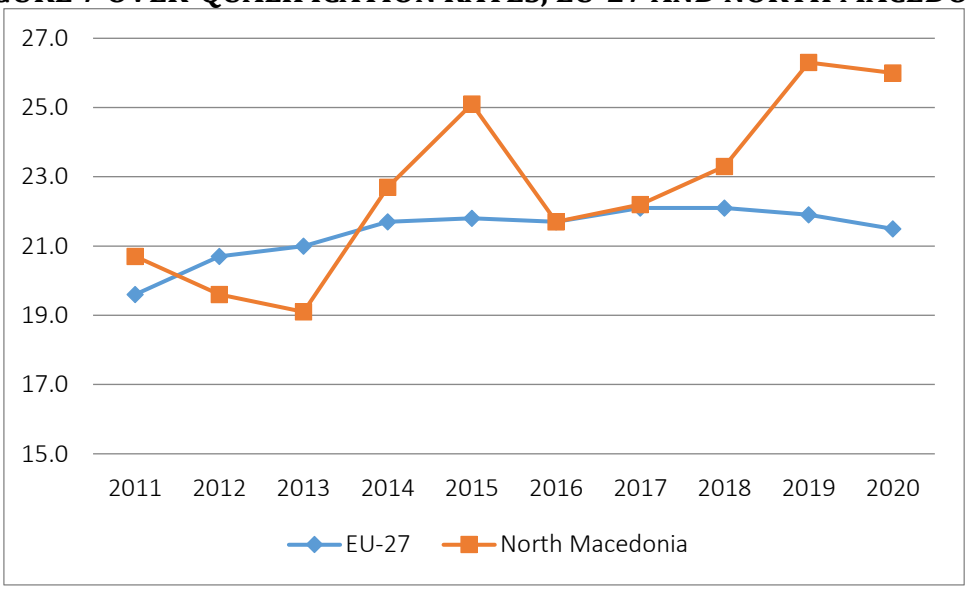
The available data show that in North Macedonia the value of this indicator ranged from 20.7% in 2011 to 26.0% in 2020 (Figure 7). Over the past two years, particularly as the COVID-19 pandemic began in 2020, the rise has been stronger. This means that more than one quarter of employees have higher qualifications than those required to carry out professional activities on their job. Vertical skills mismatch at EU-27 level is less pronounced, with 19.6% (2011) reaching a value of 22.1% (2018), and then characterized by some reduction (21.9% in 2019 and 21.5% in 2020).

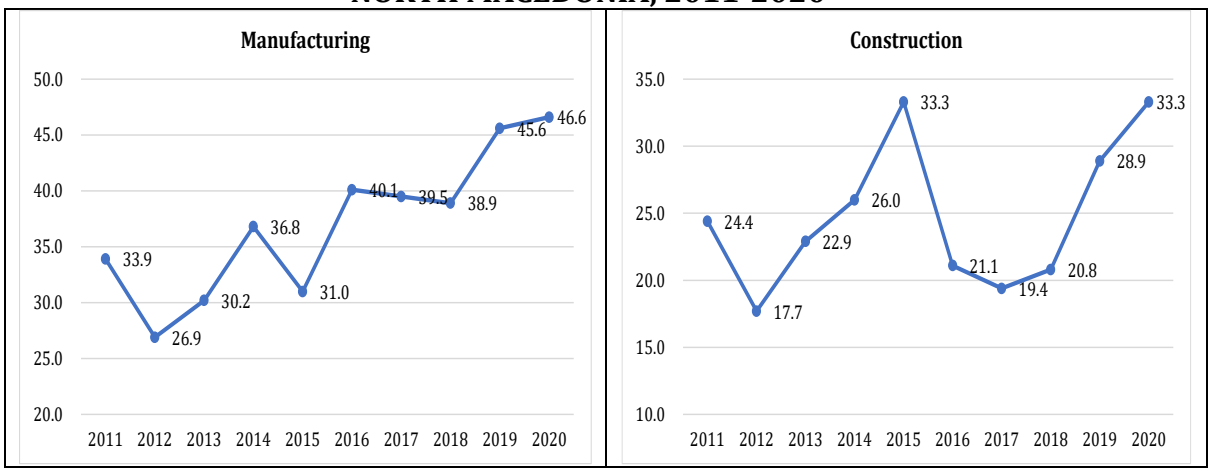
FIGURE 7 OVER-QUALIFICATION RATES, EU-27 AND NORTH MACEDONIA



Source: Eurostat, https://ec.europa.eu/eurostat/web/experimental-statistics/skills

The vertical mismatch of skills is noticeable in of economic sectors resulting in a certain percentage of mismatches between the required and offered qualifications and skills of employees (Figure 8).

FIGURE 8 OVER-QUALIFICATION RATES BY ECONOMIC ACTIVITY, EU-27 AND NORTH MACEDONIA, 2011-2020



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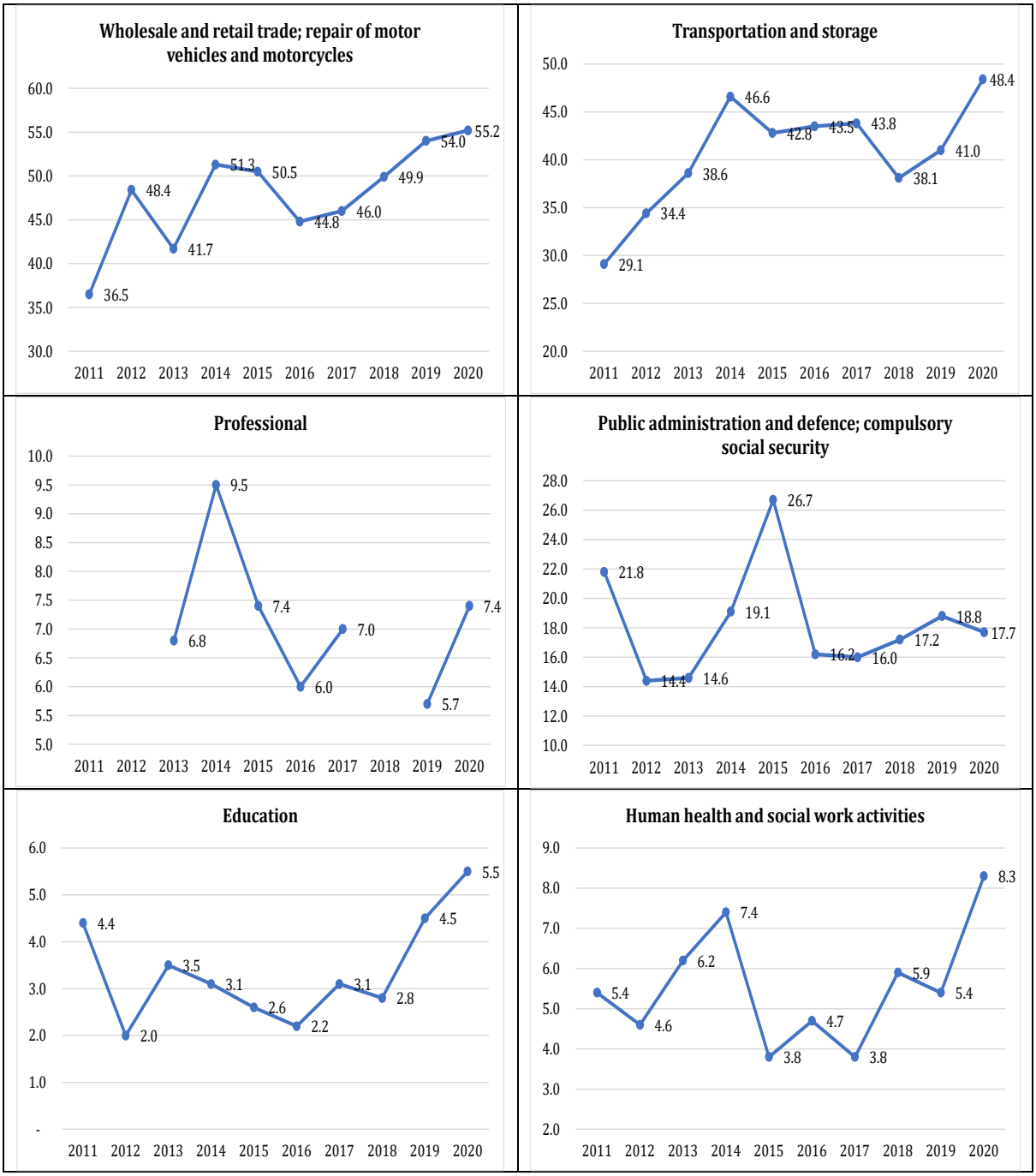

Source: Eurostat, https://ec.europa.eu/eurostat/web/experimental-statistics/skills

The most pronounced discrepancy is characteristic for the sectors: wholesale and retail trade, manufacturing, construction, and transport and storage. During the period of the Covid-19 crisis there is a noticeable increase in the participation of over-qualified employees in the total number of employees in all these sectors. Thereby, in the wholesale and retail trade sector, the value of the indicator was 54% (2019) and 55.2% (2020), in the transport and storage sector 41% and 48.4%, while in the processing industry 45.6% and 46.6%, respectively. In the construction sector, almost

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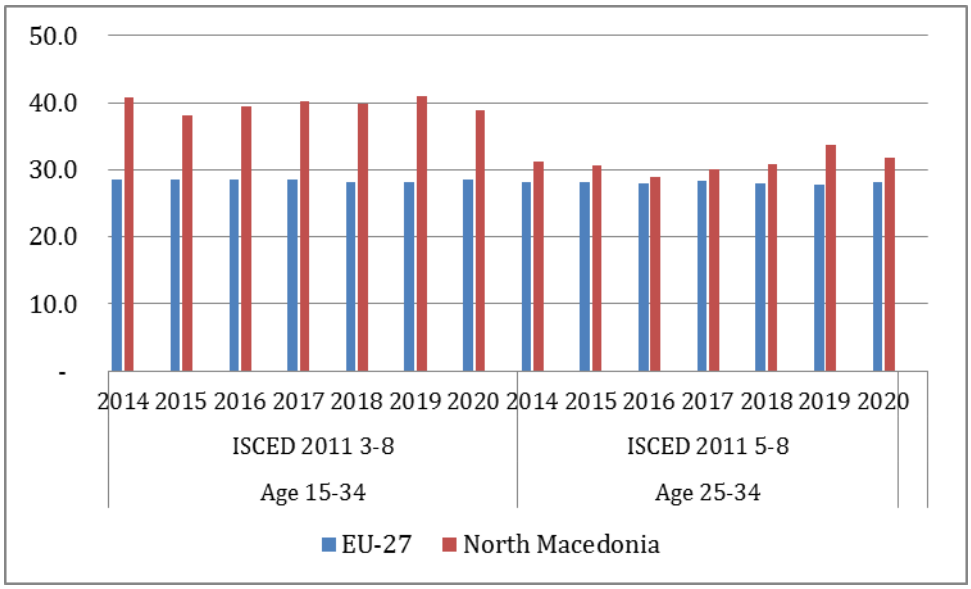
one third of the employees, in the last two analyzed years, stand out as mismatched in terms of the level of education. In the other sectors the discrepancy is present, but it is less than 10%.

Horizontal mismatch of skills refers to how many employees are employed in jobs that are not appropriate for the field of education they have completed. Horizontal mismatch rate take into account the international standards of education qualifications ISCED-2011, for persons aged 15 to 34 who have completed at least secondary education (ISCED levels 3 to 8) and for employed persons aged 25 to 34 years, who have completed higher education (ISCED level 5 to 8) (Eurostat database, 2021c).

Available data show that the rate of horizontal skills mismatch in North Macedonia is higher in the age group 15-34 years, i.e. persons with at least secondary education (Figure 9). This value of this indicator with certain oscillations decreased from 40.9% (2014) to 39% (2020). For employees aged 25 to 34 who have completed a high level of education, this indicator varies from 31.3% (2014) to 31.8% (2020). In EU-27, the rate of horizontal skills mismatch has higher values, with both age groups, and is around 28%.

FIGURE 9 RATE OF HORIZONTAL SKILLS MISMATCH, EU-27 AND NORTH MACEDONIA



Source: Eurostat, https://ec.europa.eu/eurostat/web/experimental-statistics/skills
* Only those employees who have successfully completed their highest level of education in the last 15 years are included

Also, there is a horizontal mismatch in all areas of education. Among employed persons with at least secondary education, the rate of horizontal mismatch is more

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pronounced in the areas of mathematics and computer science (from 60% to more than 70%) and agricultural sciences and veterinary medicine (over 70%). In the group of those who have completed high level of education, the horizontal mismatch rate is lower, and in 2020 it is most emphasized in the field of teacher training and education (about 50%), agricultural sciences and veterinary (76%) and services (56.4%). The lowest percentage of mismatch during the period 2014-2020 occurs in the field of social sciences, business and law. For the age group of 15-34 years with completed at least secondary education, this percentage ranges from 24% in 2014 to 28.7% in 2020. For persons aged 25-34 with completed high level of education, the rate is 15.3% and 18.2%, respectively (Eurostat database, 2021c).

3. Relation between quality of life, employment and Covid-19

In the past two years when the world, as well as North Macedonia, was faced with Covid-19 pandemics, changes have happened in many areas including the employment and quality of life. Therefore, in research through an online questionnaire, on the opinions of the employees in North Macedonia, on how Covid-19 pandemic influences the living standard, work, productivity and economy, questions about its impact on the employment and quality of life were used. It was sent to more than 2000 employees by e-mail and social media and the response rate was 19.4%.

The analysis of the questions shows that during the pandemic, far-reaching changes are made in the way how work is organized, realized and productive. Almost two thirds of the employees consider that the pandemic led to changes in their jobs, wages, material conditions of their family, as well in the quality of life.

During the Covid-19 crisis only 6% of the employees have temporarily lost their job, but 89% stated that their wages didn't decrease. Although most of the respondents declared that their earnings didn't suffer, for 23% of them the material condition of the families have deteriorated (Figure 10).

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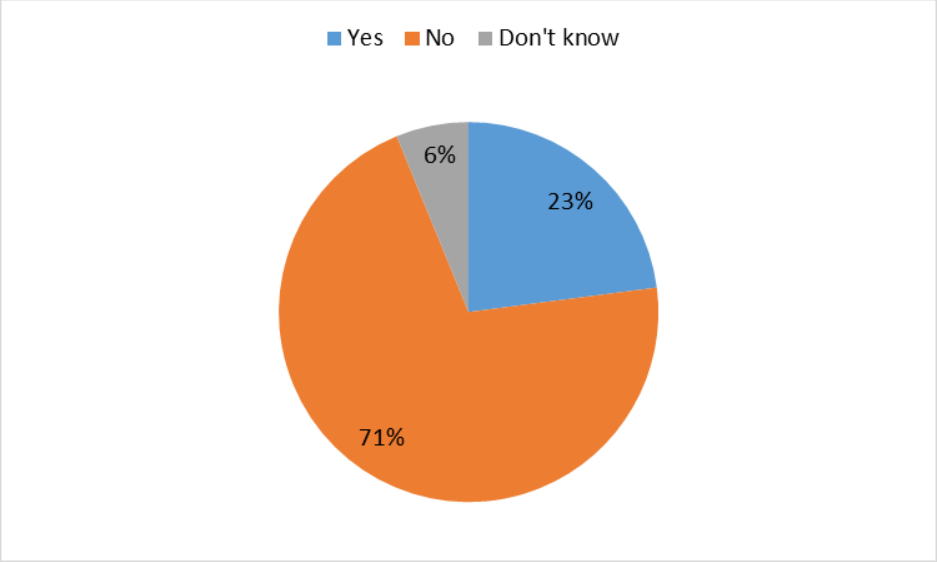
FIGURE 10 CHANGES IN THE MATERIAL CONDITION OF THE FAMILIES



Source: Authors' calculations

When it comes to the changes in the employment related to the quality of life in this crisis period, almost half of the respondents (47.9%) confirmed the need to use digital technology more in their work, while 45.2% the need to work from home. Such changes do not necessary mean better quality of life, since they require getting new equipment (computers, laptops, tablets etc.) and are increasing the expenses in the family. Also, it imposes need to improve or to acquire digital skills, which can be a burden to older persons.

The Covid-19 crisis more or less led to economic crisis, to increase in the prices of goods and services, as well as of other life expenses. It was confirmed by 93% the respondents (Figure 11). Such changes are one of the main factors for worsening the financial situation of the respondents' families.

The pandemic has also caused major changes in terms of inequality between people. Thereby, about one third of the respondents (35.6%) marked with highest rank the changes in living conditions and quality of life, 30.4% set a part the employment opportunities in pandemic conditions, 30.7% the availability of digital technologies necessary for work and 39.4% reflect that the working conditions are also influenced.

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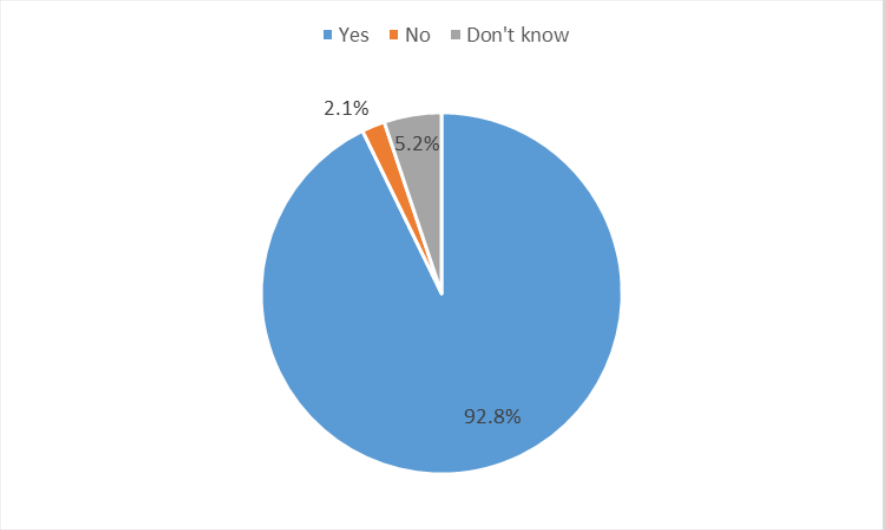
FIGURE 11 CHANGES IN THE PRICES OF PRODUCTS AND SERVICES



Source: Authors' calculations

The previous analysis demonstrates that losing jobs, receiving same or reduced monthly income, as well as increasing the living costs due to increased prices, are worsening the material situation of the families. Also, working from home and online school for many families was requiring purchase of information equipment. It contributed to additional costs, further burden to home budgets and reduction of the quality of life.

CONCLUSION

Having in mind the results from the research on the quantity and quality of employment in terms of the quality of life, it can be concluded that in the period 2011-2020 significant changes happened. Starting from the increase of the employment rate, the decrease in the unemployment rate and the long-term unemployment rate, the labour market in North Macedonia is characterized by some positive developments. However, such changes in order to have an impact on improving the quality of life should be accompanied by certain qualitative improvements in employment.

The analysis shows that the use of temporary employment contracts is increasing in the country. It enables people who are just entering the labour market to be able to get a job, to gain experience, to have more flexibility between work and private life, to have time for trainings and so on. However, the feeling whether they have quality life or not, depends on their personal views on how much it affects their income, benefits, work and position on the labour market.

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Although the involuntary part-time employment in North Macedonia has a downward trend, it is still high. Such employment often has a negative impact on the quality of life, because these employees due to fewer working hours earn less, have fewer opportunities to gain work experience, training, benefits, career development, etc.

Low wages are another indicator on the quality of employment. There is a decreasing trend in the share of low-wage earners in the country, but still, these employees cannot be satisfied with their employment, and thus with the quality of life. Namely, in terms of high living costs, low salaries significantly deteriorate the quality of life.

The opportunity for every employee to find employment in accordance with his qualifications and skills would mean greater productivity at work, greater motivation, higher earnings, greater job satisfaction, and thus a better quality of life. However, on the labour market in North Macedonia there is a vertical and a horizontal mismatch of skills. Vertical mismatch means that a person possesses qualifications and skills different from those required on his or her job. This leads to inadequate completion of work activities, inability to keep up with changes in the workplace, insufficient or inadequate use of knowledge and skills, which indirectly affects the quality of life. Horizontal mismatch shows that a person works on a job but doesn't have the suitable field of education. It can result in job dissatisfaction, inadequate wage or benefits, insufficient knowledge for all job tasks, lower efficiency, additional costs of acquiring specific skills for the job, and consequently to a lower level of quality of life.

The situation after Covid-19 crisis confirms and implies that there are a lot of aspects of employment that are important for quality of life. Therefore, it is not enough just to influence the increase of employment and decrease of unemployment, but it is necessary to take into account the qualitative aspects of employment. When the priorities, national and individual, are aimed at improving the qualitative aspects of employment, then we can talk about a better quality of employment, and thus life.

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JOURNAL OF SUSTAINABLE DEVELOPMENT, VOL. 12, ISSUE 28 (2022), 56-71
UDK 930.85:368]:005.334(497.7)
https://doi.org/10.54442/JSD221228056ta

CULTURAL HERITAGE INSURANCE

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ABSTRACT

The Republic of North Macedonia is a country which is rich in cultural and historical goods. It abounds with cultural heritage that needs to be protected. Cultural heritage is a set of material and non-material (spiritual) goods that man has been creating in his history for many centuries, in which they manifest different cultures that is passed down from generation to generation, and therefore it reflects the history of a country. Knowing that cultural heritage is threatened by a number of risks, it requires the management of those risks and also protection from those risks. In addition, the insurance is an important tool for reducing financial losses from the destruction of cultural heritage. Every risk management technique has a price, so the insurance of cultural heritage has its price too, that is called the insurance premium which has many specifics in its determination. The purpose of this thesis is to find a method for determining the price of the cultural heritage.

KEYWORDS*:* risk and insurance, cultural heritage, premium, insurance premium model.

JEL CLASSIFICATION: G22. G29

INTRODUCTION

The importance of cultural heritage for the society is immeasurable indeed, because primarily it contributes for strengthening the culture of individuals and society as a whole and it reflects the culture and the way of life, and its message is a presentation of the specific values of a tradition.

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Cultural heritage is a very important resource in the development not only of the direct tourist offer, but also for the development of production of the content based material and non-material heritage, by the creative industry.

Cultural heritage not only carries the characteristics of the past, but also carries the characteristics of modernity. The cultural and natural units of each state are of inestimable value to all mankind. People strive to better protect them, preserve them for the future generations, and present and promote their value as well. Unfortunately, such places have always been exposed to various disasters, due to which many of them have disappeared forever.

There are some basic divisions of cultural heritage according to several criteria, as following: according to the properties it possesses (it can be: immovable, movable and spiritual cultural heritage), according to its meaning (it can be: cultural heritage of a special and other cultural and historical significance) and according to the degree of endangerment (it can be: not endangered and endangered cultural heritage)[1].The awareness that cultural heritage is threatened by a number of risks that may be from the very impact of the man such as the risks of appropriation, theft, destruction, etc., but also risks that don't depend on man such as floods, earthquake, exposure to temperature difference, etc. imposes the need to adopt proper methods for the protection of cultural heritage. Insurance is one of the techniques used to deal with the risks that threaten cultural heritage and currently it takes a place as the most important risk management technique. Insurance as a risk management technique presents protection against harmful consequences. The basic idea of insurance is related to the existence of a risk category.

Insurance is an economic activity that protects people and their property from the consequences that can arise from a number of dangers. It is a form / technique of risk management, which is aimed at reducing financial losses. It is a transfer of risk from the insured person or the insured property to an insurance company, by paying an insurance premium.

[1] LAW ON PROTECTION OF CULTURAL HERITAGE,"Official Gazette of the Republic of Macedonia" No. 20/04 dated 02.04.2004

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1. RESEARCH OBJECTIVES

The subject of the research is the insurance of the cultural heritage in the Republic of North Macedonia from risks that constantly threaten the cultural goods and which, if they occur, they can cause their complete destruction, and thus the loss of the cultural wealth of the country as well. Since the Republic of North Macedonia abounds in a wealth of cultural heritage, the subject of the research will refer to four churches in the Ohrid region, named: St. Sofia, St. John Kaneo, St. Clement and St. Nahum.

The main goal is protection of the cultural heritage in the Republic of North Macedonia by applying for its insurance.

Within this research, a basic **hypothesis** has been set which says:

"The cultural heritage in the Republic of North Macedonia is exposed to risks that constantly endanger it."

In addition to the basic hypothesis, there are two auxiliary hypotheses, which are:

- The Republic of North Macedonia is a country which is rich in cultural heritage.
- Insurance is a good mechanism for protection against risks, and non-insurance of cultural heritage and realization of some of the risks that threaten it, causes large-scale damage.

Regarding the hypotheses, the research question is formulated, and that is to find an appropriate model for calculating the premium of cultural heritage insurance.

2. METHODOLOGY

Methods used in the research are the following: comparative research method, primary research method and quantitative research method.

As our country is rich in cultural heritage, and this can be seen from the list published on the website of the Cultural Heritage Protection Office in the Republic of North Macedonia, the research was conducted on the territory of the city of Ohrid for the following churches: St. Sofia, St. John Kaneo, St. Clement and St. Nahum. Firstly, comparative research was done with the help of the information we received through theoretical research (talking to the curators of the churches about when the churches were built, restored, their location, etc.) and a comparison of literature written about those churches. From the comparative analysis we got information about the age of the churches, their construction, the icons and iconostasis that are in the churches, the

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damage they have suffered and so on. We also got information that at all four churches it is paid entrance fee of 100 denars for tourist and 30 denars for students for visiting the church, but it isn't paid for visiting the service.

In addition to the comparative analysis for the purposes of this research, we used primary research by conducting a survey of the churches that are the subject of this research. In order to be able to conduct quantitative research by applying for the cognitive valuation model, a survey of church visitors who pay for tickets was conducted (because the tickets that are charged when visiting cultural facilities generate a certain income). The survey questionnaire consists of 10 questions. Since 99.9% of the tickets paid for church visits are by foreign visitors, the survey was conducted on 200 foreign visitors to each church separately, therefore total 800 surveys for all four churches were conducted.

The model I use to summarize the survey data in order to conduct quantitative research is the connotative valuing model (CVM) which involves the use of the determinant "Willingness to pay" by the individual for the hypothetical variable of some good or a favor.

3. RESEARCH RESULTS

By using the connotative valuing model (CVM) we analyzed the results obtained from the survey. In the following, we have analyzed the results for each church separately.

The transformed column for willingness for ticket payment is taken as a dependent variable, according to the logit function. This variable is added to the questionnaire under the name z, where z = 1 / (1 + e ^ (- WTP)).

JOURNAL OF SUSTAINABLE DEVELOPMENT, VOL. 12, ISSUE 28 (2022), 56-71
UDK 930.85:368]:005.334(497.7)
https://doi.org/10.54442/JSD221228056ta

Table 1: Model Summary[c,d] - Church of St. John Kaneo

Model	R	R Square[b]	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,986[a]	,972	,972	,12674	,972	3452,684	2	198	,000	2,106

a. Predictors: Impressions form visiting the church, Monthly income

b. For regression through the origin (the no-intercept model), R Square measures the proportion of the variability in the dependent variable about the origin explained by regression. This CANNOT be compared to R Square for models which include an intercept.

c. Dependent Variable: z

d. Linear Regression through the Origin

Table 2: ANOVA[c,d] - Church of St. John Kaneo

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	110,927	2	55,463	3452,684	,000[a]
	Residual	3,181	198	,016		
	Total	114,108[b]	200			

a. Predictors: Impressions form visiting the church, Monthly income

b. This total sum of squares is not corrected for the constant because the constant is zero for regression through the origin.

c. Dependent Variable: z

d. Linear Regression through the Origin

Table 3: Coefficients[a,b] - - Church of St. John Kaneo

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	Monthly income	,055	,007	,299	7,402	,000
	Impressions form visiting the church	,171	,010	,696	17,239	,000

a. Dependent Variable: z

b. Linear Regression through the Origin

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The regression analysis showed that the parameters: monthly income and impressions from the visit are important for the willingness of visitors to pay a ticket to visit the church of St. John Kaneo. This can be seen from the table of coefficients, where the probability of accepting the null hypothesis of rejecting the coefficients is low. The tracking rate of the original series is greater than 97%, and the Darbin-Watson statistic has a value close to 2, indicating the absence of serial correlation of the residuals from the model.

Table 4: Model Summary[c,d] - Monastery of St. Nahum

Model	R	R Square[b]	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,986[a]	,972	,972	,13588	,972	1731,139	4	196	,000	2,138

a. Predictors: Education, Impressions form visiting the church, Monthlyincome, Age

b. For regression through the origin (the no-intercept model), R Square measures the proportion of the variability in the dependent variable about the origin explained by regression. This CANNOT be compared to R Square for models which include an intercept.

c. Dependent Variable: z

d. Linear Regression through the Origin

Table 5: ANOVA[c,d] - Monastery of St. Nahum

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	127,842	4	31,961	1731,139	,000[a]
	Residual	3,619	196	,018		
	Total	131,461[b]	200			

a. Predictors: Education, Impressions form visiting the church, Monthly income, Age

b. This total sum of squares is not corrected for the constant because the constant is zero for regression through the origin.

c. Dependent Variable: z

d. Linear Regression through the Origin

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UDK 930.85:368]:005.334(497.7)
https://doi.org/10.54442/JSD221228056ta

Table 6: Coefficients[a,b] - Monastery of St. Nahum

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	Monthly income	,039	,008	,203	4,887	,000
	Impressions form visiting the church	,022	,010	,072	2,224	,027
	Age	,123	,016	,448	7,925	,000
	Education	,083	,015	,280	5,615	,000

a. Dependent Variable: z

b. Linear Regression through the Origin

The regression analysis showed that the parameters: monthly income, impressions from the visit, education and age are important for the willingness of visitors to pay a ticket to visit the church of St. Nahum. This can be seen from the table of coefficients, where the probability of accepting the null hypothesis of rejecting the coefficients is low. The tracking rate of the original series is greater than 97%, and the Darbin-Watson statistic has a value close to 2, indicating the absence of serial correlation of the residuals from the model.

Table 7: Model Summary[c,d] - Church of St. Sophia

Model	R	R Square[b]	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,993[a]	,986	,985	,09362	,986	3354,197	4	196	,000	2,350

a. Predictors: Price ticket, Education, Age, Impressions form visiting the church

b. For regression through the origin (the no-intercept model), R Square measures the proportion of the variability in the dependent variable about the origin explained by regression. This CANNOT be compared to R Square for models which include an intercept.

c. Dependent Variable: z

d. Linear Regression through the Origin

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https://doi.org/10.54442/JSD221228056ta

Table 8: ANOVA[c,d] - Church of St. Sophia

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	117,590	4	29,397	3354,197	,000[a]
	Residual	1,718	196	,009		
	Total	119,308[b]	200			

a. Predictors: Price ticket, Education, Age, Impressions form visiting the church

b. This total sum of squares is not corrected for the constant because the constant is zero for regression through the origin.

c. Dependent Variable: z

d. Linear Regression through the Origin

Table 9: Coefficients[a,b] - Church of St. Sophia

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	Impressions form visiting the church	,078	,009	,385	8,649	,000
	Age	,083	,010	,318	7,954	,000
	Education	,060	,010	,210	5,837	,000
	Price ticket	,053	,014	,094	3,844	,000

a. Dependent Variable: z

b. Linear Regression through the Origin

The regression analysis showed that the parameters: price ticket, education, age and impressions from the visit are important for the willingness of visitors to pay a ticket to visit the church of St. Sophia. This can be seen from the table of coefficients, where the probability of accepting the null hypothesis of rejecting the coefficients is low. The tracking rate of the original series is greater than 97%, and the Darbin-Watson statistic has a value close to 2, indicating the absence of serial correlation of the residuals from the model.

JOURNAL OF SUSTAINABLE DEVELOPMENT, VOL. 12, ISSUE 28 (2022), 56-71
UDK 930.85:368]:005.334(497.7)
https://doi.org/10.54442/JSD221228056ta

Table 10: Model Summary[c,d] - Church of St. Clement

Model	R	R Square[b]	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,992[a]	,984	,984	,09887	,984	2406,784	5	195	,000	2,499

a. Predictors: Monthly income, Price ticket, Impressions form visiting the church, Age, Education

b. For regression through the origin (the no-intercept model), R Square measures the proportion of the variability in the dependent variable about the origin explained by regression. This CANNOT be compared to R Square for models which include an intercept.

c. Dependent Variable: z

d. Linear Regression through the Origin

Table 11: ANOVA[c,d] - Church of St. Clement

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	117,643	5	23,529	2406,784	,000[a]
	Residual	1,906	195	,010		
	Total	119,549[b]	200			

a. Predictors: Monthly income, Price ticket, Impressions form visiting the church, Age, Education

b. This total sum of squares is not corrected for the constant because the constant is zero for regression through the origin.

c. Dependent Variable: z

d. Linear Regression through the Origin

Table 12: Coefficients[a,b]- Church of St. Clement

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	Impressions form visiting the church	,053	,010	,253	5,161	,000
	Age	,130	,013	,494	10,057	,000
	Education	,090	,015	,317	6,009	,000
	Price ticket	,044	,015	,078	2,901	,004
	Monthly income	-,025)	,010	-,137)	-2,583)	,011

JOURNAL OF SUSTAINABLE DEVELOPMENT, VOL. 12, ISSUE 28 (2022), 56-71
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Table 12: Coefficients[a,b]- Church of St. Clement

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
a. Dependent Variable: z b. Linear Regression through the Origin					

The regression analysis showed that the parameters: monthly income, price ticket, age, education and impressions from the visit are important for the willingness of visitors to pay a ticket to visit the church of St. Clement. This can be seen from the table of coefficients, where the probability of accepting the null hypothesis of rejecting the coefficients is low. The tracking rate of the original series is greater than 97%, and the Darbin-Watson statistic has a value close to 2, indicating the absence of serial correlation of the residuals from the model.

Both auxiliary hypotheses that have been set are fully accepted. The auxiliary hypothesis that says "Republic of North Macedonia is a country rich in cultural heritage" can be seen from the list of cultural heritage published by Cultural Heritage Protection Office in the Republic of North Macedonia. The auxiliary hypothesis "Insurance is a good mechanism for protection against risks, and non-insurance of cultural heritage and the realization of some of the risks that threaten it causes large-scale damage" can be said to be fully accepted in reviewing past events (such as burning monasteries, thefts and destruction of icons, cultural heritage objects, etc.).

6. CALCULATION MODEL OF PREMIUM FOR CULTURAL HERITAGE INSURANCE

The calculation of the premium for cultural heritage objects is difficult to determine, because those criteria that apply to all other objects (industrial, public, households), don't apply in the same way to cultural heritage. In all the mentioned types of buildings, with the exception of the historical buildings with the meaning of cultural heritage, the price paid for their construction is known, and therefore the current price of the building can be determined. The depreciation rates for buildings are standardized and known. In the case of cultural heritage objects, those parameters aren't known, and they aren't relevant too. An object of historical significance is more worthy as it gets older. In this case, negative depreciation rates should be calculated.

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UDK 930.85:368]:005.334(497.7)
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Even if we had all the necessary parameters to calculate the value of the building and the appropriate depreciation rates, the cultural heritage would certainly not be exchanged for any money. But it is better to be insured from all the risks that may arise, rather than being left to the random occurrence of the risks. Based on the models for calculating risks, and thus calculating the premium for cultural heritage, the method of revenue of the facility can be used. In order for a certain object to be insured, regardless of its true value, a premium has to be paid. The premium and the insured amount in case of a harmful event are linearly related, that is, the higher the insured amount for the facility is, the higher the premium is going to be paid. Therefore, if we know the revenue for a given facility and the costs incurred for the normal operation of the facility, that is, if we know the amount that could be set aside for an annual insurance premium, then the insured amount for the given facility will be easily calculated. Of course, this won't determine the true value of the facility, but it will meet the basic purpose of the insurance, that is a compensation in case if a harmful event happens.

It is necessary to cover as many risks as possible that may arise, if the insurer agrees to take them over. It is necessary to introduce additional protection measures recommended by the insurer such as: security of the building, video surveillance, alarm system, protection against short circuit and high voltage, water drainage system, fire protection in the building, etc. Finally, the premium can be calculated according to the models known from non-life insurance:

$$P = (p(a) + p(b) + p(c) + \ldots) \cdot K \qquad (1)$$

Where P is the amount of premium to be paid, p is the probability of occurrence of any of the risks a, b, c, ..., and K is the insured amount. According to (1) the insured amount will be easily calculated as a ratio of the premium and the sum of the probabilities of occurrence of a certain harmful event.

The facilities are insured against the following risks: natural disasters (fire, flood, lightning strike, strong wind damage), theft and intentional damage by humans. For each of the listed risks there are mathematical (actuarial) models that are used to determine the height of the probability of occurrence of the risk event.

For example, the calculation given by formula (2) is used for the fire risk.

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UDK 930.85:368]:005.334(497.7)
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$$R_0 = \frac{(P_0 \cdot C) + P_k \cdot B \cdot L \cdot S}{W \cdot R_i} \qquad (2)^2$$

where:

Ro- fire risk of the building

Po- fire load coefficient of the contents of the building

C - combustion coefficient of the contents of the building

Pk - fire load coefficient of the construction materials

B – coefficient of position and size of the fire department

L – coefficient of delay at the beginning of fire extinguishing

S – coefficient of spread of the fire sector

W - coefficient of opacity of the structure of the fire building

Ri - reduced risk fire coefficient

Thereby, the values of the coefficients Po, Pк are determined from tables, based on the size of the fire load of the contents of the building also from the tables.

Similar models are used for other risks. Regarding the thefts, statistical data on theft of the buildings are used (number of thefts realized on the total number of buildings), the amount of damage done, as well as coefficients for measures taken to protect the building from theft.

Based on the estimated values for formula two, a fire insurance calculation was made for the Icon Gallery Ohrid. The real value of the building is not insured, but a calculation is made based on the income of the institution and setting aside of 1% of the annual income for insurance of the building. All parameters are given in per mille, only the reduced fire risk coefficient is given in value. The lower the values, the better the building is built and protected from fire. Only the parameter Ri gives a higher value if the risk of fire is lower.

$$R_0 = \frac{(P_0 \cdot C) + P_k \cdot B \cdot L \cdot S}{W \cdot R_i} \qquad (2)^3$$

where:

[2] *The formula is taken from the Master thesis "Danger and fire protection in the surface mines in Rek Bitola during exploitation with overhead units", prepared by Natalija Jovanovska*

[3] *The formula is taken from the Master thesis "Danger and fire protection in the surface mines in Rek Bitola during exploitation with overhead units", prepared by Natalija Jovanovska*

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UDK 930.85:368]:005.334(497.7)
https://doi.org/10.54442/JSD221228056ta

Ro- fire risk of the building = 0.1 ‰

Po- fire load coefficient of the contents of the object= 0.5 ‰

C - combustion coefficient of the contents of the object = 1.2 ‰

Pk - fire load coefficient of construction materials = 0.1 ‰

B - coefficient of size and position of the fire department = 3 ‰

L - delay coefficient at the beginning of the fire extinguishing = 3 ‰

S - coefficient of spread of the fire sector = 3 ‰

W - coefficient of opacity of the structure of the fire building = 1 ‰

Ri - reduced fire risk coefficient = 6

Based on the given parameters for the object, Ro = 0.001

If from the annual turnover of P = 388000 denars, the museum sets aside 1% for the insurance, then the insured amount K = (R * 0.01) / Ro = 3 879 998 or close to 4 million denars.

With the help of the previous formula, the insurance premium for a certain risk can be calculated, so as such I propose it as a proposed model for calculating the insurance premium of cultural facilities from a certain group of risks (natural disasters (fire, flood, lightning, strong wind damage), theft and intentional damage by humans).

7. CONCLUSION

Cultural heritage is the past of a nation, of a society. It represents the resources that are respected by people from who they inherited from their ancestors, no matter who owned them, and thus they represent their traditions, beliefs, values and knowledge that are constantly changing.

The protection of cultural heritage in today's modern society is a basic activity that consists of a combination of many techniques and methods of physical protection, but

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UDK 930.85:368]:005.334(497.7)
https://doi.org/10.54442/JSD221228056ta

also methods and techniques that are educational and affect the population in order to understand how important the cultural heritage is, and thus, that it represents a huge treasure inherited from the ancestors and that it should be preserved and passed on to future generations.

There are various methods and techniques of cultural heritage protection. As cultural heritage is threatened by a number of risks, such as the risks of climate change (rain, sun, humidity, etc.), fire, theft, robbery, war, etc., as one of the most important techniques for protection against risks that we propose in this thesis is the insurance. Insurance is one of the most important techniques for protection against risks where a small amount of money called a premium that is paid, we protect ourselves from large financial losses, which in the case of cultural heritage are catastrophic. Only a minimal part lost from the cultural heritage is a big financial loss, which for some other object that has no cultural significance would be an insignificant loss.

The Republic of North Macedonia is a country which abounds in cultural heritage and therefore we can say that it is a very rich country indeed.

Since in our thesis is taken the technique of cultural heritage insurance as one of the most important methods for risk protection, we must mention that unfortunately in the Republic of North Macedonia only a small part of cultural heritage is insured at its actual value, not at its true value. The value of cultural heritage is very difficult to determine because it is said to be invaluable. Like human life, cultural heritage, although invaluable, can be valued as well.

There are a number of methods for monetary valuation of cultural heritage such as: travel-cost method, Willingness to pay, Hedonic prices method and so on.

Since we are a country rich in cultural heritage and the application of any of these models would be very long, for the purposes of the research we focused on the risk category, and they are the churches. In order to be able to show the way of valuing the cultural heritage, a congenital method of valuing the churches was used: St. Sophia, St. John Kaneo, St. Clement and St. Nahum. Using the Willingness to pay method by the visitors based on a conducted survey by the help of regression analysis we obtained data on which parameters are important for the willingness to pay.

JOURNAL OF SUSTAINABLE DEVELOPMENT, VOL. 12, ISSUE 28 (2022), 56-71
UDK 930.85:368]:005.334(497.7)
https://doi.org/10.54442/JSD221228056ta

Considering the fact that most of the cultural facilities in the Republic of North Macedonia are not insured, and only a small part of them are insured and that is based on their true value, in this thesis we have proposed a model for calculating the premium for insurance of cultural facilities. The cultural heritage should be preserved, because it presents the wealth of a country. It presents the history of every country of people who lived and therefore its worth preserving. It is necessary to insure it in order to protect it from the risks that threaten it and from the losses that could face. But first of all, the most important thing is the awareness of every person who should not destroy the cultural heritage and also should protect it. Human society takes first place when it comes to protection, if man does not protect it, the use of any technique would be in vain.

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INTEGRATED BUSINESS FACULTY - SKOPJE
JOURNAL OF SUSTAINABLE DEVELOPMENT

JOURNAL OF SUSTAINABLE DEVELOPMENT, VOL. 12, ISSUE 28 (2022), 72-84
UDK 72-051:[331.442:159.944.4
005.59:159.944.4
https://doi.org/10.54442/JSD221228072m

ARCHITECTURE: DREAM JOB OR STRESSFUL JOB?

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ABSTRACT

Whether you work in an architecture office or manage your own firm, you are likely to be confronted with complex challenges, tight deadlines, massive workloads, and a variety of tasks. Therefore, stress will almost certainly enter the picture. However, the idea of becoming an architect and working in the industry may appear to be at odds with traditional notions of work-life balance. Long commutes, tight deadlines, and the need to make quick judgments, mixed with potentially poor pay and a morass of thorny working relationships and red tape make architecture to be widely regarded as one of the most stressful professions.

However, despite the topic's great importance, not many studies attempted to explore the stress level among the architects, especially in Macedonian context. Therefore, the purpose of this study is to explore the stress level of the architectural professionals and to study whether there is a difference in stress based on the demographic variables, such as gender and age. For this reason, quantitative research on 32 respondents has been conducted, whose results can serve as a reference for designing adequate human resource policies in architectural industry. The research results have indicated that there is a high level of stress among the architects, yet there is not statistically significant difference among the age and gender groups.

KEYWORDS*:* stress, stress sources, architecture, architects, demographic profiles

JEL CLASSIFICATION: L26, M31

JOURNAL OF SUSTAINABLE DEVELOPMENT, VOL. 12, ISSUE 28 (2022), 72-84
UDK 72-051:[331.442:159.944.4
005.59:159.944.4
https://doi.org/10.54442/JSD221228072m

1. INTRODUCTION

In today's dynamic world it is impossible to live without stress. The nature of work has changed dramatically, and stress has become nearly automatic. It's a global phenomenon that manifests itself in different ways in every workplace. Employees are frequently asked to labor vigorously for lengthy periods of time in today's workplace as their duties grow. Stress is common in all types of jobs, and people must deal with it in all aspects of their lives. There are wide range of definition that have been developed over the time, however, World Health Organziation (2020) defined the occupational stress as the reaction people experience when confronted with job demands and pressures that are not suited to their knowledge and talents, and which put their ability to cope to the test. It is simply an employee's reaction when certain demands, pressures, and professional features that must be met at work do not match their knowledge levels, posing a challenge and threat to the employee's skills, resulting in a struggle for survival in terms of being employed in a place (Steve, 2011).

2. LITERATURE REVIEW

2.1. Stress

Stress is the individual response as a consequence of the external environment that puts pressure on that individual (Ivancevich et al., 2006). From here, work-related stress is defined as a response of the employee to work demands and pressures that are not in correspondence with their abilities, knowledge and skills. It is a reaction of the individual's body which can affect their performance. It is linked with job satisfaction and correlates with absenteeism (Beehr, 2014). Stress among employees can arise when (Mondy & Martocchio, 2016):

- the employee has a large amount of work to be done;
- the employee should adapt to the new changes made within the organization;
- the employee experiences a lack of communication within the organization;
- the employee has a poor relationship with their colleagues and management.

Work-related stress can be either helpful or harmful to job performance, depending on its level. When there is no stress, the work challenge is bounded, and the employee performance decreases. Stress and performance are positively related, meaning as the

JOURNAL OF SUSTAINABLE DEVELOPMENT, VOL. 12, ISSUE 28 (2022), 72-84
UDK 72-051:[331.442:159.944.4
005.59:159.944.4
https://doi.org/10.54442/JSD221228072m

stress increases, the performance increases. This can be explained through the employees' efforts to use all of the resources in order for the task to be completed. At this level, stress stimulates and encourages the employees to preform beyond their limits and therefore increases productivity. When stress reaches the saturation point, then there is no employee performance improvement, but the performance starts decreasing so much that the employees start showing inconsistent behavior. When the employee no longer feels comfortable and happy at work, the stress level reaches the breaking point, and their performance is zero (Fonkeng, 2018).

Therefore, stress has negative consequences on the individual and the organization. The individual experiences unhealthy symptoms, while the organization faces a high turnover rate and absenteeism and poor control (Hillier et al., 2005; Corporate Welness Magazine, 2018). As a consequence of stress, the organization will be preoccupied with issues such as reduced efficiency, performing capacity and interest to work, lack of apprehension among employees and organization and responsibility (Dua, 1994). Additionally, stress correlates negatively to the input, product or service quality and morale (Ben-Baker et al., 1995; Corporate Welness Magazine, 2018).

2.2. Stress sources

According to Arnold et al.(1991) there are five main causes of job stress: 1) factors intrinsic to the job, 2) relationship at work, 3) career development, 4) role in the organisation and 5) organisational structure and climate. Intrinsic variables in the workplace come from poor working conditions, which include excessive levels of noise, low or inadequate lighting, heat, poor ventilation, odors, and other things that obstruct the employee's senses and, as a result, impair his mood and overall mental state. The goal of each individual to develop his/her career causes a part of stretch in that the new opportunities that display themselves require people with extended aptitudes to manage within the competitive dynamic world. Need of work security, fear of repetition, out of date quality and various execution evaluation can use pressure and stress. New technology advancement and their introduction in the working environment are source of stress as well because required employees to continuously adapt to such changes, new equipment, systems, and ways of working.

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Working with diverse individuals in a working environment requires parts of dealings and interaction with them as they work as a group (Schulte et al.,2020).

A worker may confront trouble in understanding other individuals within the group and this may strain the working relationship and subsequently result in increment within the stretch level. In addition, one should not thing regarding organizational stress without taking into consideration the working hours. Employees are obliged to work long hours in a highly competitive business climate. This appears to have a negative impact on their health and cause them to experience a high level of stress. Employees who work long hours with little or no rest or sleep may suffer as a result, and their quality of life may suffer as a result Kapo et al.,2019). There is also a great deal of risk and danger. A work that exposes the individual to risk and danger will always put them under a lot of stress. This is because when an employee is constantly aware of an impending risk and is obliged to respond quickly, his breathing changes and his muscles tense up. All of these are harmful to one's long-term health.

2.3. Stress and demographic profiles

The academic literature provides an overview of the relationship between stress and demographic profiles. Yet, different studies provide different results based on different demographic variables.

First, there is no consensus regarding the relationship between age and stress. Yet, one suggests that the older workers might experience higher level of stress in comparison with younger one. This was explained through the concept of stereotypes (Hedge,2006), meaning that older people are perceived as less creative, less emotional resilient, less technology knowledgeable and less teamwork suitable (Rauschenbach et al.,2012a; Lyon & Pollard, 1997). In addition, they put more meaning on the work and have more opportunities to craft their jobs (Carstensen, 2006; Kanfer & Ackerman,2004). The organizational stress might be associated with the level of overall stress a person experience during life. A study conducted by American Psychological Association (2012), supports the research findings by providing an overview of the level of stress during the life cycle. According to that, as people are getting older, they experience less stress. The people aged 18-33 reports the highest

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rate of stress, while the matures consider themselves as stress-free people. The stress among younger employees is mainly ascribed due to work stress, while the older employees are concerned more about health issues.

However, different theoretical methods make assumptions about the age and stress, where most age-related theories predict different levels of stressors for employees of different age group.

In regard to gender and stress, the female population are more at risk due to the higher level of stress suffering (Ptacek et al.,1992; Costa et al.,2021). The explanation behind this is the differences in desirable behavior of both genders in society. Women are expected to be nurturing and emotional and to take care of their offspring, while men should be more dominant and focused on work (Prentice & Carranza,2002; Costa et al.,2021). However, according to Persson et al. (2009), when working under similar conditions, both genders experience the same level of stress.

2.4. Stress among the architects

"If you want an easy life, don't be an Arhitect"
- Zaha Hadid

Architecture is considered by many as a dream job, yet one in four architectural students is treated from mental issues and the reasons are mainly result from various factors such as: poor pay, long hours, workloads, need to defend design choices, lack of union or any issues related with human resource support. (Hohenadel,2018). Without debt, all of these factors lead to higher stress among the individuals. Moreover, the pressure architects face during their career due to working on frustrating projects and sacrificing due to own arts have been stressors since the beginning and they still affect many people in the architectural profession today. For this reason, there are few organizations that are focused on improving architect's mental health through increasing the awareness of the mental issues among the people in architecture field. Moreover, ABS spends almost £1 million each year to assist over 500 architects and their families and provides email and phone support to people who have worked in the UK architecture industry for at least one year (Hohenadel,2018). According to the

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study of Kirkpatrick (2019), 33% of architectural students believe they have a mental health condition, with 70% citing 'working late' as a factor in their mental suffering. It is apparent that the pressure to meet looming deadlines leads to full evenings spent in the studio, which has a significant impact on students' mental health. Assembly due dates, managing with arranging and manufacturing the dreams of our clients, our work can be seriously and amazingly requesting are just few examples that make architects to be plagued with stressful events that are unlike any other profession (Thorns,2017). Moreover, architects don't design something off the shelf and then copy and sell it over and over again, but at least for the most part, everything is made specifically for and from a specific scenario. The complexity of architecture, and the difficulties in managing that complexity across the various stages of the design and building process, is one of the greatest issues among the architects and when there is too much intricacy at once, it can cause stress, tension, disruption, and upheaval (Michael, 2018).

3. METHODOLOGY

This paper aims to explore the stress experienced by the professionals in a field of architecture. Moreover, it examines whether the variables ‘age’and ‘gender’ influence the stress level and overload working hours. In order to fulfill these objectives, the research questions posed in this paper were:

Q1: What is the level of stress among the architects?

Q2: How do the variables ‘age’, ‘gender’, ‘work experience’, influence the stress experience?

In this research, in order to collect the data, the authors used an 10 Likert scale-online questionnaire as a main survey method. Subject of analysis in the research architects working in Skopje, Republic of North Macedonia. The data was collected over a three-week period of time from July to August 2021. A link to the online survey was sent to all potential participants. The invitation email contained information on the purpose of the research, as well as the voluntary and anonymous nature of the survey. A total of 32 participants submitted fully completed surveys.

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The data collected was analyzed using the SPSS application. To this research, the descriptive statistics was done initially, based on the data gathered from the architects regarding their stress level and overload working hours. Then, *T-test* and ANOVA test were done. The T-test is used if one wants to study the significance in the difference between the means of two groups. *ANOVA* is the analysis of variance represents a portion of the statistical conclusion. It is based on variability of the means of more variables or units of the chosen sample.

4. RESULTS AND DISUCSSION

The results show explicit evidence that the architects often experience higher than the average stress on their workplaces. This may be explained by the workload (M=6,43) and the extra work (M=7,21) that represents as a source of stress. According to architects, the three main reasons for overwork time are the work nature (67%), the organizational factors (24%) and personal factors (9%). The results are in line with the previous findings suggesting that the complexity of architecture, frustrating projects and customer's wishes which define the nature of the profession are the main reasons for overwork time (Michael, 2018; Hohenadel,2018).

Table 1. Architect's stress experience

	Level of stress	**Frequency of stress**	**Relaxing issues**	**Workload as source of stress**	**Extra work as source of stress**
Mean	7,44	6,84	6,52	6,43	7,21
SD	2,36	2,45	2,54	2,61	2,35

According to the results in Table 2., it is evidenced that the level of stress experienced by the architects is on much lower level than the stress experienced by the non-related architecture employees. However, there is not statistically significance difference among the two working groups. This means that regardless of one's profession, you'll face complicated issues, tight deadlines, large workloads, and a wide range of jobs. And since the level of stress is subjective, stress is defined as an individual response as a

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consequence of the external environment that puts pressure on that individual (Ivancevich, Konapske & Matteson, 2006).

Table 2. Stress level based on Profession

Level of stress		Mean	SD	Sig (2-tailed)
	Non-related architecture professionals	7,42	2,51	1,41
	Architecture professionals	4,87	2,66	

Although according to Ptacek et al. (1992), the female population are more at risk due to the higher level of stress suffering, the results show that there is higher than average level of experienced stress evidenced by the architects with no statistically significant difference based on gender (shown in Table 3). However, the results are supported by Persson et al. (2009), who believe that both genders experience the same level of stress when working under similar conditions. Therefore, one can say that during the years, the increased workplace participation of women leads to decreased difference in stress between both genders (Jick & Mitz, 1985).

Table 3. Stress level based on Gender

Level of stress among architects		Mean	SD	Sig (2-tailed)
	Female	7,68	2,41	0,95
	Male	7,43	2,37	

The research results also suggest that there is no statistically significant difference between the age groups in regard to level of stress, meaning that there is no difference in stress level among younger and older architects (please refer to Table 4). The results are supported by another study suggesting that interactions between age and work stress did not have statistical significance. (Rauschenbach, et al.,2012). However, other authors made different assumptions about the age-stress relationship (Hedge,2006; Carstensen, 2006; Kanfer & Ackerman,2004). Yet, different theoretical methods make

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assumptions about the age and stress, where most age-related theories predict different levels of stressors for employees of different age group.

Table 4. Stress level based on Age

Level of stress among architects		Mean	SD	Sig (2-tailed)
	25-35	7,11	2,41	0,83
	36-45	7,90	2,37	
	46-55	7,42	1,71	
	55+	6,75	3,94	

In addition, the study shows that 75% of the architects regardless of the gender are not paid for the overload working hours. However, 88% of the male architects would accept the overload working load in return to some monetary benefits, in comparison with 75% of the females would accept the same condition. This may be ascribed to the idea that women are anticipated to be supporting and enthusiastic and to provide care of their children, while men are expected to be more dominant and focused on work (Prentice & Carranza,2002).

In terms of age, in most cases, the architects are not paid for the overload working hours. 86% of the respondents aged 46-55 stated that they are not paid for the overload working hours, followed by those aged 36-45 (82%), 25-35 age (77%) and last are those who fall into category of 55+ with 67%. In addition, 100% of the architects who are 55 years or older would accept the overload working load in return to some monetary benefits, followed by those aged between 36-45 (91%) and 25-35 (89%). What is evidenced that, in comparison with the other age groups, only 66% of those aged 46-55 would accept the overload working load in return to some monetary benefits.

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5. CONCLUSION

This paper supports the thought that, without doubt, stress is inseparable part of today's energetic world and since the nature of work has changed drastically, the stress has gotten to be about programmed. It is a worldwide marvel that is rooted everywhere and shows itself in numerous ways in each working environment. Therefore, stress is common in all sorts of occupations, and individuals must bargain with it in all viewpoints of their lives. Since the purpose of this paper was to explore the stress level among the Macedonian architects, one can conclude that the short deadlines, challenging projects, complexity of the architecture, poor pay, lack of union and etc, make architecture to be stressful profession although it is perceived as a dream job. Moreover, one's demographic profile cannot identify the level of stress; meaning that as each individual is unique organism, we tend to experience stress on different levels which once again supports the definition of stress as the individual response as a consequence of the external environment that puts pressure on that individual (Ivancevich, Konapske & Matteson, 2006).

Each individual has a choice of a healthier or an unhealthier behavior which will result itself over the time. This means that to decrease the stress level, thus being happier and more satisfied, the architects should **find their way back to the joy of being an architect. The positive feelings will result in better performance because in circumstances as such, the intelligence, creativity, and energy levels rise.**

6. LIMITATION AND FURHTER SCOPE

The study leads to "open window" of opportunities concerning further research. The study was conducted among 32 architects, so limited sample took a part of this study, because this does not accurately represent the whole architecture sector in North Macedonia.Therefore, the study demonstrated that there is a need for additional studies that are focused on the stress level and sources among architecture professionals. It is possible that if similar studies are provided, they might lead to completely different findings. The third limitation is the demographic location of the respondents. This research only investigated the stress level among the architects that

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are located in North Macedonia.Therefore,further studies should be also conducted, not only in the Republic of North Macedonia, but in the whole region of Southeast Europe. We confirm the need for a more extended and accurate study focused on the architects to provide a more thorough and comprehensive findings.

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