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Economic and Social Development

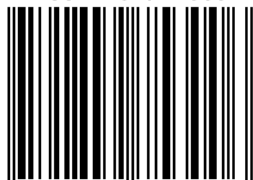
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Editors:

Maria do Rosario Anjos, Candida Duarte Manuel, Mihovil Andelinovic

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EFL TEACHERS' PERCEPTIONS OF ENGLISH LANGUAGE ASSESSMENT AND TESTING PRACTICES IN HIGHER EDUCATION IN MOROCCO

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ABSTRACT

Classroom assessment is an integral part in any teaching and learning process, which plays a crucial role in shaping teaching and learning experiences. Although issues of assessment and its implementation in Moroccan tertiary education have attracted attention over recent years, there remains a gap in understanding teachers' perspectives on assessment within Moroccan tertiary education. The present study, therefore, seeks to investigate teachers' perceptions of assessment tasks across three Moroccan Faculties of Arts and Humanities, viz. Moulay Ismail, Ibn Tofail, and Hassan II Universities. The investigation focused on five key variables associated with the construct of these perceptions, i.e., validity, reliability, authenticity, practicality, and washback. Sixty-seven university teachers participated in the study, completing the 'Teachers' View of Assessment Questionnaire' (TVAQ). The analysis of the collected data used descriptive statistics to get the means and standard deviations of participants' scores, and cluster analysis based on multidimensional scaling to get the dendrograms representing items and teachers' classification. Findings revealed that teachers generally perceived assessment tasks as possessing a high level of validity and satisfactory reliability, authenticity, and practicality. However, interestingly enough, participants also expressed a perception of these tasks that negatively affects their instructional practices. Besides, the study identified three over-encompassing concepts derived from the initial TVAQ items, together with categorizing teachers into three distinct classes based on their perception. While the findings offered valuable insights into teachers' perspectives on assessment tasks in the Moroccan higher education context, further implications for educational practice and policy remain to be explored. Future research could further explore the identified concepts and teacher classifications to facilitate the targeted interventions and improvements in assessment practices within Moroccan tertiary education.

Keywords: *Teachers' perceptions, Validity, Reliability, Authenticity, Practicality, Washback*

1. INTRODUCTION

Assessment and testing have always constituted crucial components or aspects of education, exerting considerable impact on learning outcomes, particularly within the Moroccan context of English as a Foreign Language (EFL). The seminal work of Black and Williams (1998) emphasizes the capital role of assessment in shaping educational practices, advocating for its smooth incorporation in the teaching and learning processes.

In fact, as is rightly pointed out by Vleauten et al. (2017), the success of educational programs depends to a large extent on the quality of assessment practices. Assessment quality, it should be noted, includes all the elements of evaluation practices, such as, *inter alia*, the language assessment criteria (Leeuwenkamp et al., 2019). In this educational landscape, teachers, who serve as key agents of assessment, are assigned the task of designing assessment tools that effectively support student learning. Through these practices, teachers collect, score, analyze, and interpret evidence of student learning, ultimately giving essence to and shaping instructional decisions and communicating specific learning outcomes (Harlen, 2007). It is important to remember that the outcomes of these assessments are not only valuable for individual students' growth, but also serve as critical tools and instruments for educational institutions in evaluating the effectiveness and efficiency of programs and, subsequently, in guiding informed and knowledgeable decision-making processes regarding curriculum development and the working strategies of departments (Ghaicha, 2016). Instructors assess for a variety of reasons and many purposes govern classroom assessments, uses, and functions (Ghaicha, 2016). First, assessment provides students with valuable feedback and helps teachers benefit from the information available to streamline instruction (Nasab, 2015). Richards (2015, p. 677) contends that assessment in this way "can help teachers to find out what students have learned, evaluate whether the course materials were effective, and decide whether any adjustments are needed for the ongoing courses". Similarly, assessment offers several opportunities for students to develop their skills by evaluating their performance (Race et al., 2005). In addition to the formative function of assessment, it is used to ascertain what the students know about curriculum outcomes. The purpose of this type of assessment is, thus, to spot what the students know at a specific point (Nasab, 2015). Overall, the purpose of assessment is twofold: (i) to inform decisions about learning progress and (ii) to report on what learning has been achieved (Harlen, 2007; Harlen & James, 1996; Sadler, 1989; Stiggins, 2007, cited in Edwards, 2017. El Kasri, et al, 2023; El Kasri et al, 2024). Despite the inherent importance of assessment, challenges still persist in tertiary education institutions, as highlighted by Elshawwa et al. (2016). These challenges are described as ranging from a lack of alignment between course objectives and assessments to inadequate provision of feedback to students (Hodgman, 1997). In other words, on the one hand, there is no connection or little connection between what is taught in class and what is assessed and, on the other hand, only a small portion of the course content is covered by the assessment and students, therefore, find it difficult to understand what they are being assessed on and for (White, 2009). Finally, students do not receive sufficient feedback from their teachers, given that most assessment operations usually take place towards the end of the course (White, 2009). Such deficiencies have triggered discussions as to the concept of assessment literacy, laying emphasis on the fact that, for teachers to effectively evaluate student learning, they need to avail themselves of a considerable degree of proficiency in assessment practices (Stiggins, 1991). Stiggins (1991) initiated the debate and discussion on whether teachers must be assessment-literate to assess students effectively (Edwards, 2017). Assessment literacy, as posited by Al-Mahrooqi et al. (2017), comprises a wide range of skills, including the ability to discern between high- and low-quality assessment practices and to employ suitable assessment and pertinent instruments effectively. Assessment-literate practitioners, moreover, possess a fundamental understanding of assessment quality and can apply this knowledge across different measures of student achievement (Stiggins, 1995). Simply put, assessment literacy skills provide teachers with the necessary tools to "know the difference between sound and unsound assessment" (Stiggins, 1995, p. 241). Assessment, it is important to note, significantly impacts teaching and learning and concerns both teachers and students alike. Teachers, therefore, should act such that their assessment is conducive to and fosters effective teaching and learning.

In this connection, Alkharusi et al. (2014, p.836) postulate that, given the great impact of assessment on teaching and learning, there exists an inherent expectation for teachers to make sure that their assessment practices are in line not only with educational standards, but with educational experts' recommendations as well. This alignment necessitates a comprehensive understanding of subject matter, clear communication of learning intentions, and adept and skilled utilization of the different assessment types (Brookhart, 2017). In Brookhart's (2017) view, in order to achieve this purpose, teachers should master the content they teach and ensure that there is a congruence between learning content and curriculum goals. Teachers should also avail themselves of the strategies necessary to effectively communicate learning intentions to students, comprehend the purposes and applications of different assessment types, and skillfully implement and apply them (Brookhart, 2017, p.3). In this respect, Ndalichako (2015, p.32) contends that the aspiration to synchronize teaching and learning methods with assessment, moreover, has resulted in a growing interest in exploring teachers' perceptions of assessment as well as their assessment practices and skills. Assessment perception in Western contexts has been the subject of extensive investigation. For instance, Sach (2011), inter alia, investigated teachers' perceptions of formative assessment in the UK. The study aimed to delineate the scope and characteristics of these perceptions, explore possible relationships, and examine independent variables, such as, for instance, school phase and teacher experience duration. Analysis of the collected data laid bare a variety of perceptions as to formative assessment among teachers. They particularly recognized the value and efficacy of formative assessment in enhancing learning outcomes. However, the findings reveal a possible disparity and/or inconsistency between teachers' claimed confidence and their actual implementation of strategies (Sach, 2015, p.261). By focusing on dimensions such as validity, reliability, authenticity, practicality, and washback items, the present study aims to offer insights into the diverse variety and /or range of assessment practices within the Moroccan EFL context. Similarly, Nasri et al. (2010) examined teachers' attitudes toward alternative assessment methods in Malaysia. While the results of their study discovered that there were positive perceptions among teachers regarding alternative assessment, they also highlighted significant concerns about increased paperwork and time consumption and constraints. Additionally, Restorff et al. (2012) investigated teachers' views on alternative assessment impact based on alternate achievement standards. The findings showed that the majority of teachers did not perceive noteworthy "changes in student performance, teacher expectations, or parental involvement"; however, where changes were reported, they tended to be positive (Restorff, 2012, p.185). However, teachers' perspectives on assessment and testing remain relatively unexplored within the Moroccan context, and to our knowledge, there are no published studies addressing this issue to date. Therefore, the present study sought to explore professors' perceptions when designing assessment tasks and to assess the dimensionality of these perceptions within departments of English studies across three faculties of Arts and Humanities. To be more precise, the study examined validity, reliability, authenticity, practicality, and washback items in relation to assessment practices.

2. MATERIALS AND METHODS

2.1. Research questions

The present study was guided by the following research questions:

- 1) How do Moroccan professors within the Departments of English Studies at the Faculties of Arts and Humanities perceive the assessment tasks designed in terms of their validity, reliability, authenticity, washback, and practicality?
- 2) What is the impact of assessment and testing practices within the Departments of English Studies at these faculties on teachers' perceptions of assessment tasks?

2.2. Participants

Participants in the present study comprised Moroccan professors from the Departments of English Studies at Moulay Ismail University in Meknes, Hassan II University of Casablanca-Ain Chock, and Ibn Tofail University in Kenitra. Sixty-seven professors participated by completing the Teachers' View of Assessment Questionnaire (TVAQ) during the academic year 2022/2023. Convenience sampling was utilized to gather data for this study.

2.3. Instrument

The primary instrument employed in the present study was the Teachers' View of Assessment Questionnaire (TVAQ). Developed based on Browns' model for Testing a Test, Bachman and Palmer's Test Usefulness, and Dorman and Knightley's Perception of Assessment Tasks Inventory (PATI), the TVAQ assesses teachers' perceptions of the assessment process across six dimensions or scales, namely validity, reliability, authenticity, practicality, and washback. The TVAQ was selected for its comprehensive approach to examining teachers' perspectives on assessment.

2.4. Data Analysis

Descriptive statistics and cluster analysis based on multidimensional scaling were utilized to analyze the data collected through the TVAQ. Descriptive statistics provided an overview of the participants' perceptions, while cluster analysis helped in identifying patterns or clusters within the dataset, allowing for a more detailed insight into and thorough understanding of teachers' perceptions of assessment tasks. For data reduction, we employed multidimensional scaling (MDS) as proposed by Borg and Groenen (2005), to derive a lower-dimensional representation of a similarity matrix for our interval variables while preserving the original pairwise distances as closely as possible. Each new dimension was determined to minimize the stress function, thus offering a visual depiction of the structure inherent within a dissimilarity matrix. MDS not only constructs a spatial representation but also elucidates the relationships among items through interpretable psychological continuums. Using the Alscal program in SPSS, proximities or a squared Euclidean distance matrix of the 25 items were generated, including Validitycont1, Validitycont2, Validitycont3, Validityface1, Validityface2, Reliability1, Reliability2, Reliability3, Reliability4, Reliability5, Authenticity1, Authenticity2, Authenticity3, Authenticity4, Authenticity5, Practicality1, Practicality2, Practicality3, Practicality4, Practicality5, Washback1, Washback2, Washback3, Washback4 and Washback5. These variables underwent analysis without standardization, while the default settings were maintained for other parameters. The resulting MDS analysis yielded three dimensions, which were subsequently subjected to cluster analysis following the methods outlined by Bezdek (2022) and Scitovski et al. (2021). Utilizing a hierarchical classification approach in SPSS with the 'ward' linkage procedure, we determined the optimal number of clusters. Given that the MDS output provided three standardized dimensions, these were directly employed in the cluster analysis, with other options left at their default settings. All data analysis were conducted using IBM SPSS statistics version 26.

3. RESULTS

The analysis of the collected data was conducted utilizing descriptive statistics, offering an overview of teachers' perceptions of assessment via a five-point Likert scale questionnaire. The questionnaire included five key dimensions, i.e., validity, reliability, authenticity, practicality, and washback.

3.1. Validity

Table 1: Teachers' perception of the validity of assessment tasks

Validity Items	Min	Max	\bar{x}	SD
1- The tests I design assess the course content and outcomes using formats familiar to students.	1	5	4.284	0.755
2- My exams test the curriculum content.	2	5	4.194	0.783
3- My exam questions are about topics covered in class.	1	5	4.343	0.729
4- My exams look as though they measure what they are supposed to measure.	1	5	4.149	0.892
5- The items and directions I include in my tests are clear and doable within the allotted time limit.	2	5	4.313	0.656

Note: \bar{x} : Mean, SD: Standard Deviation

The first five items on the Teachers' View of Assessment Questionnaire in Table 1 assessed the validity of assessment tasks across the three faculties. Items 1, 2, and 3 evaluated content validity, while items 4 and 5 pertained to face validity. Participants' responses scored above the mean ($M=4.00$), indicating a high level of perceived content and face validity in the assessment tasks they designed.

3.1.1. Variance analysis

ANOVA analysis for content validity revealed a highly significant p-value for inter-teachers ($p=0.0001$), while inter-faculty differences were not significant ($p=0.272$) (Table 2).

Table 2: Variance analysis of content validity differences among teachers and between faculties.

Source	DF	Sum of squares	Mean squares	Observed F	p-value
Inter-teachers	66	75.284	1.141	3.972	< 0.0001
Error	134	38.667	0.289		
Inter-faculties	2	0.756	0.378	1.317	0.272
Error	132	37.910	0.287		
Total	200	113.950	0.570		

Note: DF= Degree of freedom

The ANOVA analysis for face validity was not different. It showed that the p-value was highly significant ($p=0.001$) for inter-teachers and did not have any significance ($p=0.124$) for inter-faculty (Table 3).

Table 3: Variance analysis of face validity differences among teachers and faculties

Source	DF	Sum of squares	Mean squares	Observed F	p-value
Inter-teachers	66	56.328	0.853	2.290	0.001
Error	67	25.500	0.381		
Inter-faculties	1	0.903	0.903	2.423	0.124
Error	66	24.597	0.373		
Total	133	81.828	0.615		

Note: DF= Degree of freedom

3.2. Reliability

Teachers' perceptions of the reliability of assessment tasks are presented in Table 4. According to the scores displayed, Mean values exceeded ($M=3.00$), indicating satisfaction with the reliability of assessment tasks.

Table 4: Teachers' perception of the reliability of assessment tasks

Reliability items	Min	Max	\bar{x}	SD
1- The exams I design have consistent conditions across two or more administrations.	1	5	3.239	0.986
2- They give clear directions for scoring/ evaluation.	1	5	3.045	0.991
3- They have uniform rubrics for scoring/ evaluation.	1	5	3.209	1.038
4- They lend themselves to consistent applications by the scorer.	1	5	3.731	1.175
5- They contain items/ tasks that are unambiguous to the test taker.	1	5	3.716	1.126

Note: \bar{x} : Mean. SD: Standard Deviation

As it is clear from table 5, variance analysis demonstrated highly significant p-values for both inter-teachers and inter-faculties ($p=0.0001$) (Table 5).

3.2.1. Variance analysis

Table 5: Variance analysis of reliability differences among teachers and faculties

Source	DF	Sum of squares	Mean squares	Observed F	p-value
Inter-teachers	66	124.752	1.890	1.995	< 0.0001
Error	268	276.800	1.033		
Inter-faculties	4	26.657	6.664	7.033	< 0.0001
Error	264	250.143	0.948		
Total	334	401.552	1.202		

Note: DF= Degree of freedom

3.3. Authenticity

Table 6 illustrates teachers' perceptions of assessment authenticity. Among the five Likert scales in this table, all items exceeded the average, with items 1 and 2 having the highest scores ($M=4.00$ and $M=4.119$, respectively), indicating teachers' satisfaction with the authenticity of assessment tasks.

Table 6: Teachers' perception of the authenticity of assessment tasks

Authenticity Items	Min	Max	\bar{x}	SD
1- Tasks in the tests I design are authentic and meaningful.	2	5	4.000	0.870
2- The language of the tests is as natural as possible.	1	5	4.119	0.879
3- The test tasks I design for my students represent or closely approximate real-world tasks.	1	5	3.343	0.962
4- The tests I design help students answer everyday questions.	2	5	3.194	0.875
5- The items in the tests I design are contextualized rather than isolated.	1	5	3.716	0.884

Note: \bar{x} : Mean. SD: Standard Deviation

3.3.1. Variance analysis

Concerning variance analysis, ANOVA showed significant differences in teachers' perceptions of authenticity for both inter-teachers and inter-faculties. The p-value for both variables was ($p=0.0001$), as demonstrated in Table 7 below.

Table 7: Variance analysis of authenticity differences among teachers and faculties

Source	DF	Sum of squares	Mean squares	Observed F	p-value
Inter-teachers	66	163.934	2.484	6.537	< 0.0001
Error	268	143.600	0.536		
Inter-faculties	4	43.296	10.824	28.488	< 0.0001
Error	264	100.304	0.380		
Total	334	307.534	0.921		

Note: DF= Degree of freedom

3.4. Practicality

Table 8 displays teachers' perceptions of assessment practicality, with all items exceeding ($M=3.00$), which, like in the previous scales, indicates teachers' satisfaction with the practicality of assessment tasks specified by their institutions.

Table 8: Teachers' perception of the practicality of assessment tasks

Practicality Items	Min	Max	\bar{x}	SD
1- I spend too much time preparing for my tests.	2	5	3.791	1.135
2- It takes too much time to correct and analyze the tests I design.	2	5	3.851	1.062
3- All the resources (equipment, human resources, classrooms, copies, etc.) are available during the examination periods.	1	5	3.552	1.077
4- The administration of exams is carried out smoothly and in appropriate conditions.	1	5	3.507	1.035
5- The tests I design have a scoring/ evaluation procedure that is specific and time-efficient.	2	5	3.955	0.767

Note: \bar{x} : Mean. SD: Standard Deviation

3.4.1. Variance analysis

Similar to previous scales, ANOVA showed significant differences as to teachers' perception of the practicality of assessment tasks for both inter-teachers and inter-faculties. The p-value was ($p=0.001$ and $p=0.026$), respectively. (Table 9).

Table 9: Variance analysis of practicality differences among teachers and faculties

Source	DF	Sum of squares	Mean squares	Observed F	p-value
Inter-teachers	66	109.821	1.664	1.862	0.001
Error	268	246.000	0.918		
Inter-faculties	4	10.060	2.515	2.814	0.026
Error	264	235.940	0.894		
Total	334	355.821	1.065		

Note: DF= Degree of freedom

3.5. Washback

Table 10 presents teachers' perceptions of the washback effect of assessment tasks. Although the scores displayed in this table were the lowest compared to other scales, they exceeded the average ($M = 2.50$), indicating an impact of assessment on teaching practices.

Table 10: Teachers' perception of the washback of assessment tasks

Washback Items	Min	Max	\bar{x}	SD
1-Final examinations influence my teaching method	1	5	3.149	1.306
2-In my teaching, I focus more on topics and point that students need to know for the test.	1	5	2.582	1.143
3-I spend less time on sections that are less likely to appear in the final exams.	1	5	3.224	1.178
4-I try to teach my students test-taking strategies.	1	5	3.478	1.078
5-The supplementary materials that I assign to my students are influenced by final exams.	2	5	3.701	0.798

Note: \bar{x} : Mean. SD: Standard Deviation

3.5.1. Variance analysis

Variance analysis revealed that the p-value for both inter-teachers and inter-faculties was less than 0.05 ($p = 0.010$ and $p = 0.0001$, respectively), a fact which, as demonstrated in Table 11, points to the existence of significant differences in teachers' perceptions of the washback of assessment tasks for both measures.

Table 11: Variance analysis of washback differences among teachers and faculties

Source	DF	Sum of squares	Mean squares	Observed F	p-value
Inter-teachers	66	113.558	1.721	1.536	0.010
Error	268	343.200	1.281		
Inter-faculties	4	47.564	11.891	10.619	0.0001
Error	264	295.636	1.120		
Total	334	456.758	1.368		

Note: DF= Degree of freedom

3.6. Multidimensional scaling

Given that all 25 items used were of variables of ordinal type, a multidimensional scaling analysis was conducted to reduce data. This method was valid based on its values of stress (0,12) and squared correlation (RSQ) (0,91) as well as the following scatterplot representing the disparities and the distances:

Figure following on the next page

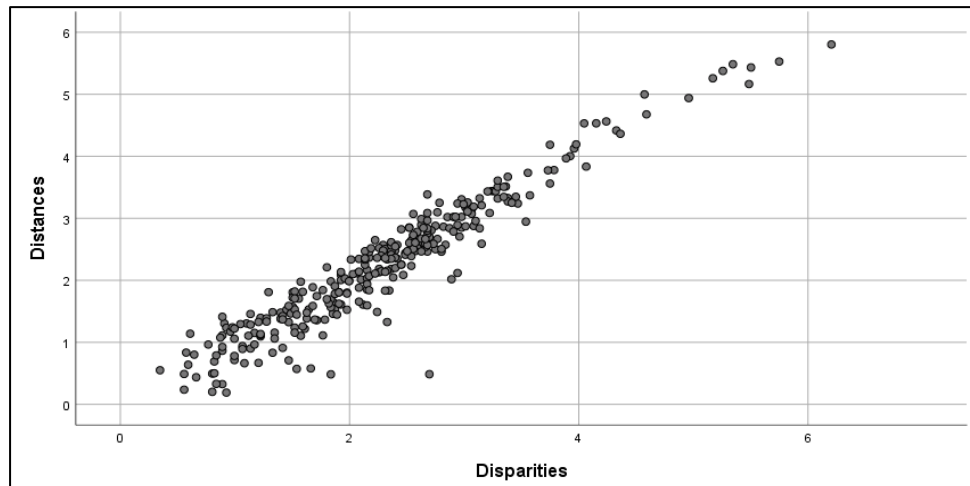


Figure 1: Scatterplot of Linear Fit Euclidean distance model

The points are clustered along a straight line, identifying a strong relationship between distances and disparities. Accordingly, this data reduction led to a grouping of the 25 items into three dimensions (Table 12).

Table 12: Loadings of the 25 items on multidimensional scaling three dimensions representing teachers' perceptions of assessment.

Number	Items	Dimension1	Dimension2	Dimension3
1	Validity5	1,4957	-0,2826	-0,4806
2	Validity1	1,3722	-0,4099	-0,0815
3	Validity2	1,8118	-0,1846	-0,0406
4	Validity3	1,4005	-0,3941	-0,7711
5	Validity4	1,4182	-0,3603	-0,2712
6	Reliability5	-1,2227	-0,3857	0,3776
7	Reliability1	-1,8351	-0,118	0,3617
8	Reliability2	-1,2412	0,6396	-0,2793
9	Reliability3	0,1614	-1,4655	1,372
10	Reliability4	0,4326	1,3947	-0,3052
11	Authenticity5	0,9232	0,3804	-0,1421
12	Authenticity1	1,1686	0,4047	-0,7313
13	Authenticity2	-0,7886	0,6732	-0,639
14	Authenticity3	-0,9225	0,3873	-0,5417
15	Authenticity4	0,1234	0,1399	-0,129
16	Practicality5	1,0597	0,8816	0,8224
17	Practicality1	0,8355	0,6853	1,3102
18	Practicality2	-0,0424	-1,7372	1,0248
19	Practicality3	-0,4053	-1,7626	0,2087
20	Practicality4	0,5769	-0,0405	0,3193
21	Washback5	-1,4648	-1,4049	-1,9885
22	Washback1	-3,9842	-0,0514	0,2114
23	Washback2	-0,9823	1,4001	0,4899
24	Washback3	-0,0605	1,4084	0,2048
25	Washback4	0,1699	0,2019	-0,3016

To get more insights into these three dimensions (Table 12) and get their relative educational meanings, a hierarchical cluster analysis was used to produce two dendrograms. The first dendrogram represents item classification (Figure 2), whereas the second one (Figure 3), represents teachers' classification.

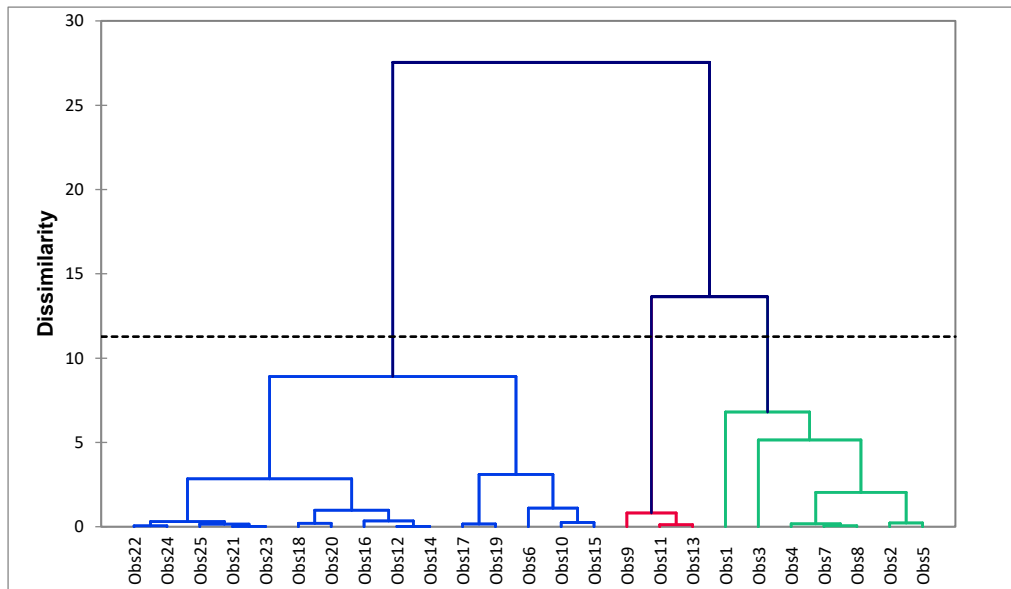


Figure 2 : Dendrogram representing items classification

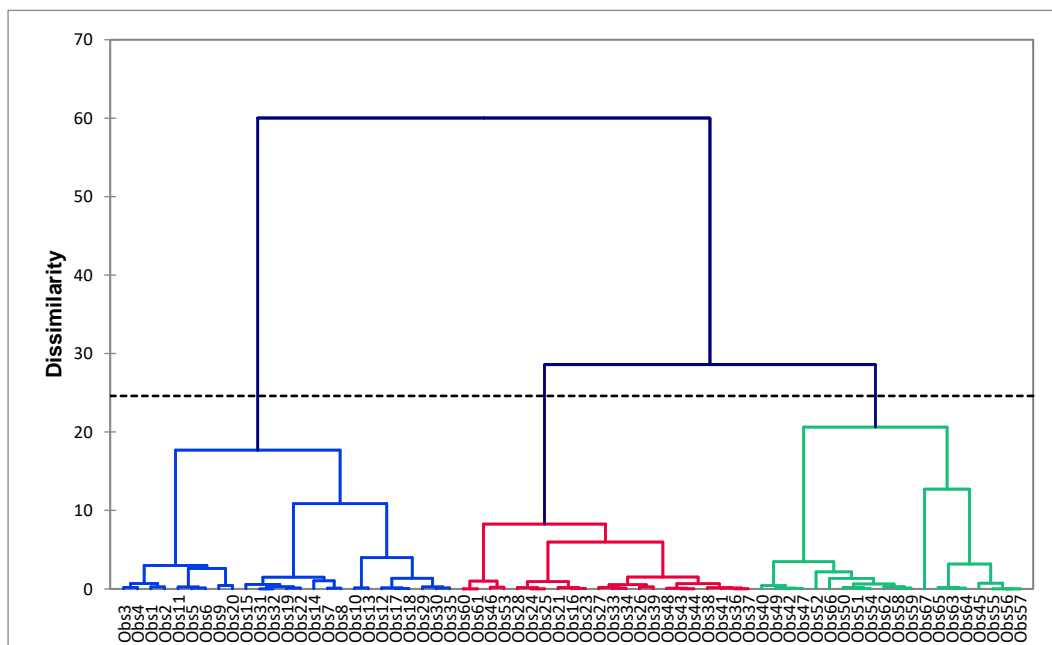


Figure 3: Dendrogram representing the three classes of teachers

4. DISCUSSION

The present study explored Moroccan university teachers' perceptions of assessment tasks in English studies departments and the impact of current practices on shaping these perceptions. In order to assess this with the construct, five variables associated with teachers' perception of assessment were validity, reliability, authenticity, practicality, and washback were evaluated.

The theoretical framework justifying the choice of these criteria of language assessment was based on Brown's (2004) framework of Testing test and Bachman and Palmer's (1996) Test usefulness. The research questions in the present study were intended to determine how teachers perceive the assessment tasks and what effect do current practices have on their perceptions in terms of the predetermined 5 items. The averaged mean scores of overall teachers' responses on the five-scale assessment questionnaire showed that none of the items reached a maximum mean score of 5. However, teachers perceived validity to have the highest mean score of 4.25, which indicates a high degree of alignment between assessment tasks and instructional objectives. Most participants demonstrated that the assessment tasks they designed for their students were about topics covered in class. Validity is the effective alignment between assessment practices, course contents, and objectives. According to Hodgman (1997), *inter alia*, the mismatch between what is taught to students and what these students are assessed at represents the most alarming shortcoming of assessment in higher education. Furthermore, absence of alignment of assessments with teaching and learning goals can significantly hamper students' learning (Segers, 2009). In this regard, Biggs (1999) developed his Constructive Alignment Model, that draws attention to aligning instructional objectives with assessment practices. These aspects must work in harmony to be conducive to effective learning. The second scale that generated high scores was practicality. Participants perceived assessment tasks to be practical ($M=3.72$). Items 3, 4, and 5, for example, generated relatively high scores (3.55, 3.05, and 3.95, respectively) which gives the impression that the test designed by teachers achieve the practicality criterion; however, items 1 and 2 also generated high scores which may hamper the process of practicality of these tests. Spending too much time preparing, correcting, and analyzing tests may affect their practicality, which has gained a particular interest in two of the most renowned and frameworks adopted in this study ('Test usefulness' and 'Testing a test'). Bachman and Palmer (1996) state that test usefulness is a function of six qualities: reliability, construct validity, authenticity, interactiveness, impact, and practicality. On the one hand, these qualities, are expected to be designed into the test by the test developer and seen in the test users' results. On the other hand, practicality is a function of how the test developer perceives and prioritizes the first five qualities (Bachman, 2005). The results of the present study were also stressed by Neukrug and Fawcett (2015, p.102), who argued that, in addition to validity, reliability, and cross-cultural fairness, "it is also important for a test to be practical." The major practical concerns that examiners face include time, cost, format, readability, ease of administration, scoring, and interpretation. The word usability was used as a synonym of reliability in reference to a good test (Harris 1969), who, in turn, stressed the importance of several considerations, such as economy, ease of administration and scoring, and ease of interpretation in the preparation of a test. Besides validity and practicality, participants perceived authenticity as having relatively high scores ($M=3.67$). Students prefer challenging assessment tasks that involve skills needed in real-life situations. Accordingly, test designers are required not only to understand the tasks they include in their tests, but also to determine the ones students are concerned about (Rahman, 2020). Designing authentic language tests, however, is challenging in the sense that they sometimes focus more on maximizing other assessment criteria, such as reliability, construct validity, and practicality. To overcome this problem, Bachman and Palmer (1996) developed their Test usefulness model, and sought to find a balance between these individual items as a group rather than focusing on each individually. To do so, they came up with three guiding principles, which stress that it is the overall usefulness of the test that is maximized, not the individual elements. In addition to this, they argued that individual test qualities cannot be evaluated independently, but must, instead, be evaluated based on their combined effect on the overall usefulness of the test. The assessment criterion that generated the lowest score was washback ($M=3.22$). With regard to participants' responses, it is worthy of note that all items scored above 2.5, surpassing the average, which

holds significant implications. Teachers claimed that they focus more on topics students need to know for the test ($\bar{x}=2.58$) and spend less time on sections less likely to be included in the final exams ($\bar{x}=3.22$). They also stated that the supplementary materials that they assign to their students are to a large extent influenced by final exams ($\bar{x}=3.70$). Furthermore, teachers had explicitly confirmed that examinations influence their teaching method in the first item ($\bar{x}=3.14$). Many researchers confirmed the results of the present study. McKinley and Thompson (2018), confirmed that teachers are affected by washback effect, especially the impact that testing has on curriculum design, pedagogical practices, and other facets of language teaching. Similarly, Bachman and Palmer (1996) discussed the term ‘Teaching to the test’ referring to the incompatibility between teaching and teachers’ values or goals. In this case, the washback of the test may have a negative impact on instruction. In a comprehensive view of washback, Bailey (1999), citing Hughes, distinguished three elements and structured them into participants, process, and product. He specified that a test could affect the perceptions and attitudes of participants vis-à-vis their teaching. These changes in teachers’ perceptions and attitudes can affect their classroom practices (process), and this, for its part, will affect students’ learning (product). Regarding data reduction, the three classes representing item classification in the first dendrogram are displayed in Table 13. The first class of items includes washback 1 and 5, reliability 1, 2, and 5, and authenticity 2 and 3. This class has a common concept defined as ‘Language Assessment and Teachers’ Decision-making’. The second class, that contains practicality 2 and 3, and reliability 3, has a common concept continuum defined as Practical and Logistical issues in Assessment. The last class contains the remaining items: washback 2, 3, and 4, authenticity 4 and 5, practicality 4 and 5, and validity 1, 2, 3, 4, and 5. This final class determines a concept specified as Alignment Triangle: Instruction, Assessment, and Outcome. The study of the teacher’s perception in designing assessment tests resulted in a tridimensional judgment.

Table following on the next page

Table 13: Items of the three classes and their concepts

Class	Items	Concept
1	<p>Washback 1: Final examinations influence my teaching method.</p> <p>Reliability 1: The exams I design have consistent conditions across two or more administrations.</p> <p>Washback 5: I spend less time on sections that are less likely to appear in the final exams.</p> <p>Reliability 2: They give clear directions for scoring/ evaluation.</p> <p>Reliability 5: They contain items/ tasks that are unambiguous to the test taker.</p> <p>Authenticity 3: The test tasks I design for my students represent or closely approximate real-world tasks.</p> <p>Authenticity 2: The language of the tests I design is as natural as possible.</p>	Language Assessment and teacher's decision-making
2	<p>Practicality 3: All the resources (equipment, human resources, classrooms, copies, etc.) are available during the examination periods.</p> <p>Practicality 2: It takes too much time to correct and analyze the tests I design.</p> <p>Reliability 3: They have uniform rubrics for scoring/ evaluation</p>	Practical and logistical issues in assessment
3	<p>Washback 2: I try to teach my students' test-taking strategies.</p> <p>Washback 3: The supplementary materials I assign to my students are influenced by final exams.</p> <p>Authenticity 4: The tests I design help students answer every day questions.</p> <p>Washback 4: In my teaching, I focus more on topics and points that students need to know for the test.</p> <p>Reliability 4: They lend themselves to consistent applications by the scorer.</p> <p>Practicality 4: The administration of exams is carried out smoothly and in appropriate conditions.</p> <p>Practicality 1: I spend too much time preparing for my tests.</p> <p>Authenticity 5: The items in the tests I design are contextualized rather than isolated.</p> <p>Practicality 5: The tests I design have a scoring/ evaluation procedure that is specific and time-efficient.</p> <p>Validity 1: My exams test the curriculum content.</p> <p>Validity 2: My exam questions are about topics that have been covered in class.</p> <p>Validity 3: The tests I design assess the course content and outcomes using formats familiar to the students.</p> <p>Validity 4: My exams measure what they are supposed to measure</p> <p>Validity 5: The items and directions I include in my tests are clear and doable within the allotted time limit.</p>	Alignment Triangle: Instruction, assessment, and outcome

Additionally, the classification of the teachers generated their classes (Table 14) on the types of assessment tasks used in the modules. Class 1 harbored the teachers that used selected-response tasks to design their language tests. Moreover, teachers of second-class used constructed-response items when they designed their tests. Finally, the teachers of the third class relied on both types to design their assessment tasks.

Table 14: Concepts describing the three teachers' classes

Class	Teachers' courses	Concepts
1	Spoken English, Oral communication, Public speaking and debating Paragraph writing, Spoken English, Spoken English Spoken English, Study Skills, Business Communication Spoken English Spoken English Reading comprehension and precis2, Public speaking and debating Reading comprehension and precis1 Study skills, Reading comprehension and precis2 Spoken English, Guided reading, Extensive reading Readings in Culture Paragraph writing, Readings in culture Guided reading Guided reading Reading comprehension and precis1 Translation	Selected-response items-based tests
2	Study skills, Composition1, Introduction to media studies British culture and society, Advanced composition and Introduction to research, Composition 1 Guided reading, composition2, Advanced composition and Introduction to research Paragraph writing Introduction to cultural studies Introduction to linguistics, Translation, Composition2 Business communication, Grammar3 Introduction to linguistics Public speaking Study skills Study skills Spoken English, Oral communication Business communication, public speaking and debating, Introduction to media studies Reading comprehension and precis2, Readings in culture, Introduction to media studies Reading comprehension and precis2, Readings in culture Guided reading Reading comprehension and precis1 Extensive reading Translation	Constructed-response items-based tests
3	Paragraph writing, Business communication Introduction to media studies, Business communication Composition1, Public speaking and debating, Advanced composition and Introduction to research Advanced composition and Introduction to research British culture and society, Advanced composition and Introduction to research, Composition1 Grammar1, Guided reading, Grammar2 Grammar2 Grammar1 Grammar1 Grammar3 Study skills Grammar1, Reading comprehension and precis1 Spoken English Reading comprehension and precis1, Extensive reading, Guided reading Guided reading, Reading comprehension and precis2, Introduction to Literature Reading comprehension and precis1 Reading comprehension and precis1 Study skills, Business communication, Extensive reading Reading comprehension and precis1, Public speaking Reading comprehension and precis2, Initiation to translation, Translation	Constructed and selected-response items-based tests

In conclusion, our study identified three concepts out of the 25 items included in the Teachers' View of Assessment Questionnaire. In addition, this study identified three groups of teachers and the way these groups were formed pointed out to the way teachers designed their assessment tasks. Teachers' perception of assessment tasks was, accordingly, characterized by three concepts and three groups. However, these concepts were not affected by the faculties under study. This may mean that these concepts were independent of the teachers' instructional environments and of a general form over Moroccan faculties.

5. CONCLUSION

Teachers perceived assessment tasks designed within the three faculties as having a high level of validity and satisfactory reliability, authenticity, and practicality. However, results also indicated that the assessment tasks designed by Moroccan professors had a negative impact on teachers' instructional practices. The study also identified three teacher's perception-related concepts along with three groups of teachers. These concepts and classes are paramount to understanding teachers' perception of assessment in Moroccan higher education. The implications of these results revealed that professors must consider the interconnectedness between the objectives of courses and the quality of assessment tasks employed to assess these courses. In this regard, developing assessment tasks that reflect language assessment principles is imperative. In addition, the involvement of the English departments in curriculum design as well as the design and implementation of end-of-term exams has become a necessity. Given that all the stakeholders are responsible for designing, implementing, and scoring students' tests appropriately, their roles should be well defined within a systematic framework, which will undoubtedly improve the quality of assessment practices. Future researchers on assessment in English higher education are highly recommended to develop and validate a scale for the three concepts: Language Assessment and teacher's decision-making, Practical and logistical issues in assessment, and Alignment Triangle: instruction, assessment, and outcome. Designing such a scale will enable Moroccan researchers to comprehensively and thoroughly understand Moroccan teachers' perceptions of assessment in the Departments of English Studies.

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EXPLORING THE ROLE OF MOROCCAN FINANCIAL CENTERS IN ENHANCING THE COUNTRY'S SOFT POWER IN SUB-SAHARAN AFRICA: A LITERATURE REVIEW

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ABSTRACT

This literature review explores the role of Moroccan financial centers in enhancing the country's soft power in sub-Saharan Africa. Soft power refers to a country's ability to influence others through attraction and persuasion rather than coercion. Moroccan financial centers have emerged as key players in the region, attracting global capital and becoming facilitators of financial market integration. The review examines the literature on financial centers and soft power, focusing on the importance of financial centers for economic development and their potential to enhance a country's international influence. It also identifies the key drivers of success and challenges faced by Moroccan financial centers in their efforts to promote soft power in sub-Saharan Africa. The review concludes by offering policy recommendations for Moroccan policymakers and financial institutions on how to strengthen the country's soft power in the region through its financial centers.

Keywords: *Financial centers, Investment, Morocco, Soft power, Sub-Saharan Africa*

1. INTRODUCTION

Over the past few decades, Morocco has made significant strides in establishing itself as a major player in the African continent. The country has pursued a proactive foreign policy aimed at fostering stronger ties with its neighbors to the south, particularly in sub-Saharan Africa. One of the key tools that Morocco has used to achieve this goal is the development of its financial centers, which have emerged as important hubs for economic activity and investment in the region. The Moroccan government has recognized the strategic importance of its financial centers in enhancing the country's influence and promoting its soft power in sub-Saharan Africa. By leveraging its expertise in finance and banking, Morocco has been able to position itself as a reliable partner for African countries seeking to strengthen their economic and financial systems. The impact of Moroccan financial centers on the sub-Saharan African region has been significant. These centers have facilitated the flow of capital and investment into the continent, helping to spur economic growth and development. They have also provided African countries with access to a wide range of financial services and products, including banking, insurance, and capital market activities. Furthermore, the development of Moroccan financial centers has also helped to promote regional integration and cooperation in Africa. By providing a platform for cross-border transactions and investment, these centers have helped to deepen economic ties between Morocco and its African neighbors, contributing to the overall stability and prosperity of the region. Despite the many benefits of Moroccan financial centers, there are also challenges that need to be addressed.

These include issues related to regulatory frameworks, infrastructure, and human capital development. Addressing these challenges will be critical in ensuring the continued growth and success of Moroccan financial centers and their ability to contribute to the country's soft power in sub-Saharan Africa. Overall, the role of Moroccan financial centers in enhancing the country's soft power in sub-Saharan Africa is a topic of significant importance. As the region continues to grow and develop, these centers are likely to play an increasingly important role in promoting economic integration, fostering cooperation, and enhancing Morocco's influence in the continent. The purpose of this study is to investigate the role of Moroccan financial centers, specifically Casa Finance City (CFC), in boosting the country's soft power in sub-Saharan Africa. Soft power refers to a country's ability to influence and persuade others through its culture, values, and policies. The study aims to achieve this goal by examining the development of Moroccan financial centers and their strategic importance in the country's economic growth and regional integration. To achieve the study's objectives, four research questions have been formulated. The first question seeks to explore the historical development of Moroccan financial centers, including CFC, and their significance in the country's economic growth and regional integration. The second research question aims to analyze the impact of Moroccan financial centers on the country's soft power in sub-Saharan Africa, particularly in terms of economic development, job creation, and financial stability. The third research question is designed to identify the key drivers of success and challenges faced by Moroccan financial centers in their efforts to enhance the country's soft power in sub-Saharan Africa. Lastly, the study will provide policy recommendations for Moroccan policymakers and financial institutions on how to strengthen the country's soft power in sub-Saharan Africa through its financial centers. Morocco has recently expanded its presence in sub-Saharan Africa, with a focus on economic development and regional integration. The country has developed a number of financial centers, including CFC, which have become important hubs for financial services and investment in the region. By examining the role of Moroccan financial centers in enhancing the country's soft power in sub-Saharan Africa, this study aims to contribute to the existing literature on the topic and provide insights into how countries can leverage their financial centers to increase their influence in the region. Furthermore, this study will provide policy recommendations for Moroccan policymakers and financial institutions to further strengthen the country's soft power in sub-Saharan Africa through its financial centers. The findings of this study are expected to be of significant value to policymakers, researchers, and investors interested in the potential of financial centers to enhance a country's soft power in sub-Saharan Africa.

2. SOFT POWER AND FINANCIAL CENTERS: THEORIES, ISSUES, AND LIMITS

Soft power is a key concept in contemporary international relations, referring to the influence that an actor (country, company, NGO, etc.) can exert on others through non-coercive means such as culture, public diplomacy, education, economic appeal, and foreign policy.

2.1. Definitions and Characteristics of Soft Power

2.1.1. Definitions

As the discipline of international relations developed, the stereotypical perception of power began to evolve. Joseph Nye¹ highlighted the growing importance of intangible forms of power, such as culture, ideology, and institutions, due to changes in the international framework. Moreover, Nye introduced the notion of "soft power" and "hard power" to divide power into two pure forms. Hard power, or command power, is defined as the ability to achieve one's objectives through coercive actions or threats, the so-called "carrots" and "sticks" of international politics.

¹ Joseph S. Nye Jr. (1990). Soft Power. Foreign Policy, 80, 153-171. <https://www.jstor.org/stable/1148580>

Traditional criteria for measuring hard power include population size, territory, geography, natural resources, military strength, and economic power. Soft power, on the other hand, relies on the ability to shape the preferences of others without resorting to force, coercion, or violence. Intangible assets such as an attractive personality, culture, political values, institutions, and policies viewed as legitimate or moral authority are essential to soft power. Legitimacy is central to soft power, as it allows the sincere attraction and persuasion of others through the use of its values and set of practices. It is important to note that soft power is not only about cultural attractiveness, but also the ability to set the agenda and manipulate the preferences, desires, or thoughts of others, as noted by Steven Lukes² in his theory of the third face of power. The roots of soft power can be traced back to Car's writings, which assimilated power into three categories: military power, economic power, and power over opinion³. Power over opinion could be considered a variant of Nye's soft power. However, other researchers and authors have proposed similar but nuanced definitions. Jan Melissen⁴ defines it as "the ability of a state to influence the behavior of others due to the attractiveness of its culture, values, and policies." Oliver Turner⁵ defines it as "the ability of a state to persuade others to share its objectives due to the legitimacy or appeal of its policies or ideas." Jonathan McLelland⁶ defines it as "a set of tools and tactics that enable a state to attract and persuade others in a non-coercive manner." These different definitions all emphasize that soft power is a non-coercive form of influence that relies on cultural attractiveness, political legitimacy, or the ability to persuade others to share a country's objectives. From these definitions, we note that soft power can be defined as the ability of a state or entity to influence the behavior of others due to the attractiveness of its values, culture, policies, and ideas, without resorting to force or coercion. It relies on intangible assets such as political legitimacy, credibility, moral authority, and cultural appeal, which shape the preferences of others and lead them to adopt desired behaviors.

2.1.2. *Characteristics of the Soft Power Concept*

The characteristics of "soft power" are multiple and can be used together or separately to strengthen an actor's influence abroad. The main characteristics of soft power are as follows:

- a) Non-coercive strategy: Soft power is characterized by its absence of force, coercion, or violence to achieve results. Instead, it relies on intangible assets such as culture, political values, legitimate institutions, diplomacy, and policies considered fair and equitable (Nye, 1990).
- b) Capacity to shape the preferences of others: Soft power is based on the ability to influence the preferences, desires, and opinions of others without constraining them. It aims to convince and persuade rather than impose (Melissen, 2005).
- c) Cultural attractiveness: Cultural attractiveness is a key element of soft power. It can take different forms, such as music, literature, cinema, cuisine, fashion, etc. (Nye, 2004).
- d) Political legitimacy: Political legitimacy is another important element of soft power. It refers to the recognition of the legitimacy of a country's institutions and policies by other countries. Legitimacy is essential to persuade others to share a country's objectives (Turner, 2010).
- e) Capacity to define the international agenda: Soft power allows countries that possess it to define the international agenda and highlight their priorities. By influencing the preferences

² Steven Lukes (1974). *Power: A Radical View*. London: Macmillan.

³ Robert W. Cox (1981). *Social Forces, States and World Orders: Beyond International Relations Theory*. Millennium, 10(2), 126-155. <https://doi.org/10.1177/030582988101000205>

⁴ Jan Melissen (2005). *The New Public Diplomacy: Soft Power in International Relations*. Palgrave Macmillan.

⁵ Oliver Turner (2010). *Theories of International Relations*. Routledge.

⁶ Jonathan M. DiCicco and M. David Hinckley (2008). *The Meaning and Measurement of State Power: Results for 50 States, 1960-1980*. International Interactions, 34(1), 1-28. <https://doi.org/10.1080/03050620701843323>

and opinions of others, they can steer international debates and discussions in the direction they desire (McLelland, 2014).

- f) In summary, "soft power" is a form of influence that can be used by states to strengthen their presence and influence abroad. The different forms of soft power can be used together or separately to strengthen an actor's influence abroad.

2.2. Financial centers: Theoretical observations

The concept of the financial center dates back to the Middle Ages in parallel with the growth of international trade and the development of international commerce. Originally, financial centers were fairs or trading places where goods and services were exchanged, or where financial exchanges took place. The evolution of financial centers in the world is not only linked to geography, but there is a whole architecture behind it. The international financial center is defined as a place where financial exchanges and transactions of different size and volume take place. The location of international financial centers does not simply translate into large geographical areas, but in general financial centers are related to the concentration of financial institutions. In the same sense, Reed ⁷(1981) defined financial centers as centers of centralisation, in the sense that financial centers ensure the smooth flow of capital and financial order flows between the home country and other countries. For Reed, a financial center essentially consists of large stock exchanges, capital markets and other financial market components. On the other hand, Jacobs confirms that the world economy is driven by cities that contain financial centers, not by countries or nations. For this reason, it is important to analyse the investment in the world in relation to the financial centers and their competitiveness⁸. The competitiveness of financial centers is analysed according to the following elements: cost, location advantages, labor force, human resources, information and telecommunication technologies, legislation, taxation and labor force. Similarly, financial centers are the drivers of industry and other economic activities. These centers are considered to be command or control centers of the national and global economy, through their impact on banking, financial services and accounting and consulting. The main indicator of a financial center according to Saito and Thornely is the existence of a large number of multinational companies. Therefore, the growth in the number of multinational companies implies the existence of a large circuit of financial flows in the value chain and consequently a growing need for financing. However, financial centers are referred to, according to Jean-Marie, by several different terms, namely "global financial center", "regional financial center", "international financial center", "offshore financial center", "international banking center" and "offshore banking center". On the other hand, Ansidei J, considers that there is no officially adopted classification for these centers, but only an effort to distribute financial centers. These classifications differ from one author to another according to different conceptions and realities, but the main idea of financial centers is related to the place of concentration of financial activities having a close connection with the rest of the world. It should be noted that the definition of financial center has evolved in parallel with the evolution of the financial economy. For Johnson, the definition of a regional financial center is considered to be a city in which financial activity is centralised and which provides the financing needs of economic agents in the region. In the same sense, Yimberlake and Shin support the argument that capital serves as nodes through which capital and information flow and in which multinational corporations are concentrated. From this theoretical presentation of the concept of "financial centers", according to the different approaches, it appears that the concept of the financial center is constantly evolving and that each definition remains dependent on the economic reality in which it evolves.

⁷ Hay, R. (2016), The Case for Offshore'. IFC Review, 1 May

⁸ Jacobs, J. (1984). Cities and the wealth of nations: Principles of economic life. New York: Random House Inc.

Otherwise, the close relationship between the evolution of the economy and the evolution of the financial center implies a certain dependence of the indicators of the national economy on the financial structure of the same country. On our side, the financial center of CASA FINANCE CITY is considered a regional center according to the last definition. Therefore, we can note the following definition of the financial center in our chapter. Indeed, the financial center can be defined as a place of concentration of financing and information. This relationship is strongly linked.

3. FROM FINANCIAL CONCENTRATION TO INTERNATIONAL INFLUENCE: THE IMPORTANCE OF FINANCIAL CENTERS FOR A COUNTRY'S SOFT POWER

The concept of financial centers has been evolving over time, starting from the Middle Ages, when they were fairs or trading places for the exchange of goods and services⁹. As the world economy grew and developed, financial centers became hubs for financial transactions and exchanges of different sizes and volumes. Reed¹⁰ (1981) defines financial centers as centers of centralization, ensuring the smooth flow of capital and financial order flows between the home country and other countries. Today, financial centers are considered to be command or control centers of the national and global economy, driving industry and other economic activities. They are also known as "global financial centers," "regional financial centers," "international financial centers," "offshore financial centers," "international banking centers," and "offshore banking centers"¹¹ (Jean-Marie, 2019)¹². Financial centers are not simply large geographical areas; they are related to the concentration of financial institutions, and their competitiveness is analyzed according to several elements, including cost, location advantages, labor force, human resources, information and telecommunication technologies, legislation, taxation, and labor force. Jacobs¹³ (1969) emphasizes the importance of financial centers in driving the world economy and confirms that the world economy is driven by cities that contain financial centers, not by countries or nations. This is why it is important to analyze investments in relation to financial centers and their competitiveness. The growth of multinational corporations is a significant indicator of the growth of financial centers (Saito and Thornely, 1998). According to Ansidei (2013), financial centers are not officially classified, but they are often classified by different authors according to their different conceptions and realities. The definition of financial centers has evolved with the evolution of the financial economy, and the close relationship between the evolution of the economy and the evolution of financial centers implies a certain dependence of the indicators of the national economy on the financial structure of the same country. The importance of financial centers for a country's soft power cannot be underestimated. Soft power refers to a country's ability to influence others through non-coercive means, such as culture, diplomacy, and institutions¹⁴ (Nye, 2004). The presence of a strong and competitive financial center can enhance a country's soft power, as it attracts foreign investment, creates jobs, and contributes to economic growth. The impact of financial centers on a country's soft power is an area that has been little explored in the literature, and there is a need for further research to understand the link between financial centers and soft power. In conclusion, financial centers are essential for a country's economic growth and play a vital role in its soft power. This study argues that financial centers are not simply places where financial transactions take place, but they are also centers of power and influence that can contribute significantly to a country's soft power.

⁹ Ansidei, M. (2013). The Geopolitics of Global Financial Centers. Center for Geopolitics and Security in Real Time.

¹⁰ Reed, M. (1981). Centralization and the Capital Markets. *Journal of Economic Literature*, 19(4), 1465-1495.

¹² Jean-Marie, A. (2019). The global financial centre: revisiting the literature on the role of cities. *Journal of Urban Affairs*, 41(3), 289-302.

¹³ Jacobs, J. (1969). *The economy of cities*. Random House.

¹⁴ Nye, J. S. (2004). *Soft power: The means to success in world politics*. PublicAffairs.

The study highlights the need for further research on the link between financial centers and soft power and suggests that policymakers should consider the soft power implications of their financial policies.

3.1. Exploring the Theoretical Limits of Soft Power and Financial Centers

The concept of soft power, as defined by Nye (1990)¹⁵, has gained significant attention in international relations and political science literature over the past few decades. Soft power is the ability of a country to achieve its objectives through attraction rather than coercion, and it encompasses a range of cultural, political, and economic factors that contribute to a country's influence on the world stage. One area that has received relatively little attention in discussions of soft power is the role of financial centers in shaping a country's influence. While there is a growing body of literature that explores the relationship between finance and power (Strange, 1986; Arrighi, 1994; Cohen, 1998), few studies have considered how financial centers contribute to a country's soft power.¹⁶ One of the key theoretical limits in exploring the relationship between financial centers and soft power is the tendency to view soft power as a product of cultural factors, rather than economic ones. As Kearn (2013) notes¹⁷, much of the existing literature on soft power focuses on the role of cultural products such as film, music, and literature in shaping a country's image abroad. However, this cultural perspective overlooks the importance of economic factors in shaping a country's influence. Financial centers, as hubs of global finance, play a critical role in shaping economic flows and influencing investment decisions, which in turn affect a country's global image¹⁸. Another theoretical limit in exploring the relationship between financial centers and soft power is the tendency to view soft power as a unidirectional concept, with powerful countries exerting their influence on weaker ones. However, this perspective overlooks the fact that financial centers themselves can be the source of soft power. As Gilpin (2001) notes¹⁹, the power of financial centers lies in their ability to shape global financial flows, which can in turn influence the behavior of other countries. This means that countries with strong financial centers have the potential to wield significant soft power, even if they are not traditionally viewed as major powers in the political or military spheres. To address these theoretical limits, this study aims to explore the relationship between financial centers and soft power, and to identify the ways in which financial centers contribute to a country's global influence. By examining the role of financial centers in shaping economic flows, attracting investment, and facilitating international trade, this study seeks to provide a more comprehensive understanding of how soft power operates in the context of global finance. Through this analysis, we hope to shed light on an area that has been largely overlooked in discussions of soft power, and to provide a more nuanced understanding of the complex ways in which economic and cultural factors contribute to a country's global influence.²⁰

4. CASA FINANCE CITY: REALITIES AND PERSPECTIVES

CASA FINANCE CITY (CFC) is a financial center located in Casablanca, Morocco. Created in 2010 through a public-private partnership, its main objective was to attract investment and promote financial services in Morocco and across Africa. The center has successfully attracted major global financial institutions, multinational corporations, and local financial firms. As of 2021, CFC has over 200 CFC-labeled companies, and it is continuously expanding. The CFC has been an important catalyst for economic development in Morocco, contributing to the country's increasing output and growth in FDI.

¹⁵ Nye, J. S. (1990). Soft power. *Foreign policy*, 80, 153-171.

¹⁶ Arrighi, G. (1994). *The long twentieth century: Money, power, and the origins of our times*. Verso Books.

¹⁷ Kearn, M. (2013). *The limits of soft power*. Palgrave Macmillan.

¹⁸ Cohen, B. J. (1998). *The geography of money*. Cornell University Press.

¹⁹ Gilpin, R. (2001). *Global political economy: Understanding the international economic order*. Princeton University Press.

²⁰ Strange, S. (1986). *Casino capitalism*. Basil Blackwell.

The center has become a hub for financial services across Africa and a strategic gateway for European and Asian financial institutions to access African markets. Moreover, the center is playing a crucial role in promoting Morocco's soft power in Africa. However, the Covid-19 pandemic has negatively impacted FDI flows to Africa, and CFC is not immune to this trend. Despite this, the center remains optimistic about its future prospects and has initiated a series of measures to mitigate the effects of the pandemic. One such measure is the center's focus on becoming a leading arbitration venue in Africa, as arbitration has proven to be a resilient area of the legal industry during the pandemic. Overall, CFC's success is attributable to its strategic location, supportive legal framework, and proactive marketing strategy. As Morocco's economy continues to grow and diversify, the center is expected to remain an important player in the global financial services industry and a key driver of economic development in Africa. Thanks to its geo-economic position, Morocco has become a significant financial center that connects two continents of different sizes: Africa and Europe. In other words, Morocco has become obligated to centralize financial flows at a regional level, parallel to the improvement of its economic position. In 2010, Casa Finance City (CFC) was established in partnership between the private and public sectors to create a privileged framework and develop Morocco's strategic assets while helping investments to be channeled to Africa. The Casablanca Financial Center is becoming a place of synergy, an attractive ecosystem, and a facilitator of global financial market integration, serving as a financial hub across the continent. Casa Finance City has succeeded in building a strong community of members consisting of financial firms, regional headquarters of multinationals, service providers, and holding companies. Currently, CFC is made up of 200 CFC-labeled companies, which have been successful in attracting capital and accompanying economic and financial players in their development in Africa. In five years of activity, the Moroccan market, modeled on financial hubs such as the City of London or the Dubai International Financial Center (DIFC), has proved its worth, bringing together a community of more than 130 groups from some twenty countries on four continents. CFC was included in the Global Centers Index in 2014 and has steadily moved up the rankings to become the continent's leading financial hub. In addition, CFC is striving to become a leading arbitration venue in Africa and has become a very strong player in the Moroccan and African financial sector. However, the Covid-19 pandemic has negatively impacted FDI flows, especially in Africa, as it decreased by 28% in 2020 compared to 2019. The following table presents the profiles of the cities hosting IFCs, in which Casablanca is positioned in the "international candidates" box. This ranking is based essentially on three important criteria: the connectivity of the center with the rest of the world, the diversity of the instruments used, and the specialization of the financial center in certain sectors (Mamouni Limnios, 2020; Fattoum, 2018; Mouline, 2017).

Table following on the next page

Table 1: Global Financial Center Index (GFCI) rankings and scores

CFI	GFCI 15	GFCI 22	GFCI 29			
Ranking	Score	Ranking	Score	Ranking	Score	
London	2	778	1	780	2	743
New York	1	777	2	756	1	764
Hong Kong	3	756	3	744	4	741
Singapore	4	746	4	742	5	740
Tokyo	6	718	5	725	7	736
Shanghai	20	690	6	711	3	742
Beijing	32	668	10	703	6	737
Zurich	7	717	9	704	10	720
Frankfurt	16	695	11	701	9	727
Boston	9	705	19	690	24	703
Paris	31	669	26	680	25	699
Istanbul	42	655	78	617	74	590
Le Moyen-Orient et l'Afrique						
Dubai	29	684	18	691	19	710
Abu Dhabi	32	674	25	682	38	675
Tel Aviv	21	692	34	666	41	666
Casablanca	62	622	35	665	53	632
Doha	-	-	45	651	55	628
Johannesburg	50	647	48	648	90	572
Bahrain	40	660	51	645	68	596
Mauritius	-	-	69	626	89	573
Cape town	-	-	-	-	82	582
Nairobi	-	-	-	-	106	520

Source: Long Finance, Global Financial Centers Index 15, 22, 29

It is essential to note that the situation of the CFC is still unstable due to the weakness of its marketing on an international scale. In this sense, it is important to adopt a marketing strategy capable of creating a positive impact of the CFC. Moreover, it is noted from the various indicators that the financial market has been adversely affected, which obliges the CFC to invest in its crisis management strategy.

4.1. The historical development of Moroccan financial centers

Morocco's financial sector has a long history dating back to the early 1900s, with the creation of the first banks in the country. In the 1980s, the government implemented economic reforms aimed at liberalizing the financial sector and promoting foreign investment. These reforms led to the establishment of the Casablanca Stock Exchange in 1929 and the development of a more modern financial infrastructure. In 2010, Morocco launched Casa Finance City (CFC) as part of its strategy to position itself as a leading financial center in Africa. CFC is a public-private partnership aimed at attracting regional and global financial institutions and creating a hub for financial services and investment. The development of CFC was a response to the growing demand for financial services in Africa and the need for a well-regulated financial center to channel investment into the region. Since its launch, CFC has been successful in attracting regional and global financial institutions, including banks, insurance companies, and investment firms. It has become a hub for financial services and investment, particularly in areas such as Islamic finance and green finance. CFC's success has been driven by its strategic location at the crossroads of Africa and Europe, its competitive regulatory framework, and its focus on developing a skilled workforce.

CFC's significance in Morocco's economic growth and regional integration cannot be overstated. It has helped to position Morocco as a leading financial center in Africa and has attracted significant foreign investment into the country. CFC has also helped to stimulate the development of the financial sector in Morocco, which has become an important contributor to the country's GDP. In addition to its economic significance, CFC has also played a role in regional integration. By attracting regional and global financial institutions, CFC has helped to strengthen Morocco's ties with other African countries and has facilitated the flow of capital and investment across the region. Overall, the historical development of Moroccan financial centers, including CFC, has been crucial to the country's economic growth and regional integration. As Morocco continues to position itself as a leading financial center in Africa, the development of CFC will remain an important priority for the government and the private sector.

5. THE IMPACT OF MOROCCAN FINANCIAL CENTERS ON THE COUNTRY'S SOFT POWER IN SUB-SAHARAN AFRICA

Moroccan financial centers, particularly Casa Finance City (CFC), have had a significant impact on the country's soft power in sub-Saharan Africa. The establishment of CFC in 2010 was part of a strategic effort to position Morocco as a regional financial hub and promote economic development on the African continent. CFC has since attracted numerous financial firms, multinationals, and service providers, creating a dynamic ecosystem for finance and investment in Africa. One of the main impacts of Moroccan financial centers on the country's soft power in sub-Saharan Africa has been economic development. By providing a central location for financial services and investment, CFC has helped to mobilize capital and promote economic growth in the region. This has been particularly important for small and medium-sized enterprises (SMEs), which often struggle to access finance and investment opportunities. The growth of CFC has also had a spillover effect on other sectors of the Moroccan economy, such as real estate and construction, generating job opportunities and increasing the country's GDP. In addition to economic development, Moroccan financial centers have also contributed to financial stability in sub-Saharan Africa. By providing a platform for financial firms and service providers to operate, CFC has helped to create a stable and regulated financial system in the region. This has been important for attracting foreign investment, which is essential for sustained economic growth. The establishment of the Casablanca Stock Exchange and the African Securities Exchanges Association (ASEA) in Morocco has also helped to increase the liquidity and transparency of financial markets in the region, promoting greater financial stability and investor confidence. Overall, the impact of Moroccan financial centers on the country's soft power in sub-Saharan Africa has been significant. By promoting economic development, job creation, and financial stability, CFC has helped to position Morocco as a key player in the African financial landscape, strengthening the country's regional integration and influence.

6. SOFT POWER GENERATED BY BANKS AND FINANCIAL INSTITUTIONS

The Casablanca Financial Center (CFC) has made it possible to bring together the decision-making centers of several international companies, through its communication and marketing strategy of the financial offer. This situation has allowed the CFC to adapt to the growing demand of multinationals in financing. On the other hand, the growth strategy of these companies has become linked to the capacity of the CFC to satisfy their financing and advisory needs. The activity of the CFC is not only oriented abroad but also allows for a better mobilisation of domestic savings in the satisfaction of the financing needs of local enterprises. In this case, the policy of influence of the financial center is not only linked to foreign countries but is also built from within.

The CFC represents an active network in 50 countries on the continent. According to its latest balance sheet, more than 65% of the activity of its member companies is carried out in Africa, with exports of financial and professional services up 32% in volume in 2019, after a 45% growth in 2018. The centralisation of finance from 50 African countries to the CFC has enabled it to manage the value chain in African countries, and subsequently to have a significant influence on the management of this value chain. This strong position of the CFC has allowed it to become a key player in the management of investments in Africa, and subsequently an essential element in the production of African economic policies. In addition, the use of the CFC by existing Moroccan companies in Africa or by African companies has allowed Morocco to direct investments in Africa according to its needs. In concrete terms, Morocco has seized the opportunity offered by finance to strengthen its soft power strategy in Africa. On the other side, the CFC has become an information bank in Africa. In other words, the information collected by the financial center allows it to have additional power over all investments in Africa, and also allows it to anticipate and forecast changes in the African market.

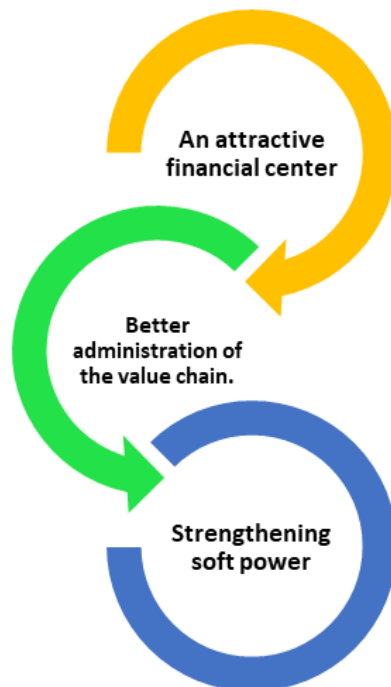
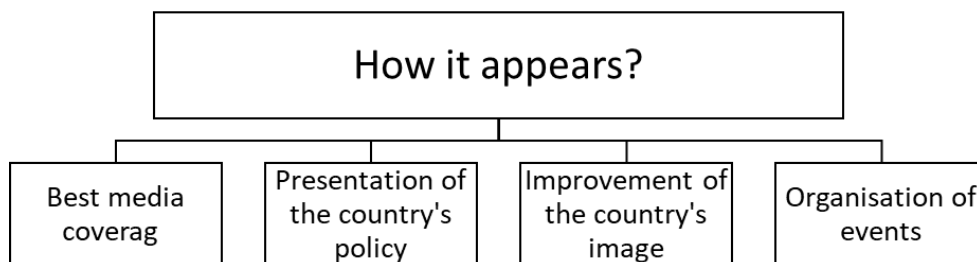


Figure 1: Illustration of the financial center-Soft power relationship

6.1. The soft power generated by consultancy firms

The second lever of expression of the Moroccan soft power are the consulting firms, which also contribute to the improvement of the country's image and subsequently anchor its influence through the following elements.



The media coverage offered by these companies is the primary tool for the diplomacy of countries. However, we note a weakness of Moroccan consulting firms in the list of members of consulting firms working in Africa. These consultancies can convey their country's policy in Africa through concerted actions between the ministerial departments concerned and the African countries in question. Thus, the power of marketing and its tools can be used to improve the image of the financial center through the various services it offers. These marketing strategies can include the made in Morocco image in order to anchor this image in the minds of African investors and decision makers.

7. ENHANCING MOROCCAN SOFT POWER IN SUB-SAHARAN AFRICA: SUCCESS DRIVERS AND CHALLENGES FOR FINANCIAL CENTERS

The key drivers of success for Moroccan financial centers in enhancing the country's soft power in sub-Saharan Africa include:

- **Strategic Planning:** Moroccan financial centers, such as Casa Finance City, have been successful in attracting global capital due to their strategic planning and implementation. The centers have been able to create an attractive ecosystem for financial firms by offering tax incentives, streamlined regulatory frameworks, and access to a skilled workforce.
- **Regional Integration:** Moroccan financial centers have been able to enhance their soft power in sub-Saharan Africa by promoting regional integration. For example, CFC has facilitated the development of financial infrastructure in sub-Saharan Africa by promoting cross-border investment and trade.
- **Public-Private Partnership:** Moroccan financial centers have been successful in enhancing their soft power by fostering public-private partnerships. For example, CFC was created in partnership between the private and public sectors to develop Morocco's strategic assets and channel investments to Africa.
- However, Moroccan financial centers also face some challenges in enhancing the country's soft power in sub-Saharan Africa, including:
- **Limited Financial Resources:** Despite the significant growth of Moroccan financial centers, the country still faces limited financial resources to support their expansion and outreach in sub-Saharan Africa.
- **Competition:** Moroccan financial centers face stiff competition from established financial centers in Europe, Asia, and the Middle East, which also seek to expand their presence in sub-Saharan Africa.
- **Political Instability:** The political instability in some sub-Saharan African countries poses a significant challenge to Moroccan financial centers seeking to enhance their soft power in the region. The centers must navigate complex political and economic environments to succeed in expanding their reach and influence.

7.1. Results

Based on the findings and analysis presented, the study offers the following policy recommendations for Moroccan policymakers and financial institutions to strengthen the country's soft power in sub-Saharan Africa through its financial centers:

- **Promote regional integration:** Moroccan financial centers should continue to promote regional integration by strengthening their connections with other financial centers in sub-Saharan Africa. This can be achieved through partnerships, joint ventures, and strategic alliances with financial institutions in the region.
- **Develop specialized financial services:** Moroccan financial centers should focus on developing specialized financial services that cater to the needs of sub-Saharan African markets. This includes services such as Islamic finance, microfinance, and green finance.

- Enhance human capital development: Moroccan financial centers should prioritize the development of human capital through education and training programs that equip local talent with the skills and knowledge needed to compete in the global financial market.
- Improve regulatory frameworks: Moroccan policymakers should continue to improve regulatory frameworks to ensure the stability and integrity of financial markets. This includes measures to combat money laundering and terrorist financing, strengthen financial supervision, and enhance consumer protection.
- Increase public-private partnerships: Moroccan financial centers should work closely with the government and other stakeholders to create an enabling environment for private sector investment. This includes measures to improve infrastructure, reduce red tape, and provide incentives for foreign investors.

Overall, these policy recommendations aim to enhance the role of Moroccan financial centers in promoting economic development, job creation, and financial stability in sub-Saharan Africa, while strengthening the country's soft power in the region.

8. CONCLUSION

In conclusion, our study has identified the key drivers of success and challenges faced by Moroccan financial centers in their efforts to enhance the country's soft power in sub-Saharan Africa. Specifically, we found that the success of Moroccan financial centers in promoting economic development, job creation, and financial stability in the region is driven by their competitive advantages in terms of connectivity, diversity of financial services, and specialization in certain sectors. However, we also identified challenges related to regulatory frameworks, political instability, and the impact of external factors such as the Covid-19 pandemic. These findings have important implications for Moroccan policymakers and financial institutions seeking to enhance the country's soft power in sub-Saharan Africa. Specifically, we recommend that policymakers focus on strengthening the regulatory framework for financial centers and promoting political stability in the region. We also suggest that financial institutions invest in building partnerships and networks with African financial institutions and businesses, and develop specialized services that meet the needs of the local market. While our study has made an important contribution to the literature on financial centers and soft power, several limitations should be acknowledged. These include the relatively small sample size of our study and the focus on only one region of Africa. Future research should aim to address these limitations and explore the role of financial centers in promoting soft power and economic development in other regions. Overall, our study provides important insights into the role of Moroccan financial centers in enhancing the country's soft power in sub-Saharan Africa. By focusing on the key drivers of success and challenges faced by these centers, we have identified practical strategies for policymakers and financial institutions to strengthen Morocco's position as a hub of financial innovation and excellence in the region.

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23. Comprendre la finance durable et ses enjeux - Finance For Tomorrow
24. Fonds vert: prometteur pour le financement du développement durable ? (ideas4development.org)

IMPACT OF CUSTOMS TAX ON BUDGET GROWTH: EMPIRICAL EVIDENCE FROM KOSOVO

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ABSTRACT

The budget has various factors that affect its growth, where one of them that is considered as one of the main factors is the customs tax, therefore this is also the main purpose of this work. The main purpose is related to the definition of the term "customs tax", its types, its role and impact as a factor of budget growth. About this paper, it will use different methods of its realization, of which they will be: secondary data and quantitative methods through secondary data which relied on economic theory, which are the results of research done before seen by the World Bank and various economic researchers, which are published on the official website and in various literature. During this work we came across various findings which we will clarify below. These have to do with customs taxes during the declared years and their influence as a raising or lowering factor in the budget at the same time, their types and role. From the realization of this work, I have come to the conclusion that it plays an increasing factor in the budget since it brings many revenues for the annual period and it is also necessary that these customs taxes for various goods be made in agreement with the Economic Code of Kosovo. Therefore I recommend the government of Kosovo to pay special attention to this factor and of course to use it in the best possible way for services for citizens, institutional and business services. Through this scientific paper we can present consistent and real results regarding the relevant conclusions always based on the compiled questionnaire and the collection of data about it, the presentation and processing of the data through SPSS.

Keywords: *Impact, customs tax, budget, evidence*

1. INTRODUCTION

Enthusiasm and passion were the push to start a scientific paper, therefore with the selection of profit for coordination in the realization of this paper after many analyzes we decided that the topic of this paper should be "The impact of the customs tax in function of the increase in the budget of Kosovo ". After the independence of Kosovo, many roads were opened for this country, one of them is trade inside and outside the country. Since many businesses were opened and life began to be regulated in this country after the war and many sacrifices, the need arose for importing (bringing) various products and services to the country to meet the requirements, where later the export (sending) of products and various services abroad which have the origin of production in Kosovo. Always observing this situation, it has been seen the necessity to impose a customs tax on the import and export of products and services, where it was a very appropriate decision for the good of the country in economic terms. During the realization of this scientific work we will talk about: types of customs taxes, their role, factors in the increase of the budget. Since we are dealing with different products and services of different types, then the customs tax for these products differs and is divided into different types for each type, so we will stop at each type of division where we will analyze it. The role of these customs taxes is more important, so during this paper we will talk about every reason that affects their role.

Another point that we will talk about will be the customs tax as a factor in the increase of the budget, where, based on various statistics, we see the impact of the tax on the increase of the budget, which has managed to bring various incomes and benefits to the budget of Kosovo. From the above paragraph, we highlighted some of the key points that will be part of this paper, but it is worth noting that the following paper will address other more important points about the subject in question.

2. LITERATURE REVIEW

Tax Administration has its roots in the theory of excess income which Albright (2008) describes as a consequence that gives an indisputable justification of the positive theory of the state and its relationship with the economy market. Although Thomas (2008) explains the importance of revenue collection theory in summary, he leaves a gap by dealing with tax theory rather than tax administration. Both Thomas and Albright in their contribution fail to adequately show how the theory of revenue collection relates to tax administration, an aspect that this paper attempts to explore. It is necessary to make a distinction between taxation and tax administration that Albright makes, a distinction between what a tax is like any payment by economic agents and individuals to the government and taxation which focuses on methodologies for determining the means of raising taxes, types and rates of taxes. Taxation includes the mechanization of legislation, policies and plans, which determine the different types and rates of taxes (Parsoons, 2006, Abichandani, 2008), while Moore and Schneider (2004) think that the implementation of the approved system is what constitutes the tax administration. Recent research by Tomsett (2008) supports the view that the administration of any tax system adopted should be acceptable and easy for taxpayers and efficient (Kennedy and Sugden, 2007). According to Graham and Wendy (2003), most forms of taxation are less efficient, so more money is invested and less is collected (Nkote & Luwugge, 2010).

3. RESEARCH METHODOLOGY

There are several different data methods, so it is worth highlighting as the method used for this scientific paper is the questionnaire. The questionnaire was compiled by the student and the researcher. Consisting of 20 questions, which were carried out with surveyors of businesses mainly in the city of Peja. The questionnaire was extended to different organizational sizes, which represent a diverse sample for research. This questionnaire tries to find the impact of customs taxes on different businesses in Kosovo, and which is designed to measure the weight of each variable and research question through a Likert scale.

4. ANALYSES AND RESULTS

Table 1: Frequency of respondents' business size

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Smal	21	39.6	40.4	40.4
	Medium	25	47.2	48.1	88.5
	Large	6	11.3	11.5	100.0
	Total	52	98.1	100.0	
Missing	System	1	1.9		
Total		53	100.0		

From the collected data of the table of the first question, we notice that 21 surveyed businesses answered with the small option or 39.6%, 25 surveyed businesses answered with the medium option or 47.2% and 6 surveyed businesses answered with the I option large or 11.3%. In the following, we will present the histogram and the graph related to the size of the businesses.

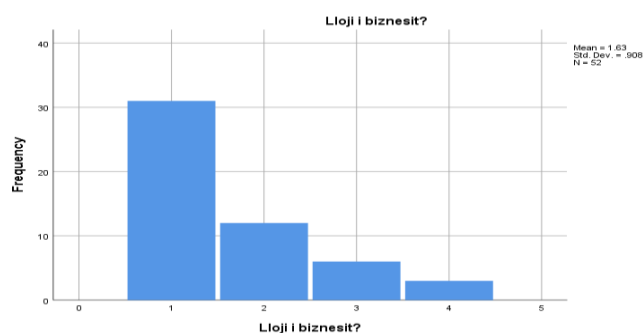


Histogram 1: Business size

Table 2: Frequency of type of businesses

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Individual Business	31	58.5	59.6	59.6
	Limited Liability Companies	12	22.6	23.1	82.7
	Social commercial enterprise	6	11.3	11.5	94.2
	Agricultural Cooperative	3	5.7	5.8	100.0
	Total	52	98.1	100.0	
Missing	System	1	1.9		
Total		53	100.0		

From the data of the table of the second question, we can observe that 31 surveyed businesses answered with the option Individual business (B.i) or 58.5%, 12 surveyed businesses answered with the option Limited liability companies (Sh.p.k) or 22.6 %, 6 surveyed businesses answered with the option Social commercial enterprise (N.tsh) or 11.3%, 3 surveyed businesses answered with the option Agricultural cooperative (K.b) 5.8%. Below we will present the histogram and chart for the type of business:

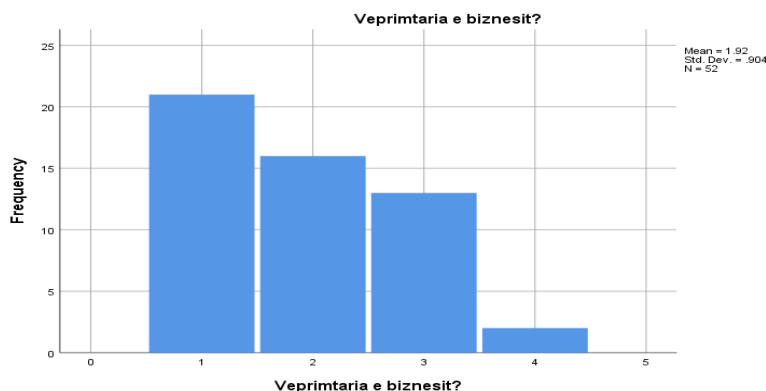


Histogram 2: Business type

Table 3: Frequency of business activity table

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Trade	21	39.6	40.4	40.4
	Services	16	30.2	30.8	71.2
	Production	13	24.5	25.0	96.2
	Other	2	3.8	3.8	100.0
	Total	52	98.1	100.0	
Missing	System	1	1.9		
Total		53	100.0		

From the table data of the third question, we can see that 21 surveyed businesses answered with the Commercial Activity option or 39.6%, 16 surveyed businesses answered with the Service Activity option or 30.2%, 13 surveyed businesses answered with the Activity option manufacturing or 24.5% and 2 surveyed businesses answered with the option Other activity or 3.8%. In the following we will present the histogram and graph for the business activity.



Histogram 3: Business activity

Table 4: What is the value of the customs tax you pay?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Many	12	22.6	23.1	23.1
	Not much	8	15.1	15.4	38.5
	Average	28	52.8	53.8	92.3
	Slightly	4	7.5	7.7	100.0
	Total	52	98.1	100.0	
Missing	System	1	1.9		
Total		53	100.0		

From the table data of the third question, we see that 12 surveyed businesses answered with the option Very or 22.5%, 8 surveyed businesses answered with the option not much or 15.1%, 28 surveyed businesses answered with the option Average or 52.8 %, 4 surveyed businesses answered with the Few or 7.5% option. In the following we will present the histogram and graph for the table in question.

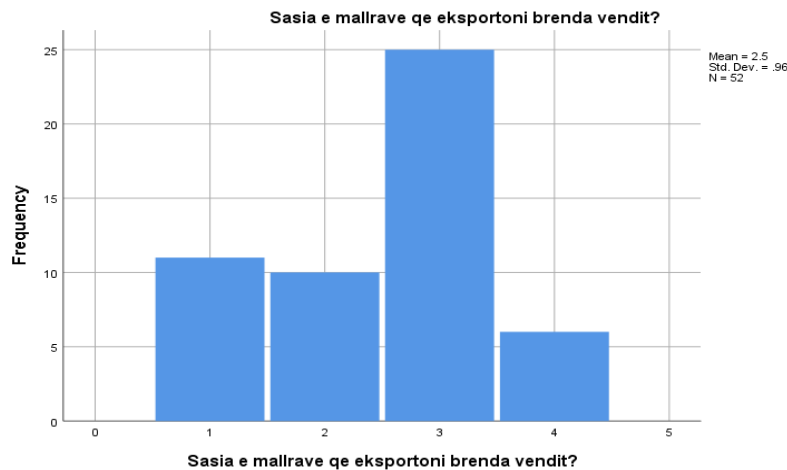


Histogram 4: What is the value of the customs tax you pay?

Table 5: What types of goods do you export?

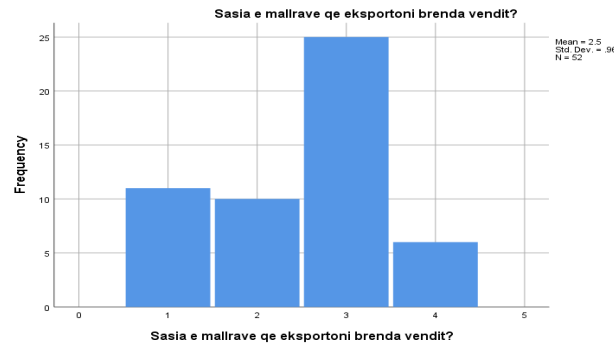
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Grocery	22	41.5	42.3	42.3
	Textile	10	18.9	19.2	61.5
	Toilet	6	11.3	11.5	73.1
	Equipment and Tools	6	11.3	11.5	84.6
	Wood	8	15.1	15.4	100.0
	Total	52	98.1	100.0	
Missing	System	1	1.9		
Total		53	100.0		

From the table data of the fifth question we can see that 22 surveyed businesses answered with the Food option or 41.5%, 10 surveyed businesses answered with the Textile option or 18.9%, 6 surveyed businesses answered with the Hygienic option or 11.3 %, 6 surveyed businesses responded with the Equipment and tools option or 11.3% and 8 surveyed businesses responded with the Wood option or 15.1%. Next, we will present the histogram and graph related to the word table.

*Histogram 5: What types of goods do you export?**Table 6: The amount of goods you export domestically*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Many	11	20.8	21.2	21.2
	Not much	10	18.9	19.2	40.4
	Average	25	47.2	48.1	88.5
	Slightly	6	11.3	11.5	100.0
	Total	52	98.1	100.0	
Missing	System	1	1.9		
Total		53	100.0		

From the table data of the sixth question, we can see that 11 surveyed businesses answered with the option Very or 20.8%, 10 surveyed businesses answered with the option Not much or 18.9%, 25 surveyed businesses answered with the option Average or 47.2%, 6 surveyed businesses answered with the Few option or 11.3%. In the following, we will present the histogram and the graph related to the table in question.

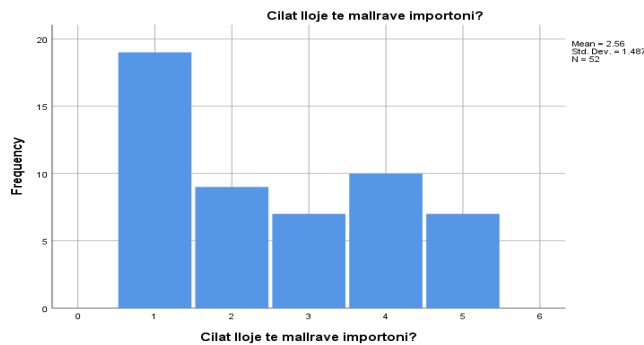


Histogram 6: The amount of goods you export domestically

Table 7: What types of goods do you import?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Many	6	11.3	11.5	11.5
	Not much	15	28.3	28.8	40.4
	Average	27	50.9	51.9	92.3
	Slightly	4	7.5	7.7	100.0
	Total	52	98.1	100.0	
Missing	System	1	1.9		
Total		53	100.0		

From the table data of the seventh question, we can see that 6 surveyed businesses answered with the option Many or 11.3%, 15 surveyed businesses answered with the option Not much or 28.3%, 27 stressed businesses answered with the option Average or 50.9%, 4 surveyed businesses answered with the option Few or 7.5%. In the following, we will present the histogram and the graph related to the table in question.

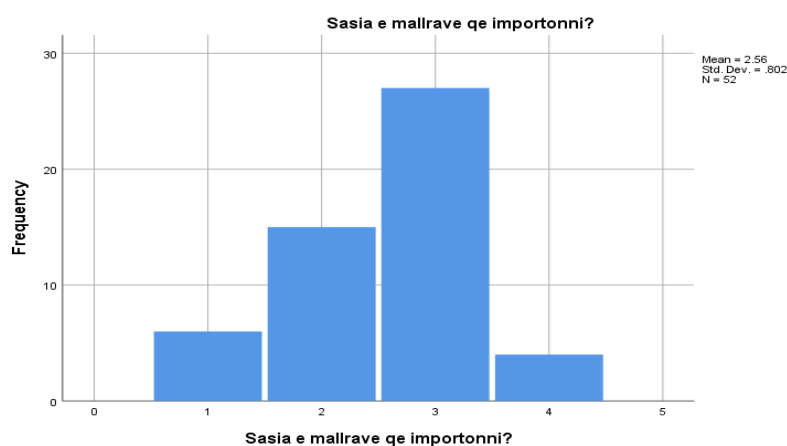


Histogram 7: What types of goods do you import?

Table 8: The amount of goods you import

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Many	6	11.3	11.5	11.5
	Not much	15	28.3	28.8	40.4
	Average	27	50.9	51.9	92.3
	Slightly	4	7.5	7.7	100.0
	Total	52	98.1	100.0	
Missing	System	1	1.9		
Total		53	100.0		

From the table data of the eighth question we can see that 6 surveyed businesses answered with the option Many or 11.3%, 15 surveyed businesses answered with the option Not much or 28.3%, 27 businesses of the respondents answered with the option Average or 50.9%, 4 surveyed businesses answered with the option Few or 7.5%. In the following, we will present the histogram and the graph related to the table in question.

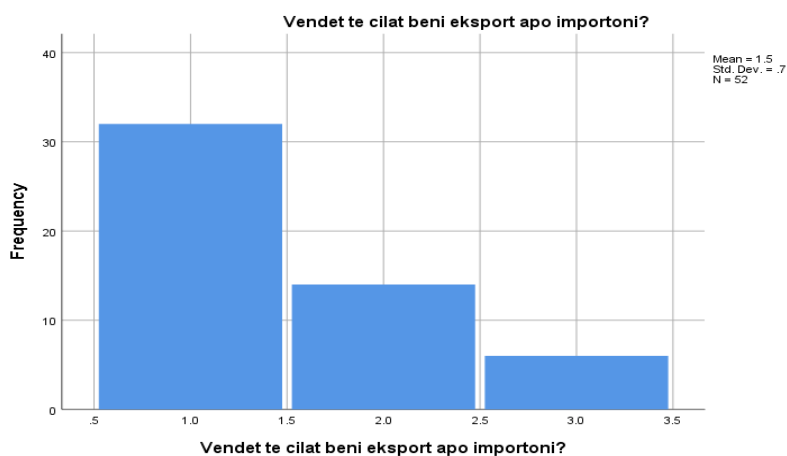


Histogram 8: The amount of goods you import

Table 9: Countries where you import or export

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Albania	32	60.4	61.5	61.5
	N. Macedonia	14	26.4	26.9	88.5
	Montenegro	6	11.3	11.5	100.0
	Total	52	98.1	100.0	
Missing	System	1	1.9		
Total		53	100.0		

From the table data of the ninth question, we can see that 32 surveyed businesses answered with the option Albania or 60.4%, 14 surveyed businesses answered with the option Macedonia or 26.4%, 6 surveyed businesses answered with the option Montenegro or 11.3%. In the following we will present the histogram and graph for the table in question.



Histogram 9: Countries where you export or import

Table 10: How do you rate the customs duty payment procedure?

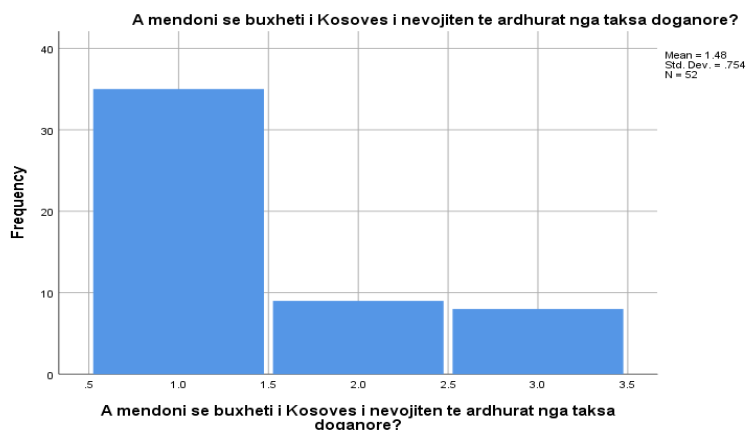
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	It lasts a long time	3	5.7	5.8	5.8
	Fairly	18	34.0	34.6	40.4
	On the average	25	47.2	48.1	88.5
	Poorly	6	11.3	11.5	100.0
	Total	52	98.1	100.0	
Missing	System	1	1.9		
Total		53	100.0		

From the table data of the tenth question, we can observe that 3 surveyed businesses answered with the option Extend a lot or 5.7%, 18 surveyed businesses answered with the option sufficiently or 34.0%, 25 surveyed businesses answered with the option moderately or 47.2%, 6 surveyed businesses answered with the weak option or 11.3%. In the following we will present the histogram and graph for the table in question.

*Histogram 10: How do you rate the customs tax payment procedure?**Table 11: Do you think that the budget of Kosovo needs the revenue from the customs tax?*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	35	66.0	67.3	67.3
	No	9	17.0	17.3	84.6
	I don't know	8	15.1	15.4	100.0
	Total	52	98.1	100.0	
Missing	System	1	1.9		
Total		53	100.0		

From the table data of the eleventh question we can see that 33 surveyed businesses answered with the Yes option or 66.0%, 9 surveyed businesses answered with the No option or 17.0%, 8 surveyed businesses answered with the Don't know option or 15.1%. In the following we will present the histogram and graph for the table in question.



Histogram 11: Do you think that the budget of Kosovo needs the revenue from the customs tax

Table 12: How do you think that the government should return your customs taxes in a preferential form

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	In public services for citizens	24	45.3	46.2	46.2
	In public services for businesses	18	34.0	34.6	80.8
	In services for institutions	7	13.2	13.5	94.2
	Neither	3	5.7	5.8	100.0
	Total	52	98.1	100.0	
Missing	System	1	1.9		
Total		53	100.0		

From the table data of the twelfth question, we can see that 24 surveyed businesses answered with the option In public services for citizens or 45.3%, 18 surveyed businesses answered with the option In public services for businesses or 34.0%, 7 businesses of respondents answered with the option In public services for institutions or 13.2%, 3 businesses surveyed answered with the option Neither or 5.7%. In the following we will present the histogram and graph for the table in question.



Histogram 12: How do you think that the government should return your customs taxes in the preferred form

Table 13: What factors do you think affect the increase in customs duty?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Natural disasters	8	15.1	15.4	15.4
	Conflicts	7	13.2	13.5	28.8
	Blizzard	26	49.1	50.0	78.8
	Other	11	20.8	21.2	100.0
	Total	52	98.1	100.0	
Missing	System	1	1.9		
Total		53	100.0		

From the table data of the thirteenth question, we can see that 8 surveyed businesses answered with the Natural Disasters option or 15.1%, 7 surveyed businesses answered with the Conflicts option or 13.2%, 26 surveyed businesses answered with the Crisis option or 49.1%, 11 surveyed businesses answered with the Other option or 20.8%. In the following we will present the histogram and graph for the table in question.

*Histogram 13: What factors do you think affect the increase in customs duty**Table 14: How does the customs tax affect the Kosovo budget?*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Growing	30	56.6	57.7	57.7
	In reduction	5	9.4	9.6	67.3
	On the average	15	28.3	28.8	96.2
	Neither	2	3.8	3.8	100.0
	Total	52	98.1	100.0	
Missing	System	1	1.9		
Total		53	100.0		

From the table data of the fourteenth question we can see that 30 surveyed businesses answered with the option Increasing or 56.6%, 5 businesses t, 5 businesses surveyed answered with the option Decreasing or 9.4%, 15 surveyed businesses are answered with the option Average or 28.3%, 2 surveyed businesses answered with the option Neither or 3.8%. In the following we will present the histogram and graph for the table in question.

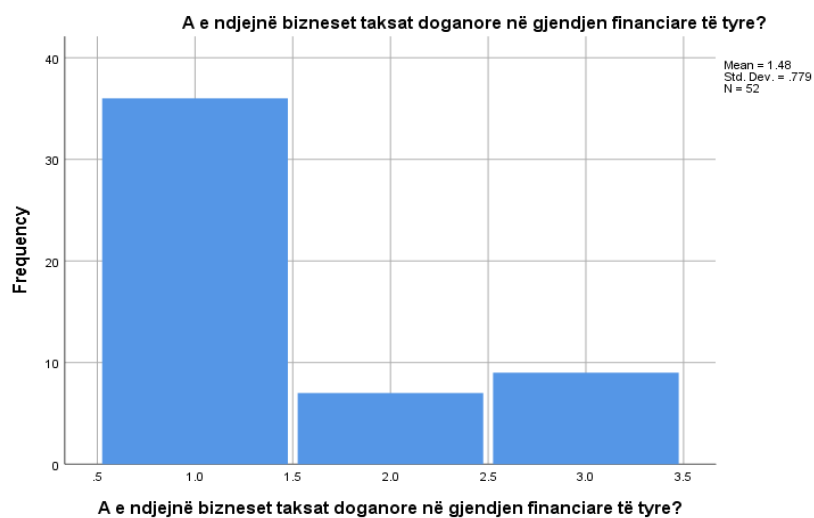


Histogram 14: How does the customs tax affect the Kosovo budget

Table 15: Do businesses feel customs taxes on their financial situation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	36	67.9	69.2	69.2
	No	7	13.2	13.5	82.7
	I don't know	9	17.0	17.3	100.0
	Total	52	98.1	100.0	
Missing	System	1	1.9		
Total		53	100.0		

From the table data of the fifteenth question, we can see that 36 surveyed businesses answered with the Yes option or 67.9%, 7 surveyed businesses answered with the No option or 13.2%, 9 surveyed businesses answered with the Don't know option or 17.0%. In the following we will present the histogram and graph for the table in question.

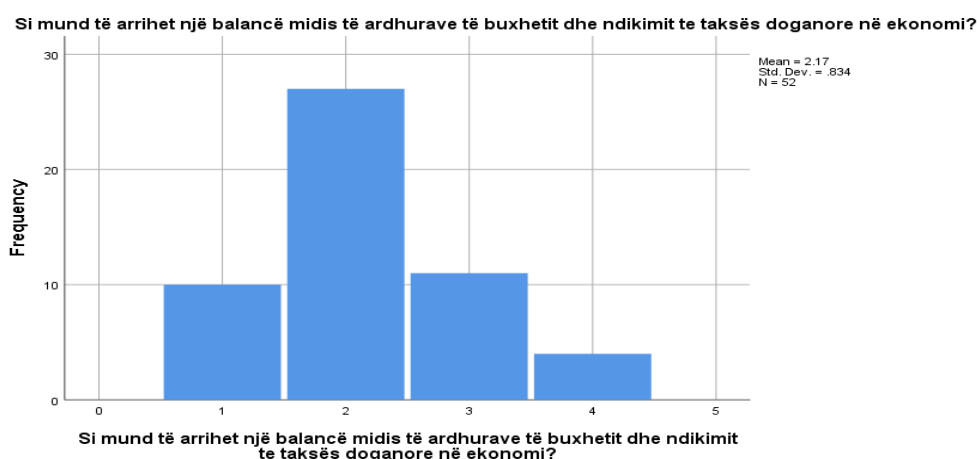


Histogram 15: Do businesses feel customs taxes on their financial situation

Table 16: How can a balance be achieved between budget revenues and the impact of the customs tax on the economy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	With the removal of the customs tax in the corresponding type of goods	10	18.9	19.2	19.2
	Reduction of customs duty on goods	27	50.9	51.9	71.2
	The increase in the customs tax and its partial return at the end of the year	11	20.8	21.2	92.3
	Neither	4	7.5	7.7	100.0
	Total	52	98.1	100.0	
Missing	System	1	1.9		
Total		53	100.0		

From the table data of the sixteenth question, we can see that 10 surveyed businesses answered with the option With the removal of customs tax on the relevant type of goods or 18.9%, 27 surveyed businesses answered with the option Reduction of customs tax for goods or 50.9%, 11 surveyed businesses answered with the option Increase of customs tax and its partial return at the end of the year or 20.8%, 4 surveyed businesses answered with the option Neither or 7.5%. In the following we will present the histogram and graph for the table in question.

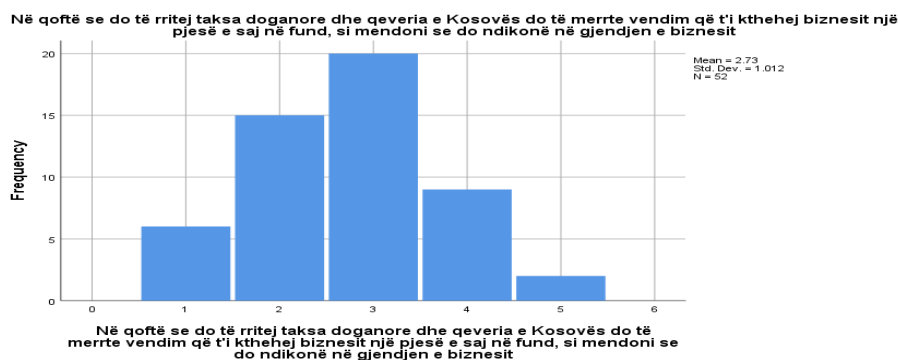


Histogram 16: How can a balance be achieved between budget revenues and the impact of the customs tax on the economy

Table 17: If the customs tax were to increase and the government of Kosovo would take a decision to return a part of it in the end, how do you think it will affect the business situation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Weak	6	11.3	11.5	11.5
	Sufficient	15	28.3	28.8	40.4
	Good	20	37.7	38.5	78.8
	Very good	9	17.0	17.3	96.2
	Extremely good	2	3.8	3.8	100.0
	Total	52	98.1	100.0	
Missing	System	1	1.9		
Total		53	100.0		

From the table data of the seventeenth question we can see that 6 surveyed businesses answered with the Poor option or 11.3%, 15 surveyed businesses answered with the Sufficient option or 28.3%, 20 surveyed businesses answered with the Good option or 37.7 %, 9 surveyed businesses responded with the Very good option or 17.0%, 2 surveyed businesses responded with the Extremely good option or 3.8%. In the following, we will present the histogram and the graph of the table in question.

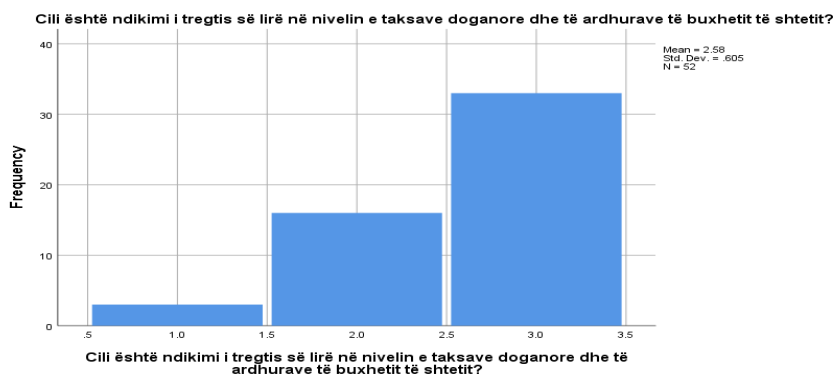


Histogram 17: If the customs tax were to increase and the government of Kosovo would make a decision to return a part of it to the business at the end, how do you think it would affect the state of the business

Table 18: What is the impact of free trade on the level of customs taxes and state budget revenues?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Nothing	3	5.7	5.8	5.8
	Slightly	16	30.2	30.8	36.5
	Average	33	62.3	63.5	100.0
	Total	52	98.1	100.0	
Missing	System	1	1.9		
Total		53	100.0		

From the table data of the eighteenth question, we can see that 3 surveyed businesses responded with the option Not at all or 5.7%, 16 surveyed businesses responded with the option Few or 30.2%, 33 surveyed businesses responded with the option Average or 62.3 %. In the following we will present the histogram and graph for the table in question.

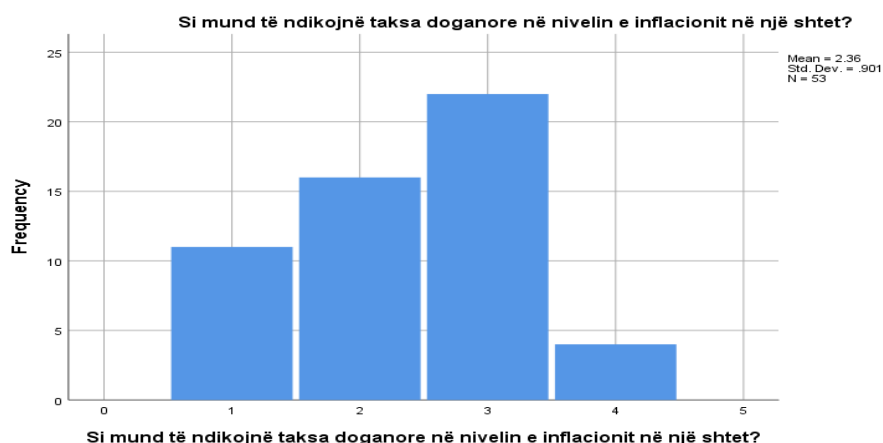


Histogram 18: What is the impact of free trade on the level of customs taxes and state budget revenues

Table 19: How can customs taxes affect the level of inflation in a country

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Quite a lot	11	20.8	20.8	20.8
	Many	16	30.2	30.2	50.9
	Fairly	22	41.5	41.5	92.5
	Nothing	4	7.5	7.5	100.0
	Total	53	100.0	100.0	

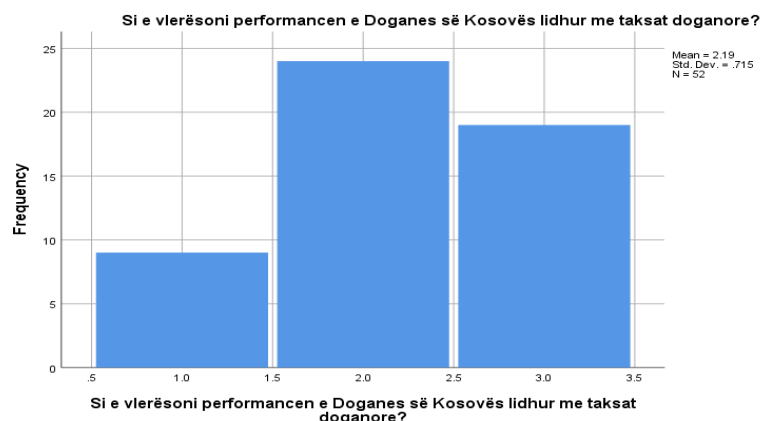
From the table data of the nineteenth question we can observe that 11 surveyed businesses answered with the option Quite a lot or 20.8%, 16 surveyed businesses answered with the option Many or 30.2%, 22 surveyed businesses answered with the option Sufficient or 41.5%, 4 surveyed businesses answered with the option Not at all or 7.5%. In the following, we will present the histogram and graph for the table in question.

Histogram 19: How can customs taxes affect the level of inflation in a country*Table 20: How do you assess the performance of the Kosovo Customs regarding customs taxes*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Famously	9	17.0	17.3	17.3
	Very good	24	45.3	46.2	63.5
	Good	19	35.8	36.5	100.0
	Total	52	98.1	100.0	
Missing	System	1	1.9		
Total		53	100.0		

From the table data of the twenty question we can observe that 9 surveyed businesses answered with the Excellent option or 17.0%, 24 surveyed businesses answered with the Very good option or 45.3%, 19 surveyed businesses answered with the Good option or 35.8%. In the following, we will present the histogram and the graph of the table in question.

Histogram following on the next page



Histogram 20: How do you assess the performance of the Kosovo Customs regarding customs taxes

5. CONCLUSIONS AND RECOMMENDATIONS

Based on the first question out of 52 surveyed businesses focusing on the city of Peja, we can conclude that 21 businesses belong to the small size or 39.6%. From these results, my recommendations would be for the government to offer them financial support for business expansion. Based on the second question, out of 52 surveyed businesses, we can conclude that 31 businesses are of the Individual Business (B.I) type or 58.5%. From these results, my recommendations would be for the government to offer them financial support for business expansion. Based on the third question, out of 52 surveyed businesses, we can conclude that 21 businesses have commercial activities or 39.6%. From these results, my recommendations would be for the government to offer them financial support for business expansion. Based on the question of four of the 52 businesses surveyed, we can conclude that 12 businesses pay a lot of customs tax or 22.6%, 8 businesses pay a small amount of customs tax or 15.1%, 28 businesses pay an average amount of customs tax or 52.8%, 4 businesses pay a little or 7.5% of the customs tax. Based on the fifth question out of 52 surveyed businesses, we can conclude that 32 businesses export or import goods from Albania or 60.4%. From this result we conclude that the country like Albania is more connected with Kosovo because they have the same and similar traditions and cultures as well as in terms of the past where they have offered different help to each other in times of war, natural disasters and many factors others have influenced that this connection also appears in terms of commercial connections between the businesses of our country and Albania. Based on the sixth question out of 52 surveyed businesses, we can conclude that 25 businesses estimate that the customs tax payment procedure takes an average of 47.2%. From this result, my recommendations would be to work so that the duration of the customs tax payment procedures are as short as possible and to record the many tolls that can be created. Based on the seventh question, out of 52 surveyed businesses, we can conclude that 35 businesses think that the budget of Kosovo needs the income from the customs tax or 66.0%. From this result, my recommendations would be that the government of Kosovo pay importance and attention to this field. Based on the eighth question out of 52 surveyed businesses, we can conclude that 24 businesses think that the government should return their customs taxes to public services for citizens or 45.3%. From this result, my recommendations would be for the government of Kosovo to return these customs taxes to the citizens in the form of improving conditions and equipment in health, building educational institutions that are needed in countries with shortages, improving infrastructural conditions. Based on the ninth question out of 52 surveyed businesses, we can conclude that 26 businesses think that the main factor affecting the increase in customs tax are crises or 49.1%.

From this result, my recommendations would be that the government of Kosovo should try as much as possible to avoid crises that have the possibility of being avoided and that the customs tax should be constant and not fluctuating. Based on the tenth question from 52 surveyed businesses, we can conclude that 36 businesses think that customs taxes affect their financial situation or 67.9%. From this result, the recommendations would be that the government of Kosovo should try to keep these taxes constant. Based on the eleventh question out of 52 surveyed businesses, we can conclude that 20 businesses think that returning part of the customs tax payment would affect the business situation well or 37.7%. From this result, my recommendations would be that the Kosovo government consider this option as a possibility. Based on the twelfth question from 52 surveyed businesses, we can conclude that 33 businesses think that free trade affects the level of customs taxes and state budget revenues on average or 62.3%. From this result, my recommendations would be for the government of Kosovo to reach an agreement with different countries in economic terms to facilitate business trading in our country. Based on the thirteenth question out of 52 surveyed businesses, we can conclude that 24 businesses evaluate the performance of Kosovo Customs very well or 45.3%. From this result, my recommendations would be that the Customs of Kosovo work on improving its performance. After the summary of the theoretical part, the realization of the questionnaire, the collection, processing and analysis of the data, we have come to the end of this scientific paper, which had a topic of great importance. After all this, we can conclude that the government of Kosovo should pay attention, dedication and importance to the area of revenue from customs taxes paid by businesses because it has a great impact on the growth of Kosovo's budget, but it is worth noting that the use of these revenues should be returned in the preferred form to public services for citizens, at the same time trying to ensure that these customs taxes are always constant and to avoid the effects of increases from different factors. Also, the government of Kosovo should try and provide financial support for businesses that have ideas for business expansion, that is, offer them support in various forms and not just financial, also as a conclusion we reach from this scientific work that the relations and connection between Kosovo and Albania it does not exist only in aspects of the past, different states, but also in economic and commercial aspects, therefore, it should be done as much as possible to preserve this connection as well as possible.

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HYBRIDIZATION IN EDUCATION, OPPORTUNITIES & LIMITATIONS

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ABSTRACT

The pandemic that broke out a couple of years ago has had its impact on many fields. Education is no exception. In this respect, each and every country in the world has been obliged to get adapted to the newly emerging situation. The present paper discusses the extent to which the pandemic has driven specialists in education to (re)think, and even (re)invent, new teaching methods, approaches, and strategies to meet the urgent needs of learners. In this context, the notion of hybridization imposes itself as one– but by no means the only- viable option. The paper also discusses some of the limitations that this learning method may encounter from both the learners' and parents' perspective.

Keywords: *pandemic, teaching methods, hybridization, limitations, perspectives*

1. INTRODUCTION

Undoubtedly, in its preliminary stages, the pandemic, universally known as Covid 19, has disordered, disfigured, impacted, and even transformed the globe in more than one way. In fact, its influence has had its effects on many a field, one of which is education. Not surprisingly enough, in the very beginning, no one was fully well- prepared to meet that challenge resulting in the lockdown accelerated by the pandemic. Consequently, the move to online platforms, being one amongst the most viable options, has proven its efficiency. The questions that should be raised here are the following:

- To what extent has the pandemic driven specialists in education to (re)think, and even(re)invent, new teaching methods, approaches, and strategies to meet the urgent needs of learners?
- What are the limitations of these “new” learning methods and strategies?
- How do learners and parents view online platforms?

The aim of this paper, then, is to examine - and discuss – the above-mentioned questions. To this end, the paper will be divided into some parts, each of which will try to shed light on the different issues related to the topic under analysis: hybridization in education, opportunities, and limitations. The paper will be concluded by putting forward a number of recommendations. Before digging deeper into the subject, let us shed light on online activities in their early beginning.

2. BRIEF HISTORICAL FOUNDATIONS

Important to note is that online undertakings as pedagogical tools are not as new a development as some -or many- of us may imagine. According to Abrahamse, A., Johnson, M., Levinson, N., Medsker, L., Pearce, J. M., Quiroga, C., & Scipione, R. (2014)

Educators and others have sought to use information technology to link young people in classrooms around the world since at least the late 1980s. Accompanying these classroom efforts were research projects, often designed and implemented by the educators implementing the exchange. The body of research focused on virtual exchange will only continue to grow as adoption and use of this practice becomes more widespread.

Few resources describe this research landscape holistically, so practitioners and scholars can be isolated from other research and findings. Virtual exchange has the potential to become a part of all educational institutions, but understanding what is known and what questions still need to be answered about this practice is an important step toward wider adoption.¹

What one can visibly infer from the above-quoted citation is that virtual and online exchanges are not something new. On the contrary, they are dated back to the 80's where information technology had been used as convenient tutorial utensils to connect -though to a lesser extent- students worldwide. The Covid 19 pandemic has accelerated the process where online learning has proven appreciated and operative. Put simply, online education is not a new issue. COVID-19 pandemic has been a driving force for embracing online learning in education in general (Chan, Bista, & Allen, 2021). This leads us to the core question: to what scope has the pandemic driven experts in education to (re)think, and even(re)invent, new teaching devices, approaches, and strategies to meet the imperative needs of learners?

3. THE USE OF THE NET AS A CROSSING POINT BETWEEN LEARNERS AND TUTORS

Needless to reiterate that in 2019, the eruption of pandemic Coronavirus distressed, and even shocked, the whole globe. The plague has driven universities and institutes to move from face-to-face classes to distant education. This has put a wide range of learners in the obligation to embrace that shift. This change could not have been possible without education specialists (re) thinking and (re)inventing new educational methods to face the newly emerging situation. The Net has been the base upon which their educational (re) innovation has been built. The selfsame experts have put forward, not without efforts, detailed -and pioneering- procedures whose main goal is to offer impartial and wide-ranging admittance to online educational materials, guaranteeing thus that key-related schooling requirements are being met.

According to the **OECD “Strength through Diversity”** project framework (2020), which has laid the stress on the insertion of students -being in a weak social position- within the digital paradigm, educational specialists argue that

While the most vulnerable students might not have access to digital learning resources, some governments and civil society organizations have to provide these students with computers or tablets as well as internet access, or they -better still- have to organize teaching through television, phones or radio.²

Underlying the above-cited statement is the fact -or the assumption, that the role civil societies have played in enhancing the use of technology for the less fortunate categories of population should not be underestimated. Worth noting is that such actions have provided an enormous help for such categories to pursue their schooling in such difficult sanitary conditions. Equally important to note is that though governments and civil societies have joined forces to maintain learning programs during the Pandemic, still some challenges have emerged and the need to overcome them has imposed itself in several ways.

4. KEY LIMITATIONS OF THE “NEW” LEARNING METHODS AND STRATEGIES

It is taken as axiomatic by a large number of people that the “new” learning methods and strategies imposed by the Pandemic could be applicable for each learner. This mindset has

¹ *Journal of Studies in International Education*, 19(2), 140-159. doi: 10.1177/1028315314540474

² <https://oecdeditoday.com>

proven its fallacy. There are some learners that are different from the “normal” ones as they have some specific needs. In the ensuing lines, we will try to shed light on this category and present some remedial solutions. According to Al Lily et al., (2020), learners with specific needs are inept to get acclimatized with online classes as they may have trouble to successfully engage in e-learning. More than that, such a category -oftentimes- shows its disinclination to have teachers get their attention- while delivering online classes- on a systematic core. In this respect, Buchnat & Wojciechowska (2020) have tried to explain such an attitude by indicating that this type of students may be highly heavily contingent to “established study relationships and may experience severe anxiety as a result of its disruption.”³ Worth noting, in this context, that a respectable number of students coming from a poor background lack the necessary tools of education that can only be tangibly accessible at school. In this regard, under such distance educational conditions imposed by the Pandemic, it may be extremely hard, if not unmanageable, to work for a set of goals that unavoidably presupposes, and even compellingly requires, an uninterrupted and close collaboration. In presenting their respective arguments about the topic under analysis, Agoratus, (2020) and Bakkaloglu & Ergin, (2020), agree- though in different terms- that Covid-19 Pandemic has made the interaction and relationship between teachers, parents and students tremendously restricted.⁴ Put simply, there are some learners who find it next to impossible to follow courses if they removed, and alienated, from their “classical” learning physical environment. This surely would pose several issues for the tripartite components: students, teachers and, of course, parents -bearing in mind that online classes can by no means be conducted without adequate electronic tools! Ironically, the situation may get even worse when the equipment is obtainable for teachers but unavailable for learners. Interesting to mention, in this context, that some parents may, partly or wholly, have a share of responsibility regarding the utilization of online learning as a substitute for face-to-face schooling. It is true that some learners are not fully engaged in distant classes due to the fact that either they do not have access to the Net or simply because they lack the electronic gadgets necessary for that learning process. However, in some instances, even parents consciously or / and unconsciously strongly oppose, and categorically reject, the online learning strategies, powerfully considering that such online schooling is useless, meaningless, and even worthless for their children. Such parents build their judgment on the assumption, and firmly believe, that “through face-to-face communication, students [may] develop social skills that can be achieved through emotional connection, eye contact, physical touch, empathy, and collaborative learning.”⁵ Some studies (Bakkaloglu, H., & Ergin, E. (2020). have also shown that, in some few cases, teachers could be held responsible for not technically delivering online classes in an appropriate way, and consequently fail to meet the learners’ expectations. This may be noticed when, at times, teachers’ lap and / or desktops or, worse still, their smartphones work with flaws, making thus the learning process quite malfunctioning. Other defects may be embodied in the quality of the image and sound while giving distance classes. This does by no means mean that only parents and teachers are to blame. In fact, learners’ responsibility *vis-à-vis* the online learning process is considerable and should not be neglected. We are told that “excessive use of gadgets negatively affects the physical and psychological condition and development of children.”⁶ This can clearly be noticed *via* their attitudes related to e-learning. For most of them, smartphones, and laptops, being the necessary paraphernalia to achieve online learning, are seen only as tools meant for amusement, pleasure, and entertainment. They consequently find it hard to use them to acquire knowledge and assimilate lessons as they get worn-out, and even exasperated, easily and quickly.

³ Buchnat & Wojciechowska (2020)

⁴ Agoratus, (2020) and Bakkaloglu & Ergin, (2020)

⁵ Sigirtmac, A.D. (2020).

⁶ Boulton, H. (2008). *Managing e-learning: What are the real implications for schools?*

As if that were not bad enough, such a category of learners does not stand the idea of being “locked” at home all day long facing their laptops and engaging in online and virtual educational activities. Here the role of parents in encouraging their kids to perceive online learning in a constructive way seems very inviting.

5. PARENTAL ROLE IN ENHANCING THE E-LEARNING PROCESS

Nobody denies the fact that the contribution of parents in supporting online education is of paramount significance to the perpetuity of such schooling. The parents’ responsibility, as it is universally recognized, consists of, among other things, “providing food, clothing, shelter, a place to study and school material supplies” (Epstein 1987). Based on that, we can safely say that parental involvement, and heartfelt commitment, contribute to making their kids achieve a decent academic score and an effective learning performance. It is undeniable, then, that without satisfactory parental engagement, distance schooling would only be an illusionary enterprise! In line with that, a study, extraordinarily conducted by *Tran et al.* (2020), has shown that the more parents afford their offspring the necessary emotional, technical backing, the more their cognitive development would prosper.⁷ It follows that there exists a close relationship between parental positive commitment and virtual learning engagement amongst youthful learners. This is partly because the learners’ motivation largely-but by no means exclusively- depends on the way parents perceive their educational development. All that said, the question that remains to be asked -and then answered- is the following: what is the place of hybridization in all that? The ensuing section will try to shed some light on that issue.

6. HYBRIDIZATION AS A LEARNING STRATEGY ENCOMPASSING ONLINE AND FACE-TO-FACE CLASSES

We all know that the Pandemic has made face-to-face learning quite impossible as stated earlier within these pages. This has driven educational specialists to devise new teaching and learning methods and strategies to ensure the continuity of learning amongst students confirming thus the adage saying that “necessity is the mother of invention.”. One cannot admit for sure that the Pandemic is over and that we are back to the ‘old’ normal. It is true that the Pandemic is not as perilous as it was a couple of years ago. However, the Pandemic has made us (re)think and (re)invent other teaching and learning devices to meet the requirements of the ‘new’ normal. A panoply of amazing learning approaches has come into existence during the Pandemic, and I strongly believe that it would be a deadly error, and even an unforgivable deed, if we neglect them when face-to-face classes are officially resumed. Here the notion of hybridization, calling for a blend between physical classes and virtual ones, intensely imposes itself.

7. KEY OPPORTUNITIES

Intentionally uniquely maintaining the physical learning environment (face-to-face) while deliberately neglecting the virtual one (online classes) may not lead to the wished-for results. In fact, adopting a combination of both strategies, i.e., face-to-face and online, would enable learners to astoundingly excel in their schooling process thereby rapidly assimilating their respective lesson, swiftly preparing their homework and speedily doing their assignments, to name but a few! This could be conducted through a well-planned schedule.

Below are some carefully selected but not exclusively limited stages to be observed as suggested by some educational specialists:⁸

⁷ Tran, T., *et al.*, (2020) ‘Toward sustainable learning during school suspension’

⁸ Shimizu I, Matsuyama Y, Duvivier R, van der Vleuten C. Contextual attributes to promote positive social interdependence in problem-based learning: a focus group study. *BMC Med Educ.* 2021;21(1):222.

- **Stage 1: Preliminary knowledge.** Learners are kindly invited to finish preliminary learning tasks- for instance, reading textbooks- for the forthcoming face-to-face classes.
- **Stage 2: Assurance Development.** Once in class, learners show a sort of self-confidence during their learning process as the lessons they are exposed to have already been tackled and are familiar with during the preparatory phase.
- **Stage 3: Group work discussion.** This stage mission is to invite learners to constitute small groups, the aim of which is to share ideas, give opinions and compare results.
- **Stage 4: Inter-group talks.** Once the three afore-mentioned stages have been successfully achieved, the task that follows hard upon is the extension of the small group arguments to a larger discussion whose primary goal is to reach an overall understanding of the topic under scrutiny.

The designated stages shown above may be held as academically rewarding if rationally implemented in an appropriate way. A good mix between physical schooling and virtual learning may enable students to take advantage of the two learning strategies and may lead them, consequently, to perceive online learning not simply as a substitute to face-to face “*apprentissage*” but rather as an undivided and full-fledged component of the learning process in general. Yet, resistance to that hybrid method can always persist as its opponents advance some limitations with regards to its enactment.

8. KEY LIMITATIONS

Everybody admits that the Pandemic has immensely changed the way one looks at education. Learners have been forced to move from one method of learning entirely based on the physical contact and socialization to social distancing and online classes. The experience resulting in students spending longer hours before their laptops has shaken their belief in online learning and has negatively impacted their academic performance. As far as educational specialists are concerned, if the negative perception of students who have experimented with online classes during the Pandemic is highlighted, what would be the attitude(s) of the youngsters who have never been exposed to online learning? For those experts, hybridization in education would not be as successful as one may imagine. This is due to a respectable number of reasons that we may point out to only some of them below:⁹

- Youngsters expect their respective teachers to be physically available for them anytime they need them.
- The appropriate learning environment cannot be other than school. Laptops and smartphones are gadgets meant for fun than anything else.
- The need for youngsters to meet at school and socialize.
- A suitable number of teachers categorically rejects the use of computer assisted teaching. Instead, they prefer to deliver classes on-site.

9. RECOMMENDATIONS & CONCLUSION

During this paper, we have tried to shed light on some key factors that are closely related to online-learning Vs on-site schooling without forgetting, in the process, to mention the notion of hybridization as a blend of the two teaching and learning methods and strategies. In the concluding section of this paper, we will try to put forward some recommendations related to hybridization in education before proceeding to the conclusion.

⁹ Arora, S., Chaudhary, P., & Singh, R. K. (2020). Impact of coronavirus and online exam anxiety on self-efficacy: the moderating role of coping strategy. *Interactive Technology and Smart Education*.

9.1. Recommendations

- Hybrid education can be academically motivating if learners perceive it positively.
- A proportional balance between physical classes and distance learning should be stricken.
- Youngsters' attitudes towards online classes should be illuminated and even clearly modified.
- Hybridization in education should not be perceived in a nihilistic way by both teachers and learners. It should be viewed, instead, as an indivisible constituent of the students' cognitive development.
- Flawless technical tools and equipment should be made available for both learners and teachers to ensure the continuity of a decent teaching and learning milieu.

9.2. Conclusion

The present paper has aimed to investigate how the pandemic, universally known as Covid 19, has disordered, disfigured, impacted, and even transformed the globe in more than one way. The paper has also highlighted how online learning has intensified some learners' stress and anxiety because of the high number of hours making them compelled to sit in front of their laptops. During the selfsame paper, we have tried to present some mixed attitudes regarding online learning and hybridization evoking, in the process, parental responsibility without excluding the learners' accountability. Opportunities and limitations connected to hybridization in education have also been briefly tackled. Some of the educational specialists have been evoked to back up some of the arguments put forward within this paper. The study has put forward, and enumerated, some recommendations that should be taken into account so that the learning process could be upgraded.

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HOW DO MANAGEMENT PRACTICES INFLUENCE HOSPITAL PERFORMANCE?

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ABSTRACT

The provision of healthcare in hospitals is an essential issue given its relevance to the health of populations, economic impact, and political weight. Evidence shows that management practices are among the factors that most influence hospital performance and competitiveness assessing how and which management practices best influence hospitals' financial and clinical outcomes is crucial for developing management knowledge with inestimable human value. To achieve this, it is necessary to clarify the theoretical foundations of the most relevant management practices in hospitals, and how these two dimensions are related. There is a variation in hospitals management practices depending on their legal, political and technological contexts. In the twentieth century, three comprehensive management models were established, each presupposing specific management practices and corresponding performance assessment models. The first trend emphasized scientific management, relying on hierarchical mechanisms and a clear separation between governance and administrative functions. The performance criterion is the delivery of public goods at the lowest cost to satisfy the politically defined public interest, as expressed in law. From the 1980s, a new management model emerged, advocating the application of market mechanisms and reducing the scope of state intervention. The performance criterion shifts towards the efficiency of services, adopting a product-dominant logic focused on value in exchange and its corresponding market price. The user becomes a client. In the 2000s, a new model of public administration management emerged, emphasizing citizen participation in the decision-making process. With roots in the democratic principle of a pluralistic and diverse state, where various actors contribute to the production of public services and advocate network mechanisms, the evaluation of public sector services now focuses on their ethical and political appropriateness. As a result, the term 'Customer' is replaced by 'Citizen.'

Keywords: healthcare, hospitals, management practices, performance, sustainability

1. INTRODUCTION

Evidence suggests that better-managed organizations are more successful in achieving their goals, thereby enhancing their competitiveness (Asaria et al., 2022; Gerber et al., 1995; Isfahani et al., 2015). In a production function approach, management practices can be categorized into three formal archetypes (Bloom et al., 2016): "Management as Technology" which posits a proportional relationship between organizational performance and the quality of management practices, the "Management by Design" suggesting that management practices are contingent on the organization's environment, with heterogeneity arising from different organizational contexts and the "Management by Capital" perspective which views management practices as an intangible capital stock. Despite the different conceptual foundations, the various theoretical models of management practices are interconnected, each gaining prominence depending on the prevailing "Governance Paradigms" (Henry, 2017; Peters, 2003) each of them representing a symbiotic and multifaceted aggregate of the main ideas and trends of the different models the prominence of which depends on political characteristics, ideological conceptions or economic arguments (Dunleavy et al., 2006; Greve et al., 2016).

Despite differences and similarities regarding ownership, financing and control of private sector organizations (Bouckaert, 2023; Boyne, 2002; Rainey et al., 1976) management practices in public services assume particular relevance not just because they concern “the execution of laws and other rules adopted by the political power and the courts”(Gordon, 1978, p. 28) but also because is the “largest employer, the biggest buyer and spender and the largest single industry of the contemporary world” (Drechsler, 2009, p. 9). There is no consensus regarding the number and type of development phases of public services management in the Western world whose classification depends on the dimensions that are valued, each one of them characterized by a specific “where” and “what” (Golembiewski, 1974). According to Henry (2017) since the beginning of the 20th century, there have been five phases of development in western public administration. According to Torfing et al. (2020) , Western public administration has seven phases there are seven phases. However, it seems to be commonly accepted that the various phases of public administration since the end of the Second World War can be grouped into three non-watertight paradigms: the model based on hierarchical mechanisms, the model based on market mechanisms; the model based on hierarchical mechanisms, the model based on market mechanisms, and the model based on model based on the network mechanisms. Despite the public provision of healthcare occurs within the framework of the complex systems (Thurner et al., 2018; Van Aerde et al., 2023) involving a multiplicity of nonlinear interdependencies between various factors, often with conflicting logic and ambiguous goals (Lee, 2021; Vainieri et al., 2020), management practices used in public hospitals, including their design, governance processes, forms and value creation logic, have always been in line with the assumptions of the prevailing Public Governance paradigm at a given time taking into account the available technological and human resources (Anglin et al., 2022; Johannessen, 2021). To determine how management practices influence hospital performance , it becomes essential to understand the theoretical approaches to hospital management from the historical evolution of public service management theories as well as and their application to hospital management. On the other hand, given that the various theoretical models public services management propose specific performance assessment models, it becomes essential to understand how these approaches can be integrated into a multidimensional hospital performance assessment model that allows a fair idea to be formed about the impact of each of the management practices.

2. PUBLIC MANAGEMENT PRACTICES

The model based on hierarchical mechanisms lasting in most Western countries until the last quarter of the 20th century and marked the beginning of the construction of an harmonious set of management principles for public services (Bouckaert, 2023). The so-called Classical Public Administration (CPA) encompasses the classic theory of public administration, rooted in Max Weber's bureaucratic theory (Weber, 2016) based on Taylor's Principles of Scientific Management, Fayol's Principles of Public Administration and Maslow's human-centric vision, maintain that rationality, efficiency and productivity must be the structuring principles of organizations (Nhema, 2015). Advocating that public services should pursue maximum efficiency to provide public goods at the lowest possible cost to satisfy the public interest politically defined and expressed in law (Denhardt & Denhardt, 2000) the CPA model is characterized by disconnecting values from facts, politics from administration, relegating issues relating to the objectives, values and legitimacy of public administration to the political and legislative spheres (Lynn Jr, 2001) who is responsible for guaranteeing the satisfaction of citizens whose involvement in management, regarding their needs and desires, is merely residual. With priority focus on the intraorganizational structure, with low vertical and horizontal specialization and differentiation, this approach prescribes the use of top-down, unidirectional, hierarchical and linear management processes based on a clear division of labour

carried out in units of similar activities and unity of command (Pollitt & Bouckaert, 2017). Some systemic failures were pointed to the CPA model namely its “slowness, process-orientation, leaning towards authoritarianism, mindless hierarchization and shirking” (Drechsler, 2020, p. 220), linked to the absence of valid indicators for evaluating organizational performance (Torfing et al., 2020) and the unrealistic separation between administration and politics (Hughes, 2017). Following the financial crisis of the 1970s, new social, economic and political perspectives led to a redefined understanding of the State’s role, transforming the scope and operating mode of public services. With roots in the mainstream economic theories of the early 1990s, which propose a close commitment by the administration to politics and a clear separation between the provider and payer roles, a New Public Management (Hood, 1991) theory emerges maintaining that the maximum efficiency results from the market forces rather than the government intervention and that the same goods and services are cheaper if contracted out. It is reducing its scope of intervention, up to the State only carrying out activities that cannot be privatized or contracted out limiting its role to ensuring the quality of service and providing alternatives to customers. Prescribing a dominant product logic that emphasizes the value in exchange and its corresponding market price, the NPM theory leads to the transformation of public goods and services into market products with market values with the conversion of users into customers (Clarke, 2009; Çolak, 2019). Mainly focused on inter-organizational issues, this model carries out a structural devolution (Ling, 2002) through horizontal and vertical fragmentation and creating single-purpose organizations coordinated and regulated by agencies empowered by the political authority. Additionally, the introduction of performance indicators and accountability audits are emphasized to ensure efficient service delivery (Van Thiel & Leeuw, 2002). By the late 1990s, criticisms highlighted that the NPM theory prioritizes economic values while disregarding democratic standards such as equality, equity, participation and citizenship (Christensen & Lægreid, 2001; Çolak, 2019). It is further argued that it is a mistake to overlook the differences between the private and public sectors, which have distinct political, ethical and social dimensions and goals (Riccucci, 2001). It is also alleged that the relationships between the provider and the consumer within the scope of public services are more complex than those in regular markets due to the nature of the goods supplied and services provided and the fact that users are also citizens (Aberbach & Christensen, 2005) making sure that profit is not its main success criterion (Hughes, 1998). Furthermore, without cooperation and coordination, management autonomy can undermine effectiveness and efficiency, raising ethical concerns such as the risk of corruption and accountability issues (Christensen & Lægreid, 2007). In the early 2000s, signals emerged of a new era in the Public Administration (PA) theory, with a renewed emphasis on citizen participation in decision-making processes with the purpose of “welding together ideas about efficiency and effectiveness in the provision of public services with notions of democratic legitimacy and trust” (Talbot, 2011, p. 27). Grounded on the principle that management should be founded not on market mechanisms but on law and democracy, the New Public Governance (NPG) approach proposes holistic governance models to establish connections among public organisations, private actors, social entities and individual citizens. Aiming for a comprehensive management model by fostering horizontal and vertical integration and coordination the NPG simultaneously emphasizes intra and inter-organizational relations as a precondition for restoring cohesion and efficiency of public organizations (McQuaid & Osborne, 2010; Torfing et al., 2020). Rooted in the principle of interdependence several trends have emerged within the NPG paradigm, often resulting from the hybridization of the hierarchical tenets, market principles, and network precepts leading to the creation of eclectic organizational entities that balance control and autonomy in the context of a high degree of vertical and horizontal reintegration and de-specialization.

The so-called Neo Weberian State trend (Aristovnik et al., 2022; Bouckaert, 2023; Torfing et al., 2020) which combines typically Weberian elements such as the role of the State as a facilitator of solutions, the role of democratic structures and rules as legitimizers of public institutions, the relationship between the State and the citizen and the notion that State institutions have their own, specific and differentiated status, with modern elements such as the orientation towards the needs and desires of citizens with reinforcement of representative democracy in order to provide more effective management practices for the public services. The Digital Era Governance branch (Dunleavy & Margetts, 2015; Hanisch et al., 2023; Wojciech, 2017) aims to address the social and cultural effects of technological transformations by proposing digitalization and service reintegration as management tools, with an intensified focus on citizens' needs (Wojciech, 2017). This row seeks an efficient development of public services by simplifying democratic participation and public deliberation through information and communication technologies. The Public Value Management proneness (Fukumoto & Bozeman, 2019; Osborne et al., 2022) that emphasizes the involvement of citizens in public services and maintains that "*the central activity of public managers is the creation of Public Value*" (Moore, 1995, p. 25). Public Value is a complex concept: O'Flynn (2007) defines it as the set of practices capable of creating security and legality through the managerial combination of objective and subjective dimensions of performance, Jørgensen and Bozeman (2007, p. 13) perceive it as the collection of moral judgments about social norms, principles and ideals, Faulkner and Kaufman (2018) defines the concept of public value as being the consideration, by the stakeholders, of how reliable and legitimate an organization is. In the face of this entanglement arises the notion of the Strategic Management Triangle (Moore, 1995) suggesting that public administration practices must operate within the scope of the entire management ecosystem taking into consideration constraints, available resources, capabilities and the corresponding context of authority and jurisdiction (Vargo et al., 2017) for value creation. The New Public Service trend (Clarke, 2009; Osborne, 2006) focuses on the notion of "Public Service Logic" (Osborne et al., 2022, p. 635) identifies the inseparability between production and consumption, its intangibility and their co-production with users as crucial features of public services. In this view only a "Collaborative Governance" (Bianchi et al., 2021) based on network partnerships involving multiple protagonists can offset the costs arising from political opposition, expand democratic participation and improve the well-being of both organizations and users. In this context, gain particular relevance to the concepts of "Resource Integration" (El-Sayed, 2021) and "Co-creation" (Eriksson & Hellström, 2021) reflecting the principle that all protagonists within a service ecosystem are resource integrators and co-creators of value. Therefore, the public sector is evaluated in terms of performance and productivity and but also based on its ethical and political appropriateness (Andrikopoulos & Ifanti, 2020).

3. MANAGEMENT PRACTICES IN HOSPITALS

A vast literature confirms significant variation in hospital management practices, both across different countries and within the same country showing that hospital management is influenced by several factors, including the dominant political ideology, legal framework, ownership type (public, private, or social), size, the characteristics of the served population or its organizational complexity. For categorization, management practices used in the healthcare sector can be grouped into theoretical management models prevalent since the beginning of the 20th century. However, it must be taken into account that hospital management at any given moment does not represent each of the theories in its pure state, but rather an eclectic mix of ideas from each of the theories considered most appropriate. On the other hand, the application of the aforementioned theories was not uniform over time, particularly in Europe. In the 1970s, the management practices in public hospitals characterized by were dominated by the bureaucratic model who seemed adequate to respond to their low internal and external complexity.

However, does not entirely fit to the organizational typology of hospitals due to their dual system of authority – administrative and clinical – linked by complex relationships requiring a decentralized structure both horizontally and vertically. Given the specialized nature of medical skills and the limited influence of administrative monitoring over medical work, it is necessary to grant medical staff a certain degree of autonomy to focus on patient treatment (Cockerham, 2015). In the context of the bureaucratic model, this gap is overcome by the standardization of clinical activities which classify, measure, and compare clinical work within a framework of a “local universality” (Lega & De Pietro, 2005; Mintzberg, 1989). The bureaucratic structure of hospitals is characterized, at a macro level, by the conceptual discontinuity between the legislative and the executive powers (Wilson, 2003) with the State acting as the direct provider of health services through resources predominantly financed by taxes and the “principal-agent” framework. At the meso level, the bureaucratic intra-organizational structure is conceived by an agent appointed by the political power who delegates responsibilities and competencies based on merit and trust assessments (Correia et al., 2018) with clear lines of accountability and budgetary control. In its horizontal differentiation, the bureaucratic hospital structure adopts a functional design within a “closed loop system” (Munavalli et al., 2020) based on specialization around medical specialties, organized into units, services and departments with clear boundaries, centralized responsibility and resources allocated by top management. At the micro level, there is the hospital “operating core” (Mintzberg, 1989). The hospital activities at this level include the area of clinical production where diagnostic and treatment processes occur. This involves service or departmental teams comprising different levels of staff and health professionals, working according to a set of coordinated and standardized protocols and methodologies (Marsilio et al., 2017). The health sector was the first to adopt the NPM model to enhance efficiency and effectiveness. Built on the principle of decentralization, defined as “the transfer of authority and power from higher to lower levels” (Saltman et al., 2006), the following systemic features can summarize the reforms introduced in hospital management by the NPM model:

- 1) Transformation in the governance structure, altering the relationship between the organization and the owner (the State), to grant a certain degree of autonomy and increase management decision-making authority. This includes controlling organizational inputs and outputs, monitoring activities, assessing clinical and financial performance and strategic management by defining organizational goals, market strategy, and production processes.
- 2) Decentralization: the replacement of an integrated healthcare delivery model for another characterized by structural decentralization. This is reflected in the separation between provider and payer (Kokko et al., 1998) promoting production-based financing and making contractualization the primary management mechanism with clear financial and clinical performance goals.
- 3) 3. Organizational Changes: the trend to horizontal differentiation and division into agencies, units, and departments is based on purpose, processes, clientele, and geography, to the horizontal differentiation and division into agencies, units, and departments based on purpose, processes, clientele and geography with relative autonomy levels and their production evaluated independently (Schwab, 2006).
- 4) Vertical Devolution: the emergence of various regulatory agencies designed to control the execution of program contracts in both the quantitative and qualitative dimensions (Christensen & Lægreid, 2011).
- 5) Patient as Client: In this product-based logic, the patient becomes a client and the user role is reduced to a simple appendix (Johansson et al., 2015).

The post-NPM model emerged in European hospitals during the 1990s to address increased internal and external complexity. Emphasizing a holistic approach to management, the NPG intervention seeks a new balance between autonomy and coordination. Proposing new vertical reintegration mechanisms and a systemic vision of management activity focused on horizontal collaboration, based on negotiations and commitments between networks, projects and work teams the NPG theory designs the organizational structure of hospitals as a complex ecosystem comprising different actors, necessitating specific management skills because this “people-centered care” model (Organization, 2016) must be supported by collaborative partnerships between providers, professionals, patients, families and communities. The patient transitions from being a passive recipient of diagnosis or treatment to an active role as a “resource integrator” (Fusco et al., 2023) influencing their actions and resources, the healthcare provider conduct, community and government factors – all contributing to health outcomes with implications for multidimensional Co-creation of value within the joint sphere. Through this model, the aim is to achieve a triple objective: provide better experiences for patients, improve the health of the population, and reduce costs (Vogus et al., 2020).

4. HOSPITAL PERFORMANCE

In the healthcare sector, the concept of performance is complex and multidimensional. As in other aspects of the organization of health services also with regard to its performance there is a disparity of criteria and visions varying both in terms of historical time and the prevailing ideology. From a historical point of view, in each of the management theories the corresponding notion of performance were in line with them were valued. More concerned with processes than with results (Schneider, 2021) bureaucratic performance stems from a complex set of values and procedures, including quality of behavior, uniformity of action, scope of operations and cost-effectiveness (Weber, 2023). By adhering to specific administrative practices, such as the PODSCORB functions - planning, organizing, staffing, directing, coordinating, reporting, and budgeting (Gulick, 2004) - it is possible to achieve efficient results. The closer the adherence to bureaucratic principles, the more effective and efficient the organization becomes in its standardized functioning (Guiddens, 1997). NPM theory has its primary focus on efficiency and productivity in a management model results-oriented with emphasis on the financial dimension the performance perception undergoes a shift from processes to outputs. In the context of the post NPM theory performance measures shift from being tools for evaluating and holding managers accountable to becoming communicative devices used in negotiating organizational changing. Establishing more comprehensive views of hospital performance can be referred to within the scope of this theory a conception of performance that goes beyond the results achieved by singular organizations requiring a population medicine vision (Gray, 2022) or the performance linked to value (Porter, 2010) while relationship between outcomes and costs. In this context” the Organization (2003, p. 27) proposes that hospital performance must include six dimensions: clinical effectiveness, safety, patient centredness, efficiency, staff orientation and responsive governance and the trade-offs between these dimensions. The OECD through the draft HCQI 2006 establishes that health services must be safe, effective, patient-centered, timely, efficient, equitable, acceptable and accessible.

5. CONCLUSION

Hospital management practices have not been uniform throughout time. Its prevalence and composition have varied depending on levels of economic, social, scientific and technological development. Taking into account the importance of health outcomes both from an economic and health point of view, it is important to adopt management practices that are effective both from the point of view of the value for individual health as well as from a population point of view but also from a sustainability and resilience point of view.

To this end, it is necessary to assess, on a sustainable basis, which of the hospital performance criteria and which management practices provide the best results.

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THE IMPORTANCE OF ROBUST LOCAL CAPITAL MARKETS IN FOSTERING ECONOMIC GROWTH

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ABSTRACT

This paper explores the critical role of robust local capital markets in driving economic growth. Robust capital markets facilitate efficient allocation of capital, mobilize savings, and spur investment in productive ventures. We analyze the mechanisms through which local capital markets contribute to economic growth, focusing on factors such as access to finance for businesses, fostering entrepreneurship, and enhancing financial stability. Drawing on theoretical frameworks and empirical evidence, we highlight the significance of deep and liquid local capital markets in promoting long-term economic development. Moreover, we discuss policy implications and strategies for policymakers to nurture and strengthen local capital markets to unleash their full potential in fostering sustainable economic growth. Overall, this research underscores the imperative for policymakers to prioritize the development of local capital markets as a key driver of economic prosperity and resilience.

Keywords: *Robust local capital markets, Economic growth, Financial development, Access to finance, Entrepreneurship, Financial stability, Policy implications*

1. INTRODUCTION

The development of robust local capital markets is increasingly recognized as a cornerstone for fostering sustainable economic growth. These markets play a critical role in the efficient allocation of resources, mobilization of savings, and stimulation of investments, particularly in emerging economies where traditional banking sectors may be underdeveloped (Levine, 2005). This paper aims to explore the multifaceted contributions of local capital markets to economic growth, highlighting their importance and the mechanisms through which they operate. Local capital markets, comprising equity and debt markets, offer a platform for businesses to raise capital by issuing stocks and bonds. These markets enhance the liquidity and availability of financial resources, thereby facilitating business expansion and innovation (Beck & Levine, 2004). For instance, SMEs, which are often the backbone of emerging economies, benefit significantly from improved access to capital markets. By providing these enterprises with alternative financing options, local capital markets support their growth and contribute to overall economic dynamism (Ayyagari, Demirgüç-Kunt, & Maksimovic, 2007). Moreover, local capital markets play a crucial role in fostering entrepreneurship. By offering diverse financial instruments and investment opportunities, these markets lower the barriers to entry for new businesses. Entrepreneurs can secure funding through initial public offerings (IPOs) or bond issuances, which are often more accessible than traditional bank loans. This access to finance is critical for the launch and expansion of entrepreneurial ventures, which are key drivers of innovation and economic growth (Demirgüç-Kunt, Laeven, & Levine, 2003). In addition to supporting business and entrepreneurial activities, local capital markets contribute to financial stability. A well-developed capital market diversifies the financial system, reducing dependence on banking sectors and mitigating systemic risks (Levine & Zervos, 1998).

For example, during financial crises, diversified financial markets can absorb shocks better than economies reliant solely on banks. This diversification helps maintain investor confidence and ensures the steady flow of capital, which is essential for economic resilience (Rajan & Zingales, 2003). The empirical evidence underscores the positive impact of local capital markets on economic growth. Studies have shown that countries with developed capital markets experience higher economic growth rates compared to those with underdeveloped markets (King & Levine, 1993). For instance, Levine and Zervos (1998) found that stock market development is positively correlated with future economic growth, capital accumulation, and productivity improvements. Similarly, Beck and Levine (2004) highlighted that both stock markets and banks positively impact economic growth, but their effects are complementary rather than substitutive. Policy implications are profound. To maximize the benefits of local capital markets, policymakers must create an enabling environment that includes robust legal and regulatory frameworks, efficient market infrastructure, and strong investor protection mechanisms (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1997). Additionally, enhancing financial literacy and fostering a culture of investment are crucial for broadening market participation and deepening capital markets (Claessens, 2006). In conclusion, the development of robust local capital markets is essential for fostering economic growth. These markets provide critical financial services that facilitate business expansion, support entrepreneurship, and enhance financial stability. By understanding the mechanisms through which local capital markets operate and their impact on economic growth, policymakers can implement strategies to strengthen these markets, ultimately driving sustainable economic development. This paper will further explore the roles, empirical evidence, and policy implications of robust local capital markets in fostering economic growth.

2. THE ROLE OF LOCAL CAPITAL MARKETS IN ECONOMIC GROWTH

Local capital markets are integral to the financial architecture of any economy, providing a critical platform for the mobilization and allocation of resources. Their role in fostering economic growth is multifaceted, encompassing the provision of access to finance, encouragement of entrepreneurship, and enhancement of financial stability. This section delves into these mechanisms, illustrating how local capital markets contribute to the broader economic development.

- **Access to Finance for Businesses:** One of the primary functions of local capital markets is to provide businesses with access to finance. This access is particularly crucial for small and medium-sized enterprises (SMEs), which often face significant challenges in securing funding from traditional banking institutions. Local capital markets offer alternative financing options such as equity and debt instruments, enabling these enterprises to raise the capital necessary for expansion, innovation, and operation (Beck & Demirgüç-Kunt, 2006). By reducing dependency on bank loans, which can be difficult to obtain and often come with stringent conditions, capital markets facilitate a more diversified and resilient financing environment. The availability of finance through local capital markets also helps businesses to optimize their capital structures. Companies can choose between equity and debt based on their specific needs and market conditions, improving their financial flexibility and strategic planning capabilities (Myers, 2001). This flexibility is vital for businesses looking to scale operations, invest in new technologies, or enter new markets, all of which are essential for economic growth.
- **Encouraging Entrepreneurship:** Local capital markets play a pivotal role in fostering entrepreneurship, which is a key driver of economic dynamism and innovation. By providing entrepreneurs with access to various financial instruments, such as initial public offerings (IPOs) and venture capital, local capital markets lower the barriers to entry for

new businesses (Black & Gilson, 1998). This access to finance is critical for the launch and growth of entrepreneurial ventures, which often operate in high-risk environments where traditional banking finance is either unavailable or prohibitively expensive. The support of local capital markets for entrepreneurship extends beyond mere funding. These markets also provide a platform for the valuation and trading of entrepreneurial ventures, offering a transparent mechanism for price discovery and investment liquidity (Ritter, 2011). This transparency attracts investors, increasing the availability of capital for promising startups and fostering a vibrant ecosystem of innovation and growth. Empirical studies have shown a positive correlation between the development of local capital markets and entrepreneurial activity. For instance, Klapper, Laeven, and Rajan (2006) found that countries with more developed equity markets have higher rates of firm entry and entrepreneurship. This relationship underscores the importance of robust capital markets in nurturing the entrepreneurial sector, which is crucial for economic growth and job creation.

- **Enhancing Financial Stability:** The development of local capital markets contributes significantly to financial stability, an essential component of sustainable economic growth. By diversifying the financial system, capital markets reduce the economy's reliance on banking institutions and mitigate systemic risks (Levine & Zervos, 1998). During financial crises, economies with well-developed capital markets are better equipped to absorb shocks and maintain the flow of capital, as investors have alternative avenues for their investments. Moreover, local capital markets enhance financial stability by facilitating better risk management and allocation. Through the issuance of various financial instruments, such as stocks, bonds, and derivatives, capital markets enable the spreading and sharing of financial risks across a broader spectrum of investors and institutions (Rajan & Zingales, 2003). This dispersion of risk reduces the likelihood of systemic failures and promotes a more resilient financial system. Empirical evidence supports the stabilizing role of local capital markets. For example, a study by Demirgüç-Kunt and Maksimovic (1998) found that firms in countries with more developed financial markets are better able to manage their growth and investment strategies, leading to more stable and predictable economic outcomes. This stability is crucial for maintaining investor confidence and ensuring long-term economic growth. In conclusion, local capital markets are indispensable to the economic growth and development of any nation. They provide essential financial services that enable businesses to access the capital they need for expansion, support entrepreneurial ventures, and enhance financial stability by diversifying risks. The empirical evidence consistently demonstrates the positive impact of well-developed capital markets on economic growth, highlighting the need for policymakers to focus on creating and maintaining robust financial infrastructures. By prioritizing the development of local capital markets, countries can unlock new opportunities for growth and build more resilient and dynamic economies.
- **Encouraging Entrepreneurship:** Local capital markets play a pivotal role in fostering entrepreneurship, which is a key driver of economic dynamism and innovation. By providing entrepreneurs with access to various financial instruments, such as initial public offerings (IPOs) and venture capital, local capital markets lower the barriers to entry for new businesses (Black & Gilson, 1998). This access to finance is critical for the launch and growth of entrepreneurial ventures, which often operate in high-risk environments where traditional banking finance is either unavailable or prohibitively expensive. The support of local capital markets for entrepreneurship extends beyond mere funding. These markets also provide a platform for the valuation and trading of entrepreneurial ventures, offering a transparent mechanism for price discovery and investment liquidity (Ritter, 2011). This transparency attracts investors, increasing the availability of capital for promising startups and fostering a vibrant ecosystem of innovation and growth. Empirical studies have shown a positive correlation between the development of local capital markets and entrepreneurial

activity. For instance, Klapper, Laeven, and Rajan (2006) found that countries with more developed equity markets have higher rates of firm entry and entrepreneurship. This relationship underscores the importance of robust capital markets in nurturing the entrepreneurial sector, which is crucial for economic growth and job creation. Moreover, local capital markets provide a supportive environment for the growth and maturation of startups. As these firms progress, they often require additional rounds of funding to scale operations, invest in research and development, and expand into new markets. Local capital markets facilitate these processes by enabling successive rounds of equity financing, secondary offerings, and other funding mechanisms (Gompers & Lerner, 2001). This ongoing access to capital is vital for sustaining the growth trajectory of entrepreneurial ventures and maximizing their contribution to economic development.

- **Enhancing Financial Stability:** The development of local capital markets contributes significantly to financial stability, an essential component of sustainable economic growth. By diversifying the financial system, capital markets reduce the economy's reliance on banking institutions and mitigate systemic risks (Levine & Zervos, 1998). During financial crises, economies with well-developed capital markets are better equipped to absorb shocks and maintain the flow of capital, as investors have alternative avenues for their investments. Moreover, local capital markets enhance financial stability by facilitating better risk management and allocation. Through the issuance of various financial instruments, such as stocks, bonds, and derivatives, capital markets enable the spreading and sharing of financial risks across a broader spectrum of investors and institutions (Rajan & Zingales, 2003). This dispersion of risk reduces the likelihood of systemic failures and promotes a more resilient financial system. Empirical evidence supports the stabilizing role of local capital markets. For example, a study by Demirgüç-Kunt and Maksimovic (1998) found that firms in countries with more developed financial markets are better able to manage their growth and investment strategies, leading to more stable and predictable economic outcomes. This stability is crucial for maintaining investor confidence and ensuring long-term economic growth. Furthermore, local capital markets contribute to financial stability by enhancing the transparency and efficiency of the financial system. By providing a platform for the public trading of securities, these markets facilitate the timely and accurate dissemination of information regarding the financial health and performance of businesses (Diamond & Verrecchia, 1991). This transparency helps investors make informed decisions, reduces information asymmetry, and fosters a more stable and efficient allocation of resources.
- **Promoting Economic Inclusion:** Another significant role of local capital markets in economic growth is their potential to promote economic inclusion. By providing a broad range of financial products and services, these markets can cater to the diverse needs of different economic agents, including small investors, households, and marginalized groups. This inclusivity helps to democratize access to financial resources, enabling a wider section of the population to participate in and benefit from economic growth (Demirgüç-Kunt, Klapper, & Singer, 2013). Local capital markets also contribute to economic inclusion by supporting the development of financial literacy and investment culture. Through investor education programs, financial institutions and regulatory bodies can enhance the understanding of financial products and markets among the general public. This increased financial literacy empowers individuals to make informed investment decisions, manage risks, and build wealth over time (Atkinson & Messy, 2012). Moreover, the growth of local capital markets can lead to the development of complementary financial services, such as asset management, insurance, and financial advisory services. These services provide additional avenues for individuals and businesses to access financial products tailored to their specific needs, further promoting economic inclusion and enhancing the overall financial ecosystem (Beck & Levine, 2004).

In conclusion, local capital markets are indispensable to the economic growth and development of any nation. They provide essential financial services that enable businesses to access the capital they need for expansion, support entrepreneurial ventures, and enhance financial stability by diversifying risks. The empirical evidence consistently demonstrates the positive impact of well-developed capital markets on economic growth, highlighting the need for policymakers to focus on creating and maintaining robust financial infrastructures. By prioritizing the development of local capital markets, countries can unlock new opportunities for growth and build more resilient and dynamic economies.

3. EMPIRICAL EVIDENCE AND CASE STUDIES

Empirical evidence and case studies provide critical insights into the role of local capital markets in fostering economic growth. This section reviews key studies that have explored the development and impact of capital markets across various economies, highlighting the diverse ways in which these markets contribute to economic progress. In their seminal work, Levine and Zervos (1998) examined the relationship between stock market development and long-term economic growth. Using data from 47 countries over a period from 1976 to 1993, they found that stock market liquidity and banking development positively impact economic growth. Their results indicate that countries with more developed stock markets experience higher rates of capital accumulation and productivity improvements. Beck and Levine (2004) conducted a comprehensive study on the interplay between stock markets, banks, and economic growth. They utilized a panel dataset covering 40 countries from 1976 to 1998 and found that both stock markets and banks contribute independently to economic growth. Their analysis highlighted the complementary roles of these financial institutions in promoting capital formation and technological innovation. Rajan and Zingales (2003) explored the historical development of financial markets and their impact on economic growth. They argued that well-developed financial markets facilitate entrepreneurship and innovation by providing access to external finance. Their historical analysis demonstrated that countries with advanced financial markets tend to have higher levels of industrial growth and technological progress. Demirgüç-Kunt and Maksimovic (1998) investigated the relationship between legal frameworks, financial development, and firm growth. Their study, which included data from 30 countries, showed that firms in countries with better-developed legal and financial systems grow faster than those in countries with weaker systems. This finding underscores the importance of robust financial markets and legal institutions in fostering firm expansion and economic growth. King and Levine (1993) provided early evidence on the positive link between financial development and economic growth. Analyzing data from 80 countries over a period from 1960 to 1989, they found that higher levels of financial intermediation are associated with faster economic growth. Their study highlighted the importance of financial sector development in facilitating investment and productivity. Klapper, Laeven, and Rajan (2006) examined the impact of entry regulation on entrepreneurship using data from 85 countries. They found that stringent entry regulations are negatively associated with firm entry and entrepreneurship. Conversely, countries with developed capital markets, which reduce the barriers to entry, exhibit higher rates of entrepreneurship and economic dynamism. Levine (2005) provided a comprehensive review of the literature on finance and growth, summarizing the theoretical and empirical evidence. He concluded that financial development, including the development of capital markets, is crucial for economic growth. His review emphasized the role of financial markets in mobilizing savings, facilitating investment, and promoting innovation. Bekaert, Harvey, and Lundblad (2005) studied the impact of financial liberalization on economic growth using a dataset covering 95 countries. They found that financial liberalization, which often includes the development of local capital markets, significantly boosts economic growth.

Their results suggest that removing barriers to capital market development can lead to substantial economic benefits. Laeven (2003) examined the relationship between financial liberalization and firm performance in 13 developing countries. His study found that financial liberalization, including the development of local capital markets, leads to improved firm performance and growth. This improvement is attributed to better access to finance and increased competition. Rousseau and Wachtel (2000) investigated the link between financial intermediation and economic growth using data from 84 countries. They found that financial intermediation, including the development of capital markets, plays a crucial role in facilitating economic growth by improving resource allocation and supporting investment. Ayyagari, Demirgüç-Kunt, and Maksimovic (2007) explored the role of governance and finance in firm innovation in emerging markets. Their study showed that firms with better access to finance, including through local capital markets, are more likely to engage in innovative activities. This finding highlights the importance of capital markets in promoting technological advancement and economic growth. Capasso (2008) analyzed the relationship between stock market development and economic growth in Italy from 1861 to 2001. His historical analysis revealed that periods of stock market growth were associated with higher economic growth rates. This study underscores the long-term benefits of well-developed capital markets for economic development. Chinn and Ito (2006) examined the relationship between financial openness, capital market development, and economic growth using a panel dataset of 100 countries. They found that financial openness and the development of local capital markets are positively correlated with economic growth. Their results suggest that policies promoting financial integration and capital market development can lead to significant economic gains. Fisman and Love (2004) investigated the impact of financial development on firm growth using industry-level data from 42 countries. They found that industries relying more on external finance grow faster in countries with better-developed financial markets. This finding supports the view that capital market development is essential for fostering industry growth and economic development. Greenwood and Smith (1997) explored the role of financial markets in facilitating economic growth through improved resource allocation. They developed a theoretical model showing that well-functioning financial markets, including capital markets, enhance economic efficiency by reallocating resources to their most productive uses. Henry (2000) analyzed the effects of stock market liberalization on economic growth using data from 11 developing countries. He found that stock market liberalization, which often involves the development of local capital markets, leads to significant increases in economic growth rates. This study highlights the positive impact of capital market development on economic performance. Levine, Loayza, and Beck (2000) examined the relationship between financial intermediation and economic growth using a panel dataset of 71 countries. They found that financial intermediation, including the development of capital markets, is a robust predictor of economic growth. Their results indicate that policies promoting financial development can lead to substantial economic benefits. Rajan and Zingales (1998) explored the historical development of financial markets and their impact on economic growth in the United States. They found that well-developed financial markets, including capital markets, played a crucial role in supporting industrial growth and innovation during the 19th and 20th centuries. Rousseau and Sylla (2005) examined the relationship between financial market development and economic growth in the United States from 1790 to 1850. Their historical analysis showed that the development of financial markets, including capital markets, was associated with higher economic growth rates. This study highlights the long-term benefits of financial market development for economic progress. Wurgler (2000) investigated the impact of financial development on the allocation of capital using industry-level data from 65 countries. He found that countries with better-developed financial markets allocate capital more efficiently, leading to higher economic growth rates.

This finding underscores the importance of capital market development for improving resource allocation and fostering economic growth. The empirical evidence and case studies reviewed in this section consistently demonstrate the positive impact of well-developed local capital markets on economic growth. These markets provide essential financial services that enable businesses to access the capital they need for expansion, support entrepreneurial ventures, and enhance financial stability by diversifying risks. The studies highlight the importance of capital market development for improving resource allocation, fostering innovation, and promoting economic inclusion. Policymakers should prioritize the development of local capital markets to unlock new opportunities for growth and build more resilient and dynamic economies.

4. CONCLUSION

The development of robust local capital markets is indispensable for fostering sustainable economic growth. Empirical evidence and case studies consistently demonstrate the multifaceted contributions of capital markets to economic development, highlighting their roles in providing access to finance, encouraging entrepreneurship, enhancing financial stability, and promoting economic inclusion. By facilitating the efficient allocation of resources, mobilizing savings, and supporting innovative activities, local capital markets play a crucial role in driving long-term economic prosperity. The reviewed literature underscores the necessity for policymakers to prioritize the development of these markets to unlock new growth opportunities and build more resilient and dynamic economies.

4.1. Implementation of the Study

To implement the findings of this study and harness the potential of local capital markets for economic growth, several strategic actions and policy measures are recommended:

- **Strengthening Legal and Regulatory Frameworks:** Governments should establish robust legal and regulatory frameworks that ensure investor protection, enforce property rights, and maintain market integrity. These frameworks should include clear guidelines for market operations, transparency requirements, and mechanisms to prevent market abuses.
- **Enhancing Market Infrastructure:** Developing advanced market infrastructure, including efficient trading platforms, clearing and settlement systems, and regulatory oversight, is essential for fostering investor confidence and ensuring smooth market operations. Investments in technology and infrastructure can significantly improve market efficiency and accessibility.
- **Promoting Financial Literacy and Investor Education:** Financial literacy programs should be implemented to educate the public about financial products, investment opportunities, and risk management. Increasing financial literacy can broaden market participation and encourage a culture of investment, leading to deeper and more liquid capital markets.
- **Facilitating Access to Finance for SMEs and Entrepreneurs:** Policymakers should create initiatives that provide SMEs and entrepreneurs with better access to capital markets. This could include setting up dedicated SME boards, simplifying listing procedures, and offering incentives for venture capital and private equity investments in startups and small businesses.
- **Encouraging Financial Innovation:** Supporting financial innovation through regulatory sandboxes and innovation hubs can spur the development of new financial products and services. These innovations can cater to diverse financing needs and enhance the overall functionality of capital markets.

- **Fostering Regional Integration of Capital Markets:** Regional integration of capital markets can enhance market size, liquidity, and investor base. Policymakers should work towards harmonizing regulations, creating cross-border investment frameworks, and facilitating the free flow of capital within regions.
- **Monitoring and Managing Systemic Risks:** Developing mechanisms to monitor and manage systemic risks is crucial for maintaining financial stability. Regulatory bodies should implement macroprudential policies, stress testing, and early warning systems to identify and mitigate potential financial vulnerabilities.

4.2. Comparison with Other Articles

The findings of this study align with the broader literature on financial development and economic growth. For instance, the work of Levine and Zervos (1998) and Beck and Levine (2004) highlights the complementary roles of stock markets and banks in promoting economic growth, a theme echoed in this study's emphasis on diversified financial systems. Rajan and Zingales (2003) and Laeven (2003) similarly underscore the importance of financial market development in facilitating entrepreneurship and innovation, reinforcing the argument for supporting entrepreneurial ventures through capital markets. Furthermore, studies by Bekaert, Harvey, and Lundblad (2005) and Henry (2000) on financial liberalization demonstrate that opening up capital markets can significantly boost economic growth, paralleling this study's recommendation for policies that promote financial integration and liberalization. The historical analyses by Rousseau and Sylla (2005) and Capasso (2008) provide long-term perspectives on the benefits of capital market development, supporting the conclusion that well-developed financial markets are critical for sustained economic progress. The comprehensive review of empirical evidence and case studies in this study contributes to a deeper understanding of the pivotal role of local capital markets in economic growth. By drawing on a wide range of literature, this study not only reinforces existing knowledge but also provides actionable insights for policymakers aiming to develop and strengthen local capital markets. Implementing the recommended strategies can lead to more resilient, inclusive, and dynamic economies, ultimately driving sustainable economic growth.

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ROLE OF TRANSPORT ACCESSIBILITY FOR ECONOMIC RESILIENCE: EMPIRICAL FINDINGS FROM CROATIAN ISLANDS

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ABSTRACT

Great volatility and uncertainty during last decades has been characterized by highly heterogeneous territorial impacts and promoting the resilience concept for understanding the factors behind these fluctuations. Most of the studies have been driven by dominant narrative of urban economics and focusing and promoting large and dynamic metropolitan areas. However, recent studies underlined lack of urban dominance over rural regions; especially during periods of crisis (Giannakis. & Bruggeman, 2019). While transport infrastructure and accessibility can contribute to production of heterogeneous socio-economic effects among territories (e.g. Van Wee, 2016), past studies have given almost no attention to the role of transportation accessibility on building resilient regional economy (Chacon-Hurtado et al, 2020). This has been especially the case for spatial units heavily defined by transport accessibility - islands. (Karampela et al, 2014). Under the discontinuous space context, constraints of scale economies, micro-climate, and spatial reach of networks, accessibility has unique role for the island communities (Karampela et al, 2014; Birgilito et al, 2018). In this paper, we fill this gap by exploring the relationship between regional resilience and the degree of transportation accessibility for the islands. By focusing on the resistance and recovery phase of resilience among islands in Croatia in period 2007-2017, we provide profound foundation for development and policy discussion. Our empirical findings indicate that different types of transport infrastructure have diverse influence on resistance and recovery among island communities. Finally, study provide clear insights for policy makers in delivering more effective development policy measures during turbulent periods for unique spatial units – islands.

Keywords: *Accessibility, Transport, Islands, Resilience, Resistance, Recovery*

1. INTRODUCTION

Great volatility and uncertainty during last decades has been characterized by highly heterogeneous territorial impacts. The concept of resilience has received an increased attention by offering framework for understanding the factors behind these fluctuations (e.g. Bristow, 2010; Martin, 2012, Marin and Sunley, 2015, Bristow and Healy, 2014, 2015; Giannakis. & Bruggeman, 2019; Rios and Gianmoena, 2020). Defined not only as the capacity of a system to absorb disturbance, to reorganize and to retain its basic function, structure and identity (Giannakis & Bruggeman, 2015) but also as capacity for undergoing adaptive changes for transit to a new sustainable path (Martin and Sunley, 2015) resilience has been extensively studied under various frameworks (e.g.; Fratesi & Perucca, 2018; Rios and Gianmoena, 2020). Most of the studies have been driven by dominant narrative of urban economics promoting agglomeration and urban density as the most effective pathway to economic prosperity (Glaeser, 2011) leading on concentrating on large and dynamic metropolitan areas (Rodríguez-Pose, 2018). However, relevant studies (Dijkstra, Garcilazo, & McCann, 2013; Dijkstra, Garcilazo, and McCann, 2015; Giannakis. & Bruggeman, 2019) have challenged the view of large agglomerations as the main engines of growth. Dijkstra, Garcilazo, and McCann (2015) and Giannakis. & Bruggeman, (2019) underlined lack of urban dominance over rural regions.

Furthermore, the analysis revealed different drivers of resilience between urban and rural regions underlining accessibility or proximity as an important factor (Giannakis. & Bruggeman, 2019). While transport infrastructure and accessibility can contribute to production of heterogeneous socio-economic effects among territories (Van Wee, 2016), past studies have given almost no attention to the role of transportation accessibility on building resilient regional economy (Chacon-Hurtado et al, 2020). Moreover, the researchers have not been oriented on understanding intriguing question concerning the role of accessibility in the transition dynamics of the heterogeneous type of regions. This has been especially the case for spatial units heavily defined by transport accessibility - islands. (Karampela et al, 2014). Under the discontinuous space context, constraints of scale economies, micro-climate, and spatial reach of networks, accessibility has unique role for the island communities (Karampela et al, 2014; Birgilito et al, 2018). In this paper, we fill this gap by exploring the relationship between regional resilience and the degree of transportation accessibility for the islands. By focusing on the resistance and recovery phase of resilience among islands in Croatia, we provide profound foundation for development and policy discussion. After introductory part, the structure of paper is as follows. The next section briefly outlines framework for understanding the relationship between regional resilience and islands. Section 3 provides background data, the empirical methodology and results. Section 4 concludes the paper with the recommendations for future research.

2. LITERATURE REVIEW

2.1. Accessibility of islands and resilience – conceptual framing

Growing concern over effects of exogenous and endogenous shocks and threats to the development paths have provoked policy-makers to consider how resilient our societies and economies are (Martin, 2012). The concept of resilience offers a lens for deepen our understanding on the asymmetric effect across territories and region's ability to cope with it. With the recent surge in interest, numerous studies have been undergone with the regional perspective in focus (e.g. Bristow, 2010; Martin, 2012; Bristow and Healy, 2014; Modica and Reggiani, 2015; Martin and Sunley, 2015; Giannakis. & Bruggeman, 2019; Martin, R., & Gardiner, B. 2019; Rios and Gianmoena, 2020). However, difficulties in theoretical and empirical defining remained, resulting with different interpretations of regional resilience widely explained in the papers by Martin (2012), Martin and Sunley (2015) and by Modica and Reggiani (2015). First interpretation called "engineering resilience", founded by Holling (1973), interprets resilience as system's speed of recovery or return to its pre-shock position. The second one, implies resilience to be "the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity and feedbacks" (Walker et al., 2004, p 2.). Martin and Sunley (2015) indicate "this definition is not without ambiguity, since it remains unclear just how much 'reorganization' and 'change' is permitted for the system to be regarded as still having 'essentially the same structure, identity and feedbacks'. These doubts offered space for the new concept named „adaptive resilience'. This concept defines resilience as "the ability of the system to withstand either market or environmental shocks without losing the capacity to allocate resources efficiently" (Perrings, 2006, p.418). This concept has been also titled referred as 'evolutionary resilience', defined in terms of 'bounce forward' concept rather than 'bounce back' concept (Simmie and Martin, 2010). Finally, Martin and Sunley (2015) have tried to include all the relevant elements of the phenomena into the definition that define regional economic resilience as the capacity of a regional or local economy to withstand or recover its developmental growth path from market, competitive and environmental shocks by, if necessary, undergoing adaptive changes of its economic structures and its social and institutional arrangements, so as to maintain or restore its previous developmental path, or transit to a new sustainable path characterized by a fuller and more productive use of its physical, human and environmental

resources. Transport infrastructure has for long been one of the main tools applied within broadly defined regional development policies (e.g. Banister and Berechman, 2001; Goetz, 2011; Rokicki, & Stępnia, 2018). These efforts have been driven by belief that improved transport accessibility to a wider market will stimulate the activities of regional firms. However, the increase in accessibility can also stimulate the activity of out-of-region firms by making it easier for goods to move in (Banister and Berechman, 2001; Ng et al, 2018). In addition, effects of investment in transportation infrastructure are not limited to addressing network congestion and improving accessibility (Black, 2003), but it usually leads to changes in the spatial and economic structure of different areas (Taaffe et al., 1996). Defining region as a dynamic socio-economic unit driven by degree of interaction forces, it is crucial to understand the role of transport accessibility for regional response patterns after an external shock. While the literature suggests that the transport accessibility may have a role for regional resilience, only a few studies have considered transport-related conditions (e.g. Osth et al, 2015; Brakman et al, 2015; Giannakis & Bruggeman 2019 and Chacon-Hurtado et al, 2020). Although results from aforementioned studies have provided evidence on diverse drivers of resilience between different types of regions, they have been mostly concentrated only on the urban-rural dichotomy (e.g. Giannakis & Bruggeman 2019; Chacon-Hurtado et al, 2020). On the other side, they missed to illuminate the role of transport accessibility for the specific type of the regions – islands. Islands are considered as special cases of transport accessibility due to their discontinuity of space that has a strong impact on all aspects of life on islands (e.g. Karampela et al, 2014; Birgillito et al, 2018). While island inhabitants depend on the link with the outside world (Baldacchino, 2004, p. 133) the role of transport accessibility has been shaped by constraints of scale economies, micro-climate, and spatial reach of networks (e.g. Mehmood, 2009; Karampela et al, 2014). As a result, islands can only be accessed by sea or air transport services often resulting in poor accessibility. Moreover, having in mind specific requirements of air transport services on less populated islands, their accessibility is primarily, and often exclusively, driven by ferry-based transport system. (Birgillito et al, 2018). Such a system is characterized by the several limitations associated with low frequencies, waiting times and capacity constraints (Makkonen et al, 2013; Andersen et al, 2018) heavily shaping relations with the individuals and firms outside the island. From the resilience perspective, extensive burden on relations with out-island world could enhance island's stakeholders on building more robust local economy controlling the negative effects of external shocks, especially in short term. However, it could also reduce possibility of “fuller and more productive use of its physical, human and environmental resources”, crucial for enhancing a island's resilience capacity, not only during the shock, but also during the recovery stage. Obviously, transport accessibility with a substantial impact for island's resilience has raised the interest among policy makers.

3. EMPIRICAL STRATEGY

3.1. Data

Empirical validation of the previous theoretical hypothesis has been tested on the data for 50 counties on islands in Croatia for period 2008-2017. Regional economic resilience, as a dependent variable, has been defined as combination of the resistance and recovery phase. In literature, it is not easy to find uniform proxy for resistance as the literature offers several different ways to proxy the variable for its measurement, ranging from descriptive and interpretative case studies to econometric models (e.g. Simmie and Martin, 2010; Martin, 2012; Fingleton et al., 2012; Sensier et al., 2016). In this paper, to express resistance, it is decided to use Faggian et al. (2018) adaptation of formula for sensitivity index that was originally made by Martin (2012):

$$(1) SI = \frac{E_{r,t}}{E_{r,t-1}} / \frac{E_{RH,t}}{E_{RH,t-1}}$$

in which E_r represents total employment in specific county on island in Croatia (r) and E_{RH} represents total employment in Republic of Croatia. Therefore, period t represents the year and $t - 1$ year before. Since in Croatia a recession period was from 2008 up to 2014, our sensitivity index represent the average value of the index for the six 6 consecutive years.

The recovery period covers period 2014 – 2017 and it has been defined as percentage change in employment on county level in 2015 and 2017 as following:

$$(2) REC_{r2015(2017)} = \left(\frac{E_{r2015(2017)} - E_{r2014}}{E_{r2014}} \right) * 100$$

In line with Faggian et al. (2018) the counties on Croatian islands can be categorized based on resistance and recovery indicators:

- 1) High resistance/fast recovery (group I);
- 2) High resistance/slow recovery (group II);
- 3) Low resistance/slow recovery (group III);
- 4) Low resistance/fast recovery (group IV).

Explanatory variables that create x vector are variables that are recognized in existing literature as those that could possibly affect regional economic resilience. Identifying the determinants of regional economic resilience is complex process, with many factors being simultaneously important (Bigos et al, 2013). The inclusion of all potential determinants indicated in the abovementioned literature in this paper could be ultimate. But it is not straightforward task since the regional data on stated aspects (determinants) are rarely available and/or of poor quality. Therefore, the focus of this paper has been on a limited number of available variables. Taking into consideration these limitations, the following variables are considered: human capital (*Human_capital*), economic prosperity (proxied by average income per capita – *Average_inpcp*), public revenues (proxied by average public revenues per capita – *Average_ownrev*), number of the public services in the municipality (proxied by the number of public services in the municipality – *Central_funs*), economic structure (share of specific economic sections in the municipality activity; A - Agriculture, forestry and fishing and B Mining and quarrying – *A_and_B*; Accommodation and food service activities – *I*), demographic structure (proxied by ageing index – *Ageing_Index*) and the relevant indicators of specific type of transport infrastructure (proxied by existence of bridge – *Bridge* and/or airport – *Airport* on the island where specific municipality exists) and the specific indicator for accessibility (proxied by indicator *DW_min* which represents distance in minutes from the specific municipality on the island to the capital of the region (county))¹.

3.2. Empirical results

Empirical validation of the factors important for regional economic resilience has been tested in two stages. In first stage, determinants of the resistance (Table 1.), while in second stage determinants of the recovery has been verified (Table 2.).

Table following on the next page

¹ *DW_Min* – consists of the distance in minutes from the specific municipality on the island to the capital of the region plus average waiting time in case that island does not have bridge. Waiting time is calculated by dividing 1440 minutes (24h * 60min) with the number of daily ferry lines (e.g. in case that island has 10 ferry line per day, waiting time is 144 min (1440/10))

Table 1: Results of regression for resistance phase of regional economic resilience among municipalities on islands in Croatia

Source	SS	df	MS	Number of obs	=	50
Model	.051671955	10	.005167195	F(10, 39)	=	1.67
Residual	.120901641	39	.003100042	Prob > F	=	0.1240
				R-squared	=	0.2994
				Adj R-squared	=	0.1198
Total	.172573596	49	.00352191	Root MSE	=	.05568

N_Sensitivix	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
Human_Capital	-.8890793	.3526705	-2.52	0.016	-1.602423	-.1757359
Average_Incpc	.0012346	.0006979	1.77	0.085	-.000177	.0026462
Average_ownrev	.0000433	.0002279	0.19	0.850	-.0004177	.0005042
Ageing_Index	.0001052	.0001297	0.81	0.422	-.0001571	.0003675
Bridge	.048653	.0268462	1.81	0.078	-.0056485	.1029546
Airport	-.0367244	.0230054	-1.60	0.118	-.0832572	.0098085
DW_min	-.000013	.0000877	-0.15	0.883	-.0001904	.0001644
Central_funs	-.0016232	.0013443	-1.21	0.235	-.0043424	.001096
I	.0728399	.0780676	0.93	0.357	-.0850668	.2307466
A_and_B	.1214594	.0866261	1.40	0.169	-.0537583	.2966772
_cons	.9866687	.0599051	16.47	0.000	.8654991	1.107838

Source: Own calculation

Resistance of the specific local economy on islands in Croatia has been driven by several factors (Table 1.). Although human capital have positive effect on development on regional and national level, high levels of human capital on municipality level among islands in Croatia have negative effect. This counterintuitive finding can be attributed to the fact that individuals with higher levels of human capital are more mobile and tend to migrate more easily to regions with better economic conditions. As a result, municipalities with high human capital often experience a brain drain, where the most skilled and educated individuals leave, thereby increasing the vulnerability of these areas to different external shocks (e.g. Faggian, McCann, & Sheppard, 2007). Higher average incomes generally translates into greater resources for individuals and local governments stimulating the overall resilience of the municipality. Areas with higher level of income provide their residents with essential support that can mitigate various risks and challenges. It ensures that residents have access to the necessary resources to cope with shocks, thereby improving resistance of the municipality (e.g. Nystrom, 2017). Finally, the existence of specific types of transport infrastructure, particularly bridges has a significant and positive impact on local resistance. Bridges facilitate rapid and efficient movement of people and goods, which is vital for economic activities and emergency responses. On islands where municipalities have access to bridges, there is generally better connectivity to the region and beyond, which can be crucial during times of crisis. This improved connectivity not only supports economic development but also enhances the municipality's capacity to manage and recover from disruptions, thereby contributing positively to the resistance. On other side, the presence of other types of transport infrastructure, such as airports, does not show a significant influence for resistance. This may be due to the limited scope of connectivity and economic stimulation that these airports provide compared to bridges, which offer broader and more diverse economic opportunities and emergency response capabilities. Finally, accessibility (representing distance in minutes from the specific municipality on the island to the capital of the region (county)) does not have a significant influence for resistance among municipalities on islands in Croatia. While one might assume that closer proximity to the regional capital would enhance access to additional resources and services, the data suggests that this factor does not play a substantial role. This could be attributed to the limited importance of regional capitals in Croatia.

Table 2: Results of regression for recovery phase of regional economic resilience among municipalities on islands in Croatia

Source	SS	df	MS	Number of obs	=	50
Model	13527.0613	10	1352.70613	F(10, 39)	=	1.46
Residual	36184.9293	39	927.818699	Prob > F	=	0.1923
				R-squared	=	0.2721
				Adj R-squared	=	0.0855
Total	49711.9905	49	1014.53042	Root MSE	=	30.46

N~5_Numerical	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
Human_Capital	-153.2457	192.9376	-0.79	0.432	-543.4988	237.0075
Average_Incpc	.190461	.3817947	0.50	0.621	-.5817916	.9627137
Average_ownrev	-.1307134	.1246713	-1.05	0.301	-.3828848	.1214581
Ageing_Index	.1307355	.070942	1.84	0.073	-.0127583	.2742292
Bridge	37.41111	14.68691	2.55	0.015	7.704028	67.11819
Airport	-1.542671	12.58571	-0.12	0.903	-26.99966	23.91432
DW_min	-.0221067	.0479712	-0.46	0.647	-.1191376	.0749242
Central_funs	.4484052	.7354496	0.61	0.546	-1.039182	1.935992
I	58.1149	42.70894	1.36	0.181	-28.27209	144.5019
A_i_B	49.84955	47.39105	1.05	0.299	-46.00789	145.707
_cons	-38.84064	32.77267	-1.19	0.243	-105.1296	27.44834

Empirical evidence on role of crucial factors for recovery dimension of regional economic resilience among municipalities on islands in Croatia has been provided in Table 2. In first place, demographic structure (proxied by ageing index) has significant and positive influence on recovery. This counterintuitive result suggests that local communities with a higher proportion of elderly residents may benefit from stable consumer spending, accumulated wealth, and possibly a stronger social cohesion, all of which can contribute positively to economic recovery. In addition, different types of transport infrastructure have diverse influence on recovery among island communities confirm importance for economic prosperity (e.g. Banister and Berechman, 2001). In first place, presence of bridge that enhance connectivity and accessibility, facilitating the flow of goods, services, and people between regions has been shown to have a significant and positive impact on recovery phase of regional economic resilience (Baldacchino, G, 2004.). However, the existence of an airport on the island where a specific municipality is located does not appear to significantly influence economic recovery. While airports can provide vital connections to broader national and international networks, their presence alone may not be sufficient to drive regional economic recovery. This finding suggests that other factors, such as the volume of air traffic, the types of services offered, and the integration with other forms of transportation, might play a more crucial role in leveraging airport infrastructure for economic benefits. Finally, the specific indicator for accessibility, representing the distance in minutes from the specific municipality on the island to the capital of the region, does not have a significant impact. It may imply that other aspects, such as the quality of roads, availability of public transport and the overall economic dynamics of the regional capitals are more influential than distance alone. Understanding these dynamics can help policymakers and planners focus on enhancing the factors that truly drive economic resilience and recovery, ensuring a more robust and sustained economic performance in regions recovering from downturns. In first place, it reminds the relevant actors that transport infrastructure might enhance economic resilience on local and regional level, but it is crucial to understand which specific type should be considered. On this matter, existence of bridges has provided relevant evidence to be crucial for overcoming challenges of island represented by discontinuous space context, constraints of scale economies and limited spatial reach of networks (Karampela et al, 2014; Birgilito et al, 2018).

4. CONCLUSION

This paper tries to fit the literature gap by analysing factors influencing regional economic resilience in specific spatial environment – islands in Croatia, reveal critical insights into the dynamics of resistance and recovery by different types of transport infrastructure. Transport infrastructure, particularly bridges, significantly impacts local resistance and recovery by facilitating efficient movement of people and goods, essential for economic activities and emergency responses. Enhanced connectivity through bridges supports both economic development and the municipality's capacity to manage and recover from disruptions. In contrast, airports do not show a significant influence on resilience and recovery, likely due to their limited scope of connectivity and economic stimulation compared to bridges in specific case. Additionally, proximity to regional capitals in Croatia does not significantly affect resistance and recovery, suggesting that regional capitals' importance in Croatia may be limited. In addition, empirical study also offers empirical evidence on negative effect of high level of human capital for resilience due to brain drain. This phenomenon occurs as highly skilled individuals migrate to regions with better economic conditions, leaving the municipalities vulnerable to external shocks. In contrast, higher average incomes are factors supporting enhanced resilience. Wealthier areas can provide more support to residents, mitigating various risks and challenges and ensuring access to necessary resources during crises. However, demographic structure, notably a higher proportion of elderly residents, positively influences recovery, possibly due to stable consumer spending and accumulated wealth. Understanding these dynamics can guide policymakers in enhancing factors that drive economic resilience and recovery, particularly focusing on transport infrastructure like bridges, which are crucial for overcoming the unique challenges of island municipalities. This targeted approach can ensure more robust and sustained economic performance in regions recovering from downturns.

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TERRITORIAL INNOVATION AND INTERINSTITUTIONAL RELATIONS: KNOWLEDGE ABSORPTIVE CAPACITIES AND SMART CITIES

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ABSTRACT

This study explores the innovation ecosystem of the city of Porto Alegre/RS/Brazil, from the perspective of the dimensions of smart cities and knowledge absorptive capabilities. The research seeks to identify knowledge absorption mechanisms, recognize the dimensions of smart cities present in the ecosystem and establish the relationship between these elements as drivers of ecosystem development. A single, qualitative, exploratory and descriptive case study was adopted. Data collection occurred through in-depth interviews with coordinators of entities representing the city (triple helix actors: government, university and companies). The results demonstrate that the flow of knowledge between agents is bidirectional, occurring within institutions and expanding to the city. This dynamic makes the innovation ecosystem viable, characterizing Porto Alegre as a developing city in this aspect. The study contributes to understanding the role of knowledge absorptive capabilities in the development of smart cities, highlighting the importance of interaction between agents in the innovation ecosystem. The research reveals that Porto Alegre has a developing innovation ecosystem, driven by absorptive capacities and the interaction between the agents of the triple helix. The study offers valuable insights to improve public policies and strengthen the culture of innovation in the city.

Keywords: *Knowledge absorption, Smart Cities, Innovation Ecosystems, Impact on territories*

1. INTRODUCTION

The Knowledge Absorptive Capacity theory emerges as a fundamental model for understanding how organizations can achieve competitiveness and innovative advantages. (Werwiebe & Machado, 2019). Knowledge absorptive capacity is the ability of an organization to recognize the value of knowledge (internal and external), allowing it to acquire other knowledge through past experiences and investments and assimilate them (Cohen & Levinthal, 1990). The assimilated knowledge is based on the characteristics and needs of the market, the organization, or the technological or innovative alliance and convergence (Puffal et al., 2019). Researchers such as Zahra and George (2002) state that the process of absorbing external information and knowledge occurs through the development of four internal organizational capabilities, forming a continuous flow: acquisition, assimilation, transformation and application.

During the acquisition process, organizations identify and acquire knowledge of the environment. In the assimilation process, procedures are created to understand knowledge obtained from external sources. In the transformation process, organizations combine acquired knowledge with their internal capabilities. Finally, in the application process, knowledge is used to develop new capabilities and resources, generating an adapted process (Zahra & George, 2002). The concept of knowledge absorptive capacity, originally applied to the business sphere, plays a crucial role in the context of innovation ecosystems, in a globalized and constantly changing world. Rapid changes, turbulence and competitiveness require territories to develop the capacity to absorb, transform and apply new knowledge and technologies in an efficient and strategic way. Synergistic groups of companies and institutions organized in an innovation ecosystem have been gaining importance in different regions of the world and in different areas of knowledge, geographically bringing together governance systems, companies (including industries and commerce), academia and users in favor of innovation (Koloski et al., 2015). They can be described as a conjunction, in this way universities assume an entrepreneurial role, participating as central actors through new and diverse opportunities for organizations. While the government establishes a bridge of interaction between these two actors, stimulating the innovative context (Pedrinho et al., 2020). When innovation ecosystems trigger interactions that unite actors and agents (triple helix movement), cities and their surroundings are transformed. This is because the initiatives involve the revitalization of degraded and vulnerable urban areas, working together with the population. Thus, when analyzed through concepts derived from theoretical models, such as absorptive capacity, they aim to objectify critical mass in institutions and companies. Knowledge is disseminated and based on the search for improving the quality of life, often culminating in socialized territorial initiatives, one of which is the so-called smart cities (Sant'anna et al., 2017). Smart cities, in some cases, are interpreted as the convergence between information and communication technologies and people's quality of life. The connection of these concepts aims to enable institutions to promote constant interactions in cities and public governance (Lazzaretti et al., 2019). Therefore, it is through these complex and challenging interactions that this study aims to understand how the development of absorptive capabilities is reflected in the innovation ecosystem of Porto Alegre, in the State of Rio Grande do Sul, considering the dimensions of a smart city. It is understood that the interdependent exploration of absorptive capacity, innovation ecosystems and smart city approaches can help fill the gap in the literature. By working with such theoretical approaches from a multilevel perspective and focusing on the development of a territory, understood as a space for economic, social and interinstitutional relations, the study contributes to the area.

2. THEORETICAL REFERENCE

2.1. The Absorptive Capacity of Knowledge

In 1989, Cohen and Levinthal laid the foundations for the concept of absorptive capabilities, deepening their studies in 1990 with a seminal definition: knowledge absorptive capacity is the organization's ability to assimilate and recognize the value of new information, integrating it subsequently in its operations. Cohen and Levinthal (1990) listed two variables that influenced the absorptive capacity of knowledge: 1) external communication channels; and 2) existing knowledge, as opposed to knowledge that can be acquired, highlighting the importance of Research & Development routines as a stimulus for absorption of innovation, associated with technological opportunities. The authors Zahra and George (2002), through the contextualization of knowledge absorptive capacity, interrelated these capabilities to the concept of dynamic capabilities, listing resources as the basis of competitive advantages, proposing a set of routines and processes called potential absorptive capacity, and absorption achieved.

Each construct has distinct dimensions, namely: acquisition, assimilation, transformation and application. In this conceptualization, potential absorptive capacity focuses on the dimensions of acquisition, such as the ability to acquire external knowledge, and assimilation, where knowledge is analyzed through processes and routines. On the other hand, realized absorptive capacity addresses the dimensions of transformation, adaptation of external knowledge and application to generate new knowledge. Thus, absorptive capacity lists a set of organizational actions through which organizations acquire, assimilate, transform and exploit knowledge to induce dynamic capabilities (Zahra & George, 2002). Therefore, the authors developed operational elements for the analysis of absorptive capacity, expanding the theory and conceiving it as an essential competence for organizations, with direct impacts on territories. From a multilevel perspective, territorial absorptive capacity stands out as a fundamental concept for regional development. It refers to the ability of a region to identify, assimilate and exploit external knowledge, promoting innovation and economic growth. Schillaci et al. (2013) define territorial absorptive capacity as “the capacity of a territory to absorb and use external knowledge to generate innovation and economic development”. This capacity is based on several factors, such as: human and social capital, infrastructures, institutions and governance. Territorial absorptive capacity is related to two fields of study: innovation ecosystems, acting on attracting and retaining innovative companies, talents and investments; and regional science, through theories and models (Schilaci et al., 2013). One of these models, smart cities, proves to be a pillar for regional development, as it promotes innovation, stimulates economic growth and improves the quality of life.

2.2. Smart Cities as a Factor in Territorial Development

The integration of systems, infrastructures and services, mediated by enabling technologies, creates an innovative environment that requires a set of skills and characteristics that generate development (Komninos, 2009). Berst (2018) states that smart cities share this systemic vision, so that priorities are chosen consciously by governments, capturing synergies to attract jobs, talent and tourists. Smart cities transcend the mere application of technology, according to Giffinger et al. (2007). They are based on a holistic vision that integrates several aspects, such as economy, people, governance, mobility, environment and quality of life. These cities are built from the combination of decided, independent and conscious attitudes of the actors involved. There is evidence that information and communication technologies (ICT) can be applied in the field of urban management with a view to materializing strategic actions. For Weiss et al. (2019), this conjecture is implemented through a research agenda at local universities, which identifies the most relevant ICTs and the best actions for synergy between actors, propagating innovations. The research by Desdemoustier et al. (2019) on stakeholders' perception of smart cities is an important contribution to understanding urban development in the current context. The study reinforces the idea that smart cities do not just instigate the implementation of technologies, but rather a process of social and political transformation that aims to improve the population's quality of life. Brazil is advancing in the implementation of smart solutions in its cities. More than 673 cities already have initiatives in this regard, which is a positive indicator for the country's future. Smart cities in Europe are characterized by six main dimensions, according to the work of Giffinger et al. (2007): quality of life, competitiveness, human and social capital, public services with popular participation, ICT infrastructure and natural resources. The dimensions highlight cities on issues considered fundamental for development. Rampazzo and Vasconcelos (2020) attribute that in the case of local and regional development, the fundamental role lies in a set of local managements, which perceive the regional and international scenario as a field of opportunities for other solutions and renewal of public policies, combined with information and innovation. The combination of information and innovation, together with the particular characteristics of production,

consumption and identity, enhances growth and interaction between actors. This leads to the occurrence of a set of actions (Weiss et al., 2019). In this case, the process is circular and constantly feeds back, forming an ecosystemic context of innovations.

2.3. Innovation Ecosystems

Several authors have dedicated themselves to analyzing urban clusters and their systems of change at different scales (local, regional, and national), using a biological analogy as a basis. Jackson (2011) played a crucial role in the search for a definition of innovation ecosystems based on biological ecosystems. Although Moore (1993) made the first connection between the two concepts in the context of entrepreneurship, Jackson deepened the analysis, focusing on the co-creation of value and the relationships between the various actors in innovation performance (Smorodinskaya & Russel, 2018). According to Granstrand and Holgersson (2020), innovation ecosystems form an evolving institutional set, including activities, organizations and relationships that, in synergy, achieve innovative performance for an actor or set of actors. They also constitute adaptive and complex systems composed of subsystems, blocks and mechanisms that allow the formation of interconnections between different agents, which co-evolve dynamically, leading to the emergence of rounds of innovation (Surie, 2017). When discussing different theoretical currents, Rovere et al., (2021) draw attention to the importance of the context in which organizations operate, as well as the need to understand the learning processes that foster innovative activity. Characterizing and measuring an innovation ecosystem represents a significant challenge, due to the lack of consensus on the theoretical basis for its delimitation. One of the analysis tools is in the three main institutional spheres: universities, government and companies, present in the triple helix model. This model proposes a relationship dynamic oriented towards development through innovation (Etzkowitz & Zhou, 2017). It seeks to solve problems and explore the potential of a region, delimiting broad territorial and teleological studies.

3. METHODOLOGY

This article is configured as an applied social research, using a methodological design that combines characteristics of an empirical, qualitative, descriptive and exploratory study. The focus is on a single case study, investigating a specific smart city and highlighting the synergy of strategic processes that contribute to the maintenance of actions related to the region's ecosystem context. The qualitative process sought depth, detail and meaning through the interviewees' statements (Richardson, 1999), and the descriptive bias sought to expose the characteristics of the phenomenon, establishing correlations between variables (Vergara, 2000). The research in question is characterized as exploratory, as it offers a comprehensive overview of the city of Porto Alegre, in Rio Grande do Sul/Brazil, with regard to its insertion in the context of technologies and smart cities. The choice of Porto Alegre is justified because it is the most active city in terms of technology in the state and appears in rankings of Brazilian smart cities with more than 500.000 inhabitants. The choice of an exploratory methodology is appropriate for this study due to the complex and multifaceted nature of the smart cities topic. This methodology allows research to delve deeper into different aspects of the problem, considering different perspectives and points of view (Collis & Hussey, 2005). By exploring the case of Porto Alegre, the research offers a valuable contribution to the debate on smart cities in Brazil. Based on the analysis of the specific reality of Porto Alegre, the research identifies challenges and opportunities that may be relevant for other Brazilian cities that seek to become more intelligent and sustainable. The research subjects focused on the representative leaders of the triple helix movement in the city, being managers and/or coordinators of key institutions. The entities were nominated by their institutions based on previous contacts.

The interviews took place in July and August 2023, and the representative entities listed PUCRS (university), the Innovation Office (government) and Sebrae RS (companies). The interviews were guided by a research instrument based on the theoretical framework, aiming to meet the objectives of the study. The instrument listed the Knowledge Absorptive Capacity model by Zahra and George (2002), highlighting evidence of acquisition, assimilation, transformation and application. It also considered the Smart Cities approach advocated by Giffinger et al. (2007), which links the city's degree of intelligence to the dimensions of quality of life, competitiveness, human and social capital, public services, ICT infrastructure and natural resources. The technique that outlined the data set after the in-depth interviews was based on content analysis, which performed the interpretation of the data and was developed through refined techniques (Flick, 2009). In summary, the steps of the technique recommended by Bardin (2011) were used, covering three stages: pre-analysis, exploration of the material and treatment of results. The operationalization of the steps was carried out through transcriptions of the collected material. During the transcription process, a preliminary analysis was carried out, highlighting the key points of each speech and, subsequently, the interpretation of the results.

4. DISCUSSION OF RESULTS

4.1. The performance of Absorptive Capacities in the Institutions analyzed

Porto Alegre, capital of the state of Rio Grande do Sul, is the largest city in the state with a population of almost 1.5 million inhabitants, making it the fifth most populous city in the country. The Pontifical Catholic University of Rio Grande do Sul (PUCRS), founded in 1931 and the largest in the state, stands out as an example of an institution committed to the local development of Porto Alegre, through innovative solutions. Guided by a systemic vision, PUCRS implements undergraduate and postgraduate courses that prioritize applied research as a driver of development. The University promotes integration between academia, government and companies, characterizing the “university helix” in the model of Etzkowitz and Zhou (2017). This integration translates into concrete actions that generate a positive impact on society. The Innovation Office, founded in 2009 and linked directly to City Hall, represents the government's propeller in the Municipality of Porto Alegre. Its main objective is to implement public policies to encourage innovation in the city, in addition to implementing high-technology activities through private projects and investments. Sebrae RS, as a private entity dedicated to promoting competitiveness and sustainability, plays a fundamental role in the development of Porto Alegre's innovation ecosystem. Founded in 1972 through a Federal Government incentive program, Sebrae RS's main objective is to support small and medium-sized companies, which represent the “business propeller” of the local economy. Currently, Sebrae RS works proactively in the development of the innovation ecosystem in the capital of Rio Grande do Sul, serving more than 450 companies through the Startup RS Program. This initiative offers a range of customized services and solutions to boost the growth and maturity of startups in Porto Alegre. The three institutions establish systemic relationships, working on joint projects and solving problems. In this way, results are achieved as knowledge is acquired and assimilated, listing the process of transforming knowledge and its application between institutions (Zahra & George, 2002). PUCRS is a pioneer in this process, as it implicitly produces internal and external knowledge. Thus, it is a natural driver of absorptive capacity, covering the acquisition, assimilation, transformation and application of knowledge in Porto Alegre's innovation ecosystem. The Innovation Office plays a crucial role in bridging the gap between transformation and the application of knowledge. By identifying problems and articulating different actors, the Office facilitates collaborative work in the search for innovative solutions. Zahra and George (2002) define transformation as the ability to recognize and combine information with existing knowledge, leading to the refinement, expansion and leveraging of

skills. The Innovation Office contributes to this transformation. Sebrae RS recognizes the relevance of its partnerships, especially with universities, for the development of Porto Alegre's innovation ecosystem. Through this collaboration, Sebrae RS demonstrates its absorptive capacity, receptive to the acquisition and application of academic knowledge to: develop and implement entrepreneurial education programs; promote research and development of innovations; and offer technical and managerial support. The research indicates that this capacity in the institutions investigated unfolds into capabilities for acquisition, assimilation, transformation and application of knowledge in a multilevel system of institutional relationships (Zahra & George, 2002), which seeks solutions for Porto Alegre's innovation ecosystem. In short, the statements that explained this research context are found in Table 1.

Table 1: Institution investigated and excerpt from interviews addressing absorptive capacity.

Institution	Excerpt Interview
PUCRS	“This process of absorbing knowledge occurs in an integral way: acquiring, assimilating, transforming and applying. In other words, PUC, as a responsible university, operates in the university's three missions: teaching (transmission of knowledge), research (generation of knowledge) and innovation (transmission of this knowledge to society). The main channel through which this spillover process occurs is TecnoPUC, which represents the innovation ecosystem”.
Cabinet Innovation	“When we identify a solution that can be beneficial to a department, municipality or institution, we act as a bridge. We bring together stakeholders, make it clear that we are the catalyst for change, bring the parties together and monitor the growth of the action. We are the lever and apply the solution. We are there as support. If something gets stuck, we call on the Innovation Office to resolve it. The cabinet members share the same vision: aligning everyone and moving everything towards a single solution. This requires a lot of work: meetings, articulation and awareness of everyone involved. We raise awareness of one interested party here, another there, we bring everyone together and let the solution take its course.”
Sebrae RS	“In fact, we opened up a wide range of opportunities, so to speak. Today we connect a lot with universities, because we want to bring more people who already have formalized knowledge or who are formalizing it in the area of entrepreneurship. In this way, we acquire knowledge. But that's not all: by our very nature, we receive many entrepreneurs who, out of necessity, seek business guidance or a way to support themselves. And we are there to support them, applying alternatives that may be useful. When I talk about innovation, specifically, we are more linked to universities, incubators and these institutions, seeking knowledge from them to help entrepreneurs.”

It is clear that the University plays a fundamental role in the strategic knowledge cycle, acting as a true engine of development for the entire chain.

4.2. The Perception of Smart Dimensions in the Investigated Institutions

In preliminary studies, Giffinger et al. (2007) laid the foundations for understanding territorial intelligence. Three pillars were identified as essential: companies, education and political participation. The components are interconnected with local infrastructures. The list of components was expanded, listing the six guiding dimensions. The authors' theory, when analyzing the intelligence of cities, implicitly establishes the triple helix model as the basis for delimiting the analyses. In other words, the model serves as a framework for evaluating how smart a city is, considering the interactions between the three pillars: government, companies and universities (Etzkowitz & Zhou, 2017). In the case of Porto Alegre, the characterization as a smart city (without this research having the function of classifying it or raising its social problems) fits within the dimensions proposed both by the Brazilian ranking and by the dimensions of Giffinger et al. (2007). This indicates that the city has a good level of interaction between the three pillars of the triple helix, which contributes to its urban and social development.

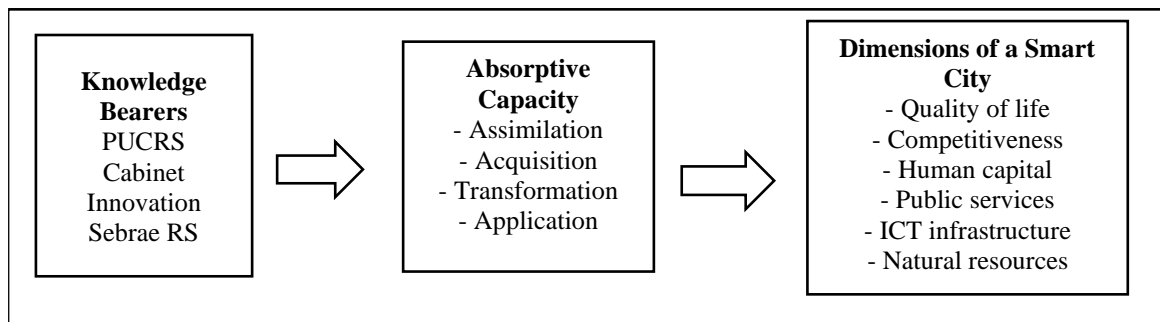
The smart city concept aims to promote efficiency and urban development through the integration of various sectors, including businesses, creative activities and the natural environment. The “triple helix” plays a central role in this process, acting as a catalyst for innovation and growth. This analysis focuses on three key institutions in the city of Porto Alegre: PUCRS (university), the Innovation Office (government) and Sebrae RS (companies). Therefore, the analysis of the dimensions of the smart city sought to interconnect the actions and projects of each institution involved in the process, aiming to stimulate Porto Alegre's innovation ecosystem. Although the density of each dimension varies, quality of life was indicated as a focus in projects in the areas of neuroscience and digitalization (PUCRS), as well as the cultural and social development of vulnerable communities (Office of Innovation and Sebrae RS). Competitiveness, in turn, was addressed through projects with partner companies (PUCRS), female and peripheral entrepreneurship (Innovation Office) and entrepreneurial development trails (Sebrae RS). PUCRS demonstrates a strong commitment to social and regional development through its actions in favor of human and social capital, innovation and public services. The Innovation Office articulates solutions to boost startups together with other agents, and Sebrae RS works with connections with universities. The scale of public services was cited by PUCRS as fundamental during the pandemic period. The university developed ventilators and flow enablers that were donated and shared with the public health network. Furthermore, it participated in the development of the Pacto Alegre program, together with Sebrae RS. The Innovation Office, vehement in its position as a public entity, expressed its efforts in seeking resources. Finally, in light of the dimensions of a smart city, the actions and projects of the investigated institutions, with regard to ICT infrastructures, highlight: 1) the sharing of ICT resources and digital transformation by PUCRS and the Innovation Office; 2) validation of prototypes, indicated by Sebrae RS. Natural resources were highlighted by: 1) development of the research center for solar energy, green hydrogen and carbon systems at PUCRS; 2) the coordination, together with the Innovation Office and Sebrae RS, of the urban farms and Sustainability Committees of Porto Alegre. Porto Alegre's innovation ecosystem stands out for its collaborative, implicit model based on interaction between universities, government and companies. This collaboration boosts the city's development in several aspects, such as: quality of life, competitiveness, social capital, public services, ICT infrastructure and natural resources. These aspects define city spaces as privileged channels for disseminating knowledge (Weiss et al., 2019).

4.3. The Relationship between Knowledge Absorptive Capacities and Smart Cities

Interconnection opens doors to the socioeconomic progress of regions and communities. Thus, the absorptive capacity of knowledge depends on increased investments in the training of human resources and the integration of knowledge flows through the action of knowledge “carriers” (Schillaci et al., 2013), responsible for key and innovative actions. These organizational models are directly interconnected with cities, acting as natural disseminators of the absorptive capacity process. They boost and propagate the dimensions of smart cities, becoming points of convergence that contribute to the formation of an ecosystem. Based on the findings mentioned above, it is safe to say that PUCRS contributes significantly to the competitiveness of the city of Porto Alegre. The university stands out as a knowledge hub, acting strategically on the four pillars of absorption capacity: 1) knowledge acquisition: investing in research and development, attracting talent and resources to the city; 2) assimilation of knowledge: promote the training of qualified professionals and the constant updating of knowledge; 3) knowledge transformation: encouraging innovation and entrepreneurship, generating new companies and opportunities; and, 4) application of knowledge: offering services to the community and collaborating with the development of public policies.

PUCRS's actions in these four pillars generate a positive impact on Porto Alegre's competitiveness, as it increases productivity, attracts investments and improves quality of life. The Porto Alegre Innovation Office demonstrates great insight when considering digital transformation and its application to citizens' health. This initiative, aligned with PUCRS actions, has the potential to generate positive and lasting impacts on the population's quality of life. Through partnerships with universities and innovation hubs, such as PUCRS, Sebrae RS acts strategically to promote the acquisition, assimilation, transformation and application of knowledge in the area of entrepreneurship. This action aims to boost the competitiveness of the state of Rio Grande do Sul and attract new entrepreneurs and startups. The research evidence corroborates the central importance of the absorptive capacity of knowledge as a driver of ecosystem actions in Porto Alegre. Absorptive capacity, understood here in its four capacities (Zahra & George, 2002), developed together with the institutions that were the subject of research in this study, is responsible for the flow of relationships and interactions in Porto Alegre's innovation ecosystem. Figure 1 illustrates the flow of knowledge produced in the innovation ecosystem.

Figure 1: Knowledge Flow in the Porto Alegre Innovation Ecosystem.



PUCRS, the Innovation Office and Sebrae RS assume the role of agents of transformation in the city of Porto Alegre. Through the synergy between their actions and objectives, these institutions drive the social, technological and economic development of the capital of Rio Grande do Sul, building the foundations for an intelligent and prosperous city.

5. CONCLUSION

The study in question aimed to unveil the complex relationship between the development of absorptive capabilities and their impacts on the innovation ecosystem in the city of Porto Alegre. In addition to a mere descriptive analysis, the study sought to identify the specific mechanisms by which absorptive capacities operate and generate their effects. This provided a deeper understanding of the nuances and interdependencies present in this study analyzing interinstitutional relations. The results of the study convincingly confirm the fundamental role that PUCRS plays as one of the propellers in the context of Porto Alegre and the region. The University stands out as a central actor in the process of developing the city's absorption capacity, driving innovation and socioeconomic development. The Innovation Office stands out as a crucial agent in promoting the transformation and application of knowledge for social, economic and environmental development. Through strategic and multifaceted action, the Office promotes: inclusive innovation; the development of vulnerable communities; entrepreneurship; building a vibrant and sustainable innovation ecosystem. Sebrae RS plays a fundamental role in developing Porto Alegre's knowledge absorption capacity, acting as a strategic partner in maintaining the innovation ecosystem and the smart city.

Through its programs and initiatives, Sebrae promotes: the development of human capital; the creation of new businesses; the dissemination of knowledge. These elements are essential for the city's progress. The perceived flow of knowledge denotes that the processes of developing the absorptive capacity of knowledge and the dimensions of smart cities occur in a bidirectional direction: both within institutions and in the flows of knowledge to the city. This process empowers the innovation ecosystem through the dynamism and synergy of participating entities. Innovations, perceived through projects and actions, are interconnected with capabilities that encourage the development of initiatives in the fields of politics, economics, entrepreneurship, technology and the population's quality of life. The main limitation of the study lies in the restriction of data collection to a limited number of subjects and institutions. Porto Alegre's innovation ecosystem is made up of a wide range of actors, including universities, companies, research centers, government and civil society organizations. The analysis carried out, although valuable, does not capture all of the complex relationships and interactions present in the ecosystem. To better understand the relationships between absorptive capacity, innovation ecosystem and smart city, future research should consider expanding the study sample, including: a greater number of institutions; a diversity of sectors and companies; and, institutions of different sizes. In addition to comparing projects and actions, and their results in the community.

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CUSTOMER EXPERIENCE AND SOCIAL MEDIA MARKETING AS DETERMINANTS OF GREEN PRODUCTS PURCHASE – EVIDENCE FROM SERBIA

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ABSTRACT

Bearing in mind the importance of social media for marketing and business as a whole, but also the focus on sustainability as a necessity in modern business conditions, goal of this paper is to explore the relationship between different aspects of social media and consumer behavior regarding the purchase of green products. More precisely, the goal is to examine the influence that customer experience on social media and social media marketing activities have on the attitudes and intentions of consumers regarding the purchase of green products from local and global companies in the Republic of Serbia. In accordance with the aforementioned goal, hypotheses were defined and empirical research was conducted, using the survey method. A sample of 327 questionnaires was collected and statistical data analysis was carried out, using confirmatory factor analysis (CFA) and structural equation modeling (SEM) in IBM SPSS and AMOS, in order to test hypotheses. The results of the research showed that customer experience and marketing activities on social media have a statistically significant influence on the attitudes and intentions of consumers regarding the purchase of green products. In addition, research has shown that there are differences in this impact, in terms of local and global companies. The main contribution of the study is related to the fact that the relationship between these aspects of social media and the purchase of green products was observed from the perspective of local and global companies, which is rare in the scientific literature. Furthermore, since sustainability and green marketing are more prevalent in developed countries, this issue needs to be further investigated in developing countries, such as Serbia. Therefore, this research can provide guidelines to companies in these countries, related to consumer behavior regarding green products.

Keywords: *customer experience, green marketing, green products, social media marketing activities, sustainability*

1. INTRODUCTION

Modern business, both from the perspective of companies and consumers, is being reshaped by the Internet. The presence of companies on the Internet, through websites and social media, has become necessary for communication with consumers and businesses as a whole. In particular, the importance and role of social media in modern global business can be seen through its use and popularity among users. In 2024 there will be almost five billion users of social media, which is over 60% of the total world population and more than 90% of the total number of Internet users (Social Media Usage & Growth Statistics). These trends in the growth of social media users have created a new era of business for global companies and brands, in which they are forced to find new, interactive ways to communicate with consumers (Gallaughier &

Ransbotham, 2010). The growing importance of social media has led companies around the world to include social media in their marketing plans as part of their overall business strategy. Sustainability has become one of the key concepts of the modern business environment. The increasing importance of environmental problems, such as global warming or environmental pollution, forces companies and brands to act on this topic through their promotional channels. By creating content on social media, brands can take social and environmental issues into account and create a perception of responsible behavior among consumers. On the other hand, consumer behavior and their concern for sustainability will shape consumption for years to come. Therefore, understanding how consumers make purchasing decisions, especially regarding green products, is paramount for brand and marketing managers. In recent years, green marketing has gained importance, both in marketing literature and in the business practices of companies. Green products can be defined as “those that can be recycled, require less natural resources, and act as a non-polluter for the earth, with environmentally friendly packaging” (Gupta & Syed, 2022). Considering their use and importance, social networks have become a significant method for promoting green products and maintaining companies' credibility. This is precisely the topic of this research, considering that we are investigating the influence of different marketing activities on social networks, as well as the customer experiences on social media, on the attitudes of consumers about green products. Additionally, we investigate the influence of the mentioned variables in the case of local and global green products, to determine the basic differences in the relationships in the research model. This represents the main contribution of our research, since not many studies analyse social media as a predictor of consumers' behavior towards local and global green products. Furthermore, the main contribution of the research is that it was conducted in the Republic of Serbia, which is a developing country. Bearing in mind that sustainability and green marketing as concepts in the theory and practice of companies are more prevalent and significant in developed countries (Feng et al, 2023), it is important to examine the behavior of consumers in countries at a lower level of development.

2. CUSTOMER EXPERIENCE ON SOCIAL MEDIA

Customer experience is the cognitive acknowledgment or perception that follows from the stimulated motivation of a customer who observes or participates in an event. Such acknowledgment or perception consequently enhances the value of products and services (Schmitt, 1999). Additionally, it can be defined as a “multidimensional construct that reflects on the cognitive, emotional, behavioral, sensory, and social responses of the consumer to the enterprise's products or services during the customer's buying journey” (Lemon & Verhoef, 2016). In the context of online platforms, customer experience refers to “a holistic response to the stimuli within website environment” (Morgan-Thomas & Veloutsou, 2013). Schmitt (1999) distinguished five different types of experiences that marketers can create for customers: sensory experiences (SENSE); affective experiences (FEEL); creative cognitive experiences (THINK); physical experiences, behaviors, and lifestyles (ACT); and social-identity experiences that result from relating to a reference group or culture (RELATE). These experiences are implemented through so-called experience providers such as communications, visual and verbal identity, product presence, electronic media, etc. When it comes to the analysis of the customer experience in the context of social networks, Hsu and Tsou (2011) found that information credibility is essential for consumer experience, which, in turn, is important for enhancing purchase intention. In addition, higher blog engagement significantly improves the impact of customer experience on purchase intention. Chen and Lin (2015) discovered that customer experience has positive influence on consumer satisfaction and perceived value. Furthermore, authors found that sustainable social relationship is strongly and significantly influenced by blog continuance intention and consumer satisfaction.

Recent study by Wibowo and others (2020) identified that customer experience has a significant influence on the customer relationship quality, which also leads to a positive impact on customer behavioral outcomes, such as purchase intention, loyalty intention and participation intention. Building on this, we propose following hypothesis:

- H1: Customer experience on social media has a positive and statistically significant effect on attitudes towards green products.

3. SOCIAL MEDIA MARKETING ACTIVITIES

Social media is defined as online application programs, platforms, or media that facilitate interactions, collaboration, or content sharing (Richter & Koch, 2007). Online social media platforms, such as Facebook, Instagram, YouTube, and others, have seen continuous growth in the number of users and popularity in general, leading to many world-renowned brands of products and services using them for their promotion. In fact, in the last few years, companies are increasingly using social media to communicate with consumers and promote their products (Okazaki et al, 2015). Social media turns consumers into marketers, as they create, change, and share information about companies and brands in the online environment (Hartmann & Apaolaza-Ibáñez, 2012). Kim and Ko (2010) established a framework for the analysis of social media, which implies that they have five basic dimensions: entertainment, interaction, customization, trendiness, and electronic word of mouth. Entertainment, as an aspect of social media, implies that consumers often use social media as a way to have fun, escape from everyday responsibilities, and for enjoyment. The hedonic perspective views social media users as pleasure-seekers, who have fun and enjoy this activity (Manthiou et al, 2013). Considering that social media is a space for discussion and exchange of ideas between consumers, *interactions* in social media allow insight into the users who contribute to the social media platforms of specific brands. Users meet and interact with each other in cyberspace and discuss specific products and/or brands (Muntinga et al, 2011). These interactions fundamentally change the dynamics of communication between brands and users, i.e. consumers, and also motivate the development of user-generated content (UGC- User Generated Content) in social media (Bazi et al, 2020). *Customization*, as an aspect of social media, allows companies to provide, through customized information or customized information search, the opportunity for consumers to design and customize the products they want to buy. An example of customization could be sending personalized messages or emails to consumers, with special offers or incentives, allowing consumers to customize products to their unique needs. *Trendiness* implies that social media provides access to the latest, current news and topics for consumer discussion. In addition, social media provides the most up-to-date news and information, making it a product search tool, which is why consumers tend to trust information obtained through social media more than that obtained through advertisements (Naaman et al., 2011). This aspect of social media is, accordingly, defined as providing the latest information about products or services (Godey et al., 2016). Finally, *electronic word-of-mouth* on social media involves online interaction between consumers about brands (Muntinga et al, 2011). Research shows that electronic word-of-mouth has greater credibility, empathy, and relevance for consumers than information sources created by companies on the Internet (Gruen et al, 2006). Numerous studies have shown that different aspects of marketing activities on social media have a statistically significant impact on consumer behavior towards green products (Gupta & Syed, 2022; Wang et al, 2019; Kim & Ko, 2012).

The previous results allow for defining the following hypothesis:

- H2: Social media marketing activities have a positive and statistically significant effect on attitudes towards green products.

4. CONSUMER BEHAVIOR REGARDING THE PURCHASE OF GREEN PRODUCTS

Within the purchase decision-making process, attitudes precede the intention to buy certain products, according to the Theory of Reasoned Action - TRA (Ajzen & Fishbein, 1980) and the Theory of Planned Behavior - TPB (Ajzen, 1991). In addition, according to these theories, intentions lead to actual behavior, which is why they are used as a predictor of human behavior. This theoretical approach has been used in a large number of previous studies that focus on predicting consumer behavior within social media marketing (Kim & Ko, 2012), as well as regarding the purchase of green products (Pop et al, 2020; Sun & Wang, 2020). Bearing in mind the mentioned theoretical aspects, the following hypothesis is defined:

- H3: Green products attitudes have a positive and statistically significant effect on the intention to purchase these products.

Figure 1 shows the research model and the relationships between the variables within it.

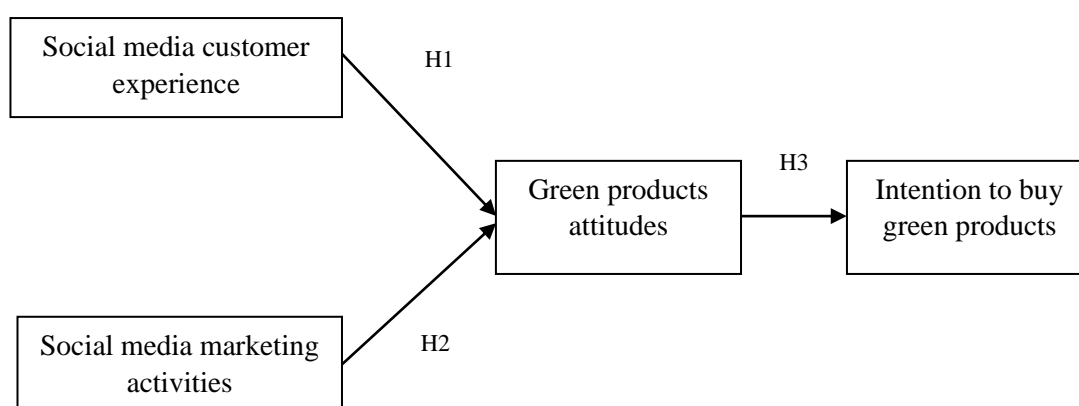


Figure 1: Conceptual model of research

5. METHODOLOGY

The questionnaire consisted of 15 statements, which were taken from relevant sources and adapted for the needs of green product research. Statements related to social media marketing activities were taken from the works authored by Godey et al. (2016) and Kim & Ko (2012). Questions regarding the customer experience on social media were taken from the studies by Chen and Lin (2015), Homburg et al (2015), and Schmitt (1999). The variable attitudes towards green products were formed according to the papers of the authors Gupta and Syed (2021) and Kim and Hyun (2011), while the intentions to buy a green product were taken from the paper of the authors Kim and Ko (2012). In addition, all the questions in the questionnaire were adapted for the case of local and global companies operating in the Republic of Serbia. At the beginning of the questionnaire, the respondents were informed about the research subject and declared whether they had previously bought green products from local and global companies. In addition, the respondents declared whether they use social media for information about companies and their products. Only the questionnaires of those respondents who declared that they had experience buying this type of product and were social media users were included in the analysis. Statistical analyses were performed using the SPSS (v. 23.0) and AMOS 23. First, we examined the validity of research models using the confirmatory factor analysis (CFA) and by analyzing adequate indicators. Then, we used structural equation modeling (SEM) to test the hypotheses of the research, by analyzing the relationships in the models, between the variables. The survey process was conducted in the period from November 2023 to January 2024. The questionnaires were collected in person, on the territory of the city of Kragujevac and other larger cities of the Central Serbia. In the main survey phase, 350 surveys were prepared.

After the completion of the survey process, it was determined that 23 surveys were not filled in correctly, which is why they were eliminated from further analysis. The final sample consisted of 327 valid surveys. Using descriptive statistics, the structure of the sample was determined, as shown in Table 1.

Demographic characteristic		% respondents
Sex	Male	48.3
	Female	51.7
Age	18-24	28.2
	25-34	19.6
	35-44	19.8
	45-54	23.5
	55 and older	8.9
Education	High school	48.7
	Undergraduate study	14.1
	Graduate and postgraduate study	37.2
Occupation	Manager, entrepreneur	14.6
	Professor, doctor, engineer	15.2
	Clerk, worker	35.4
	The student	24.9
	Other occupations	9.9

*Table 1: Descriptive statistics for respondents' characteristics
(Source: Authors' research)*

For research purposes, two research models have been created, which relate to local and global green products. The validity analysis results are presented in Table 2. Indicator χ^2/df should have a value less than 3 (Bagozzi & Yi, 1988). Results indicate that both models fulfill this condition. Indicators IFI, CFI and TLI should have a value above 0.9 (Byrne, 1998). Presented results show that both models have adequate values of mentioned indicators. Finally, indicator RMSEA should have a value less than 0.08 (Hair et al., 2006), which both models fulfill.

Indicators of model validity	Research model – Local green products	Research model – Global green products	Recommended value
χ^2/df	1.745	1.862	<3
GFI	0.932	0.924	>0.9
IFI	0.941	0.934	>0.9
TLI	0.928	0.915	>0.9
CFI	0.948	0.937	>0.9
RMSEA	0.042	0.052	<0.08

*Table 2: Model validity analysis
(Source: Authors' research)*

Results of the confirmatory factor analysis are presented in the Table 3. Value of the average variance extracted (AVE) indicator for variables should be higher than 0.50, which represents the recommended value (Fornell & Larcker, 1981). All variables in both models fulfill this condition, and this indicates that models satisfy the conditions for convergent validity. Additionally, composite reliability (CR) indicator should have value higher than 0.7 (Fornell & Larcker, 1981).

Results show that all variables meet this condition, since they have higher values than the recommended value. Recommended value for the Cronbach's alpha coefficient is 0.7 (Nunnally, 1978). The presented results indicate that all analyzed variables have adequate values.

Variables	Local green products	Global green products
Customer experience on social media	AVE=0.516 CR=0.842 α =0.750	AVE=0.509 CR=0.838 α =0.725
The online social media post of my preferred green products tries to engage my senses.	0.713	0.729
The online social media of my preferred green products makes me respond emotionally.	0.724	0.687
The online social media of my preferred green products stimulates my curiosity.	0.682	0.739
The online social media of my preferred green products reminds me of activities I can do.	0.744	0.698
I can relate to other customers through the online social media of my preferred green products.	0.726	0.713
Social media marketing activities	AVE=0.631 CR=0.895 α =0.719	AVE=0.601 CR=0.882 α =0.707
The social media content of my preferred green product is very interesting.	0.803	0.733
Conversations or exchanges of opinions with other users are possible on the social media of my preferred green product.	0.886	0.876
On the social media of my preferred green product, there is the possibility to search for the information I need.	0.781	0.687
The social media of my preferred green product offers the latest and most current information.	0.682	0.700
I like to pass information about the products or services of my preferred green product to my friends.	0.807	0.860
Attitudes towards green products	AVE=0.529 CR=0.770 α =0.766	AVE=0.594 CR=0.814 α =0.779
I am willing to make a special effort to buy preferred green products.	0.727	0.730
I prefer green products over other products, if they are of similar quality.	0.764	0.764
I prefer green products over other products, even when their price is slightly higher.	0.688	0.816
Intention to buy a green product	AVE=0.623 CR=0.768 α =0.773	AVE=0.744 CR=0.853 α =0.853
I would like to buy a preferred green product.	0.778	0.875
I would like to recommend my preferred green product to others.	0.801	0.850

Table 3: Confirmatory factor analysis (CFA)
(Source: Authors' research)

Table 4 presents the results of hypothesis testing. In the case of local green products, the variable that has a statistically significant impact on purchase attitudes is customer experience on social media, which indicates that hypothesis H1 ($\beta=0.499$, $p<0.001$) is confirmed. Conversely, social media marketing activities were not confirmed as predictors of attitudes regarding the purchase of green products, so hypothesis H2 ($\beta=0.144$, p -not significant), was not confirmed.

When it comes to green products of global companies operating in the Republic of Serbia, both customer experience on social media ($\beta=0.484$, $p<0.001$) and social media marketing activities ($\beta=0.274$, $p<0.001$) have a positive and strong influence on consumer attitudes towards green products. This indicates that both hypotheses H1 and H2 were supported, in the case of global green products.

Hypotheses		Local green products	Hypothesis testing	Global green products	Hypothesis testing
H1:	Customer experience on social media → Attitudes toward green products	0.499***	Supported	0.484***	Supported
H2:	Social media marketing activities → Attitudes towards green products	0.144 ^{ns}	Not supported	0.274**	Supported
H3:	Attitudes towards green products → Intention to buy a green product	0.872***	Supported	0.837***	Supported

Note: * $p<0.1$; ** $p<0.05$; *** $p<0.001$, ns- not significant

*Table 4: SEM analysis
(Source: Authors' research)*

Finally, attitudes towards both local and global green products have very strong and positive influence on consumers' intentions to buy these products. These results indicate that hypothesis H3 is supported in both cases, which justifies the use of the Theory of Reasoned Action in this research model. The research results indicate that customer experience on social media is a better predictor of consumer attitudes towards green products, than the social media marketing activities of companies. This implies that the way people feel, their sensory reactions, curiosity, activities, and other experiential reactions due to social media of green products, have a significant influence on their attitudes about these products. Such results indicate that companies, both local and global, should consider how their online social media posts affects consumers, from this perspective. These results correspond to results of previous studies (Chen & Lin, 2015; Wibowo et al, 2020), in which authors confirmed customer experience on social media as a significant predictor of consumer behavior towards green products. On the other hand, social media marketing activities have a statistically significant impact on consumer attitudes, only in the case of global green products. Similar results have been found in previous studies (Gupta & Syed, 2022; Wang et al, 2019; Kim & Ko, 2012). It is clear that global companies, due to more available resources and experience related to the promotion of green products, have better communication with consumers regarding these products. Also, these results indicate that local companies do not use social media sufficiently to promote green products or not in the right way, like global companies operating in Serbia. It signals the need for local companies to improve the way of communication or the content of social media messages, so that this type of marketing activity has a positive effect on the attitudes of consumers towards buying green products.

6. CONCLUSION

This research focused on the impact of customer experience on social media and social media marketing activities on consumer behavior regarding green products of local and global companies in the Republic of Serbia. The results of the empirical research are important from a theoretical, and especially a practical point of view, given that they provide insight into the antecedents that consumers perceive as significant when it comes to the promotion of green products through social media. This research has provided several important findings. First, it has been proven that consumers' experience on social media is an important predictor of the

attitudes they form about green products. This result was obtained both in the case of local and global green products. Furthermore, companies' activities on social media have a statistically significant influence on attitudes about global green products, but not in the case of local ones. In general, these research results indicate that customer experience on social media is a better predictor of consumer attitudes towards green products, than the social media marketing activities of companies. However, local companies should consider different aspects of their marketing activities on social media, such as trendiness, entertainment or interaction with consumers, in order to improve these activities and improve their impact on consumers' attitudes about green products. The limitations of this research are primarily reflected in the fact that the research was conducted on the territory of Kragujevac and Central Serbia, which may reduce the generalization and applicability of the results in other countries. Future research could include participants from different countries. Also, the research focused on green products in a general sense. In subsequent research, different types of green products, such as food, clothing, or cosmetic products, can be analyzed to obtain specific results for different industries. Also, it can be useful to analyze statistically significant differences in terms of different demographic groups, when it comes to the behavior of consumers regarding the purchase of green products. Finally, further studies may include additional variables in the analysis, independent or moderator, such as greenwashing, to provide a deeper understanding of how consumers perceive marketing activities on social media and their importance for purchasing green products.

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EDICTUM DIOCLETIANI DE PRETIIS: PRICE CONTROL AS (IN)EFFECTIVE MEASURE TO COMBAT INFLATION

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ABSTRACT

The aim of this paper is to analyze Diocletian's Edictum de Pretiis Rerum Venalium, issued in 301 AD, by placing the solutions of this Edict in a contemporary context. The first part of the paper focuses on the historical context and motives behind the issuance of the Edict on Prices, as well as the legal solutions, namely price restrictions, set forth with the aim of reducing inflation and assessing the success or failure in achieving this goal. The second part of the paper analyzes contemporary and recent economic policies of the Republic of Croatia and decisions of the Government of the Republic of Croatia regarding the price controls of certain products, drawing parallels between Diocletian's methods and contemporary methods of attempting to combat inflation and evaluating the (in)effectiveness of such measures through the prism of the timeless maxim historia est magistra vitae.

Keywords: *Diocletian, Edict on Prices, Inflation, Price Control, Roman law, Croatian law*

*„EU limit on bankers' bonuses is possibly the most deluded measure to come from Europe since Diocletian tried to fix the price of groceries across the Roman Empire".
Boris Johnson¹*

1. INTRODUCTION

Diocletian was a Roman Emperor from 284 to 305 A.D. His rise to power was marked by a very unfavorable economic situation. Following the reforms of Augustus and Severus, Diocletian introduced a new monetary system. The development of this system confronted contemporary rulers with numerous challenges, the primary one being the disparity among minted coins, which had limited utility in Roman times. Initially, money was used for the exchange of goods, but over time, its usage became more frequent, leading to a significant increase in prices (Wassing, 1991, p. 465-493). During his absolutist reign, the Roman Emperor Diocletian implemented numerous reforms² aimed at consolidating the Empire both economically and politically. The significance of these reforms is particularly evident in the areas of finance and the tax system. For instance, changes were made to the monetary system, and the privileged status concerning tax payments was abolished, resulting in even the inhabitants of Rome being required to pay taxes. The monetary reform not only contributed to the stability of the state and the security of its borders but also led to the issuance of the *Edictum de pretiis rerum venalium*, which set price caps on essential goods and services.

¹ Boris Johnson, a British politician who served as the Mayor of London from 2008 to 2016, made this statement in February 2013 during his tenure as Mayor. Source: <https://www.independent.co.uk/news/world/europe/the-most-deluded-measure-to-come-from-europe-since-fixing-the-price-of-groceries-in-the-roman-empire-boris-johnson-attacks-eu-banker-bonus-cap-8514072.html> (visited 2.6.2024.)

² In addition to tax reforms and monetary system reforms, Diocletian also implemented construction reforms, particularly for the establishment of numerous factories, bridges, and roads. Concurrently, there was a reorganization of the military and modifications to the administration.

A similar situation regarding the occurrence of inflation is evident in the present day in Croatia and similar measures are being introduced by Croatian government. At the end of 2022 and the beginning of 2023, there was a trend of rising prices in Croatia, with one of the main causes being the introduction of a new currency (CNB, 2024). Other causes of inflation include the conflicts in Ukraine and the Middle East, as well as climate change. These factors have also led to a crisis, resulting in an increase in prices within the economic system. Similar to Diocletian and his monetary reforms, the Government of Croatia is also undertaking reforms to combat inflation. However, unlike Diocletian's Edict, the government has sought to mitigate price increases by implementing a package of measures aimed at controlling the prices of energy and essential goods. On January 1, 2023, Croatia joined the Eurozone, replacing the Croatian kuna with the euro. This transition aimed to ensure greater financial security and improve the standard of living for its citizens. However, the introduction of the euro led to an increase in the prices of certain services beyond usual levels, despite the prohibition of any price hikes related to the currency transition (ECB, 2023). Although preparations for the transition from the kuna to the euro were carried out smoothly and according to plan, the introduction of the euro occurred amidst high inflation.³ In light of all the above, the first part of this article examines Diocletian's methods for combating inflation, while the second part compares these methods with those of the Croatian government, analyzing their potential effectiveness and achievement of desired outcomes.

2. DIOCLETIAN'S MEASURES TO COMBAT INFLATION

If we open a modern dictionary, we will find the definition of inflation as the process of continuous price increases, or the continuous decrease in the value of money due to an economic imbalance caused by an increase in the circulation of money relative to a small amount of goods and services (Anić, 2003). During the first three centuries A.D., it is postulated that governmental deficits in the Roman Empire contributed to expansions in the money supply through the debasement of silver coinage. At that time, the Roman Empire spanned across the Mediterranean and large parts of southeastern and western Europe. However, unlike the relative calm of the first and second centuries A.D., its eastern and northern borders faced significant external threats. Internal political instability worsened the situation, marked by twenty-six emperors and numerous claimants from the end of the Severan dynasty in A.D. 235 to Diocletian's accession in A.D. 284 (Wassink, 1991).⁴ Government changes, foreign invasions, and separatist movements disrupted economic life, affecting production and trade, while fiscal and administrative systems destabilized. To fund armies and deficits, policymakers and contenders for power debased currency,⁵ allowing more goods and services to be exchanged for a given weight of silver (Prodromos, 2009, p. 586). Diocletian implemented measures to ensure internal stability, security, and enhance domestic production, likely fostering economic growth and enabling it to operate at its full capacity. Therefore, one might anticipate a period of increasing total output until stabilization occurred.

³ Report on the introduction of the euro in Croatia is available at <https://euro.hr/izvjesce-o-uvodenju-eura-u-hrvatskoj/> (visited 20.5.2024.)

⁴ Each ruler faced numerous challenges of their time, addressing them in various ways. For instance, Augustus implemented policies that provided employment opportunities for many unemployed citizens, which in turn created numerous possibilities, one of which was the introduction of monetary taxation. The era of Augustus' rule resulted in the improvement of the monetary system and substantial savings. Therefore, it is not surprising that Nero modeled his rule after Augustus, attempting to emulate his policies by devaluing currency, which contributed to a price decrease of up to 15% compared to Augustus' reign. In contrast, the reign of Marcus Aurelius was not as successful as that of his predecessors. During his rule, the empire faced a Barbarian invasion that led to a significant decline in population numbers. Concurrently, there was also a decline in the price of silver during the same period.

⁵ Numerous rulers attempted to improve the situation at that time, among them Septimius Severus. Following the examples of Augustus and Nero, he reorganized the monetary system of the era. However, his reforms did not bring him acclaim, similar to Caracalla, who aimed to replace old currency with new. Aurelian, inspired by the Gresham's Law, issued entirely new minted currency in an effort to restore public credit, but due to his short-lived rule, this system also failed to endure.

Additionally, he undertook costly reforms focused on defense and administration (Prodromos, 2009, p. 586). During his reign Emperor Diocletian sought to reestablish trust in the currency by minting high-quality gold and silver coins. Nonetheless, he simultaneously introduced a substantial amount of bronze coins, which augmented the overall money supply. In 301, Diocletian reportedly issued a Currency Edict, effective from September 1st, which doubled the face value of silver and copper coins (Whittaker, 1980; Prodromos, 2009, p. 587). During Diocletian's reign, prices were 50-70 times higher than during the time of his predecessors, raising the question of how Diocletian's rule differed from that of his predecessors and what he did differently to cause such a significant increase in prices (Wassink, 1991). Since there was a persistent issue of rising prices, he attempted to address it by introducing a tax on goods. He implemented a simplified taxation system based on collective responsibility (Kirchberger, 1942, p. 621-636). Prices exceeded limits and were not adjusted for the population, making it unprofitable for workers to cultivate land, forcing them to seek other jobs. This led to numerous migrations, social changes, and a significant increase in slavery (Prantl, 2011). Such a taxation system resulted in an assault on already vulnerable individuals and was considered the primary cause of social and economic decline, as well as the complete breakdown and disorganization of the state. Therefore, it was denounced as a system of "organized theft" (Kirchberger, 1942). This entire monetary policy led to an estimated annual inflation rate of 4% to 5%. "The inflation reached such heights that contracting partners had to reckon with around 100% inflation between making of the contract and the payment of the purchase price." (Prodromos, 2009, p. 567). The inflation in Roman Empire was described as rapid, massive, severe and staggering. As a consequence of inflation, which caused numerous problems for him both economically and financially, between November 20th and December 10th, 301 AD, Diocletian issued an edict known as the *Edictum de Pretiis Rerum Venalium*,⁶ which established maximum prices for over 900 goods and services sold in the market. This included various products, raw materials, slaves, animals, human labor, and intellectual services such as medical and legal services (Zimmerman, 1996, p. 260). This marked the first instance in Roman Empire history when a comprehensive pricing system was introduced (Hontvari, 2022, p. 67). The Edict was highly detailed and served as one of the most significant sources of economic policy. It was divided into sections and consisted of two parts. The first part, the preamble (*praefatio*), was very complex and written in Latin. It outlined the cause and purpose of the Edict.⁷ The second part comprised 37 sections, setting maximum prices for products such as food, cosmetics, clothing, and also capping wages (Prantl, 2011). However, we must also mention the most significant outcome regulated by the Edict, which was the value of gold (Michell, 1947). The establishment of maximum prices primarily aimed to benefit consumers and was grounded in social and moral values (Lewit, 1987). Diocletian begins the Edict stating that prices of certain goods on the market exceed their real value by up to eight times, a consequence of inflation.⁸

⁶ It is often referred to as the *Edictum Diocletiani de pretiis*, or Diocletian's Edict on Prices. The original title of this Edict is not known and the title *Edictum de pretiis rerum venalium* comes from Lactantius's work *De mortibus persecutorum*, which translated in English means On the Deaths of the Persecutors (Sukačić, 2017, p. 112).

⁷ *Etenim si ea, quibus nullo sibi fine proposito ardet avaritia desaeuens, quae sine respectu generis humani, non annis modo vel mensibus aut diebus, sed paene horis ipsisque momentis ad incrementa sui et augmenta festinat, aliqua continentiae ratio frenaret, vel si fortunae communis aequ[o] animo perpeti possent hanc debachandi licentiam, qua pessime in dies eiusmodi sorte lacerantur, dissimulandi forsitan adque reticendi relictus locus videretur, cum detestandam inhumanitatem condicionemque miserandam communis animorum patientia temperaret.* Source: https://droitromain.univ-grenoble-alpes.fr/Constitutiones/maximum_CIL.html (visited 5.6.2024.) Furthermore, in the praefatio of the Edict it is said that the maximum prices are effective in *totius orbis nostril*, that is in both western and eastern parts of the Empire but we have evidence of its existence only in the eastern parts (Sukačić, 2017, p. 112).

⁸ The causes of inflation were complex – the state's administrative and military apparatus was highly demanding, inevitably leading to high taxes. Simultaneously, decades of military anarchy took their toll. The system was stretched to its limits and difficult to control. The Edict on Prices viewed inflation from an economic perspective but also as a societal problem, revealing the emperor's sensitivity to socially vulnerable groups. Diocletian attributed the disparity between prices and the value of goods to the greed of traders (Boko, 2016, p.145-146).

To halt the escalation of this evident disparity between the value of goods and their prices,⁹ he decided to establish maximum prices for essential products and services. The Edict also included provisions for strict penalties¹⁰ against those who did not adhere to its provisions, targeting both buyers and sellers, including those intentionally withholding goods from sale (Petrak, 2016, p. 104). Although it prescribed the death penalty as a sanction for violations, the Edict did not include nullification of contracts that breached these provisions. Therefore, we can consider it a type of sanction known as *lex minus quam perfecta*, as violations did not render the act itself unlawful (Hontvari, 2022, p. 68). His main goal was to create control over the inflation and to establish a fairer system in which, besides regulating prices and tariffs, the influence of the black market would be completely reduced (Michell, 1947). The daily changes in the monetary system, along with unstable policies, led to a complete collapse of the economic system, demonstrating that the Edict was unsuccessful in price formation and inadequate as a measure to balance and reform the economic system, despite a long tradition of price limitation and control (Lewit, 1987). Some criticize its failure due to its oversimplicity and strictness, while others argue that its inability to distinguish between different prices was the primary reason for its downfall. Conversely, Diocletian's Edict effectively constrained prices and significantly restructured the monetary system (Michell, 1947). The Edict did not fix prices but rather set their maximum values, which soon had the opposite effect of what was desired, leading to goods being withdrawn from the market and the emergence of a black market. Instead of helping to create a fairer state, the Edict caused chaos (Boko, 2016, p. 148-149). Romanists generally agree that these measures did not achieve the desired success or fulfill the purpose for which they were introduced. This Edict is often considered a "classic example of inadequate direct and intensive intervention of public authority into market freedoms" (Petrak, 2016, p. 104). The Edict is closely intertwined with the monetary system; without this connection, its full comprehension would be impossible. Questions concerning the value of money and price regulation were significant concerns for the ruler of that era, and these issues resonate clearly in today's context (Michell, 1947). It served as a clear negative example of state intervention in market price controls, contrasting with the principles of *laesio enormis* that have become integral to modern civil law systems. The negative social and economic impacts of the Edict underscore the dangers of state intervention in private contractual relations, especially when it disregards real economic processes and actual market prices (Hontvari, 2022, p. 68). By restricting the freedom of contracting parties in certain product and service categories, the Edict contributed to market disruption and the proliferation of black markets.

⁹ The issue of fair and just price (*pretium iustum*) in Roman law has been frequently analyzed. In classical law, the price did not necessarily have to correspond to the true value of the object, and contracting parties had the freedom to negotiate the price and, according to their bargaining abilities, obtain the greatest benefit from the contract. Therefore, the principle of free negotiation prevailed in classical Roman law, and the amount of the price did not have to correspond to the true value of the object but was left to the discretion of the parties, as confirmed by the passage from Paulus: D.19.2.22.3 (*Paulus trigesimo quarto ad edictum*): *Quemadmodum in emendo et vendendo naturaliter concessum est quod pluri sit minoris emere, quod minoris sit pluri vendere et ita invicem se circumscribere, ita in locationibus quoque et conductionibus iuris est*. It is believed that in the post-classical era, influenced by Christian ethical principles, the concept of *pretium iustum* (fair price) developed, with three constitutions originating from the time of Diocletian in which the state influenced price regulation. In addition to the aforementioned *Edictum Diocletiani de pretiis*, the rescripts C.4.44.2 and C.4.44.8 are also significant for defining the concept of *pretium iustum*. However, it is generally accepted that Justinian introduced the rule known as *laesio enormis*, or excessive loss, under which there was a possibility to annul real estate purchase contracts if the buyer later discovered that the price was half of the true value of the property. The motivation behind introducing such a rule likely stemmed from the desire to protect small landowners from powerful merchants and fraud. In this instance, although there was a partial restriction on free negotiation, it still allowed contracting parties sufficient flexibility to agree on prices that could exceed half of the actual market value, a practice that the Edict sought to significantly curtail in certain cases. (Romic, 2007, p. 353).

¹⁰ The Edict prescribes the death penalty as a sanction, which is evident from its preamble itself: *Audentia, capitali periculo subiugetur*. Source: https://droitromain.univ-grenoble-alpes.fr/Constitutiones/maximum_CIL.html

3. MEASURES OF THE CROATIAN GOVERNMENT TO COMBAT INFLATION

Recently, inflation has been one of the main economic topics in Europe, including Croatia. The Croatian National Bank's Council identified inflation, along with geopolitical uncertainty, slowing global economic activity, and rising financing costs, as the main risks to financial stability in Croatia. The current inflation primarily emerged as a result of external shocks, such as COVID-19 crisis and the war in Ukraine. Additionally, in Croatia, the current situation has been significantly influenced by the earthquakes in 2020 as well as the entry into the euro area on January 1, 2023 (Biondić, 2023, p. 2). Inflation occurs when the average level of prices for goods and services rises within a country, leading to an imbalance in the domestic economy.¹¹ As inflation was very high during Diocletian's introduction of the new monetary system, similarly in Croatia, according to data from the Croatian Bureau of Statistics, the annual inflation rate in January 2024 was 4.8%, while the average inflation rate in the entire eurozone at the same time was 2.8% (Ius-Info, 2024). Some of the main causes of inflation include wage increases outpacing labor productivity, rising costs of materials and raw materials, increasing money supply, depreciation of the domestic currency against foreign currencies, and monetary policy regulations. These causes are also present in Croatia. Central banks and national governments have several tools at their disposal to try to halt or slow down inflation. The central bank conducts the country's monetary policy, and the most common tools of central banks include increasing interest rates, open market operations, and adjusting reserve requirements. National governments, on the other hand, utilize fiscal policy tools like cutting government spending or raising taxes to reduce aggregate demand in the economy and mitigate inflationary pressures. Additionally, governments can implement measures to enhance the efficiency of public spending and decrease budget deficits, which can positively influence inflation levels. In cases where none of the previously mentioned measures work, the government of a country can implement direct controls on wages and prices. This includes setting limits on how much wages or prices can increase. While such measures can temporarily control inflation, they often come with unintended consequences, such as supply shortages or reduced investments (Biondić, 2023, p. 6-8). The Croatian government has implemented several price control measures in recent years to protect consumers from sudden increases in the prices of essential goods and services. These measures were particularly prominent during the COVID-19 pandemic, when the prices of basic food items, fuel, and other essential supplies were temporarily restricted. Additionally, amid rising inflation in 2022 and 2023, the government introduced further measures to control the prices of energy sources such as gas and electricity, as well as certain food products. The Croatian government has implemented several price control measures in recent years to protect consumers from sudden increases in the prices of essential goods and services. These measures were particularly prominent during the COVID-19 pandemic, when the prices of basic food items, fuel, and other essential supplies were temporarily restricted. Additionally, amid rising inflation in 2022 and 2023, the government introduced further measures to control the prices of energy sources such as gas and electricity, as well as certain food products. Direct price control measures are exceptionally prescribed to prevent the negative effects of price changes or to prevent monopolistic price setting when these objectives cannot be achieved through other economic policy measures. This issue is specifically regulated by the Law on Exceptional Measures of Price Control,¹² which was particularly relevant during the coronavirus epidemic. The Law on Extraordinary Measures of Price Control regulates measures in the field of price control and the implementation thereof.

¹¹ Contrary to that, there are also some benefits of inflation. These include, for example, wage improvements and negative real interest rates. As a result of inflation, there can also be increased productivity and economic growth for the country. The Croatian National Bank identifies price stability as the primary goal of monetary policy, which is crucial for achieving economic growth (Mlinaček, 2023).

¹² Law on Exceptional Measures of Price Control - Zakon o iznimnim mjerama kontrole cijena, The Official Gazette, n. 73/97., 128/99., 66/01.

These measures are direct and include setting maximum price levels, reducing prices to a specified level, and submitting price lists or tariffs before their implementation, all aimed at preventing the adverse effects of price changes or preventing monopolistic price setting. Interestingly, according to the Law on Extraordinary Measures of Price Control, such direct and strong intervention in the free market is permitted only “exceptionally” and when “preventing the negative effects of price changes” or “preventing monopolistic price setting” “cannot be achieved by other economic policy measures”. From this fact that the decision was made, it can be inferred that the Government has taken the view that, during the general crisis caused by the pandemic, the current system of market competition is not sufficient to maintain adequate price levels, or such a system is not optimal in times of such extraordinary circumstances. Although these measures may conflict with the principles of market competition and market freedom, they are often justified as necessary in exceptional circumstances to protect consumers from extreme price shocks and maintain social stability. In the long term, it is important for the government to find a balance between consumer protection and preserving market principles, and to gradually lift restrictions as soon as the situation stabilizes. The Croatian government introduced the first package of measures during the COVID-19 crisis to aid citizens in March,¹³ and the second in September 2020 as a complement to measures introduced within the first package. The third package of measures was adopted in September 2022 due to the energy crisis and rising prices caused by Russian aggression against Ukraine, along with severe climate changes such as record droughts and devastating floods, which also contributed to the increase in food and energy prices. Furthermore, China's closure as the world's second-largest economy due to the pandemic slowed its production and disrupted global trade flows, resulting in increased imbalance between high demand and inadequate supply. In 2023, new two packages of measures were introduced in April and September, continuing the regulation of electricity and gas prices for the next year and imposing price controls on 30 essential products. Additionally, part of the fourth package of measures includes the recapitalization of Croatian Electric Power Company (HEP) worth 900 million euros aimed at securing energy supply, including a shareholder loan worth 400 million euros. The fifth package of measures highlights one-time compensations for 720 thousand retirees totaling 72 million euros. On March 14, 2024, the Government presented the sixth package of measures worth 503 million euros. Its priorities include maintaining low energy prices to protect against inflation and providing support for 830 thousand retirees who belong to the most vulnerable group affected most by inflation on their income.

¹³ The Government of the Republic of Croatia, based on Article 6 of the Law, adopted a Decision on Exceptional Price Control Measures for Certain Products, The Official Gazette, n. 30/20, (hereinafter referred to as the Decision), which entered into force on March 16, 2020. This Decision regulates exceptional price control measures for certain products to prevent the negative effects of price changes or monopolistic price setting of these products, following the Minister of Health's declaration of the COVID-19 disease epidemic caused by the SARS-CoV-2 virus on March 11, 2020, thereby ensuring the protection of health and lives of people in the Republic of Croatia.

The products covered by this Decision include: flour, milk and powdered milk, eggs, sugar, salt, rice, pasta, fresh meat, fish, fruits and vegetables, canned meat, canned fish, edible oil, baby food, baby diapers, drinking water, laundry detergent, dishwashing detergent, soap, water disinfection agents for space and hands (including concentrated alcohol), protective suits and other protective and medical clothing and footwear, protective goggles and visors, protective gloves, protective shoe covers, surgical masks, FFP2 masks, FFP3 masks, respirators/transport ventilators, medicines, and medical supplies, bedding and other linens for the healthcare system (Section II). In accordance with Article 5, paragraphs 1 and 2 of the Law on Exceptional Price Control Measures, under this Decision, the highest price is considered to be the price as of January 30, 2020, except in cases where the price increase of the product occurred solely due to the increased procurement cost of the products listed in Section II of this Decision, regardless of the will of the economic operator (paragraph 2). Finally, it is important to emphasize that according to the penalty provisions of Article 14 of the Law, a legal or natural person shall be fined with a monetary penalty ranging from fivefold to twentyfold of the amount charged above the prescribed prices (Article 5). The content of this Decision clearly indicates that it primarily applies to food products and protective equipment essential for the healthcare system, which is appropriate given the extraordinary situation of the epidemic outbreak of infectious disease. For a responsible person within a legal entity, a monetary penalty ranging from 3,000 to 15,000 Croatian kuna is prescribed (Kudrić, 2020).

Regarding purchasing power, as one of the elements of inflation, it has decreased due to price hikes by retailers, resulting in what is termed as extortionate prices. Although, one of the goals was also to combat inflation, despite these measures, inflation remains present.¹⁴ The measures taken by the Croatian government, as well as the motives behind them, show an incredible similarity to Diocletian's motives for issuing the Edict on Maximum Prices and the measures he implemented in an attempt to combat rising inflation.

4. CONCLUSION

Following the analysis, we can conclude that Diocletian's *Edictum de Pretiis Rerum Venalium* and the measures implemented by the Croatian government to cap the prices of energy sources and certain products share notable similarities in terms of their purpose, methods, and effects. Both sets of measures were introduced to combat inflation and stabilize the state amidst economic uncertainty and rising prices. Additionally, in both cases, the goal was to protect socially vulnerable groups within society. Furthermore, in both cases, state intervention entailed implementing mandatory regulations to intervene in market mechanisms that are typically self-regulated through contractual relationships. This included the introduction of price caps, thereby shifting price-setting away from market mechanisms and placing it under state control. These measures, implemented both in the Roman Empire and in the Republic of Croatia, did not succeed as long-term solutions against inflation due to their inability to withstand market pressures. While Diocletian's Edict on Prices was part of a broader set of reforms aimed at stabilizing the Empire, the measures by the Croatian government address specific economic challenges arising from global and local factors. It is evident that fundamental economic principles and challenges have persisted through history, despite varying historical and societal contexts. From a historical perspective, it has become evident over time that Diocletian's reforms in wages and prices were ultimately unsuccessful (Schiming, 1979). However, viewed through an economic lens, the Edict remains instructive compared to some contemporary regulations. Despite the significant differences in economic structures between that era and today, the Roman Empire operated within a market economy framework similar to other advanced agrarian societies (Temin, 2006). Diocletian's efforts to address inflation and price increases fell short of their goals, highlighting the limitations of state intervention through price controls and monetary policies. This historical failure prompts renewed scrutiny of the effectiveness of such interventions in regulating prices and shaping economic stability. Similarly, the measures implemented by the Croatian government, though well-intentioned, have not yielded significant success, mirroring historical challenges in addressing economic issues through regulatory means. The repercussions of these decisions and the ongoing efforts to stabilize the Croatian Electric Power Company remain uncertain. In conclusion, restricting and setting price limits as a strategy to combat inflation proves ineffective in the long run. Cicero's adage resonates: *Historia est testis temporum, lux veritatis, vita memoriae, magistra vitae, nuntia vetustatis* – history is the witness of times, the light of truth, the life of memory, the teacher of life, and the herald of antiquity. It underscores the importance of learning from historical lessons, as similar approaches under comparable circumstances are unlikely to yield different outcomes.

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¹⁴ Source: <https://vlada.gov.hr/vijesti/prioriteti-novog-paketa-mjera-vrijednog-503-milijuna-eura-su-zadržati-nisku-cijenu-energenata-i-stititi-od-inflacije/42116?lang=hr> (visited: 25.5.2024.)

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RENEWABLE ENERGY SOURCES AND THEIR POTENTIAL

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ABSTRACT

Renewable energy sources are becoming the only alternative to today's dirty energy sources that have already polluted the world. Clean energy is created from natural sources that are renewed in infinity, in contrast to thermal power plants, hydroelectric power plants, and other sources of energy production, which with their processes create high emissions of carbon and other gases and, by changing the natural environment, contribute to a large pollution of the air and the environment and thus directly affect to global changes such as the warming of the planet earth. Fossil fuels generate emissions of greenhouse gases such as carbon dioxide. Renewable energy sources are sun, wind, water, geothermal sources, ocean currents, etc. The main goal of this paper is to examine renewable energy sources now and in the future and their application in the Republic of Croatia and the European Union.

Keywords: renewable sources, solar energy, wind energy, geothermal sources, dirty energy

1. INTRODUCTION

Today, renewable energy sources represent a sustainable way of functioning for society, community, companies, and even the entire economy. Without energy, it is impossible to carry out business processes, and it is necessary for the normal functioning of the whole economy of a country. Today, apart from the so-called traditional energy sources, we meet with renewable energy sources that develop the energy sector to create and prevent negative economic activities on the environment and the entire economy. Renewable energy sources are today a prerequisite for sustainability and a sustainable way of doing business, but also for creating a sustainable competitive advantage. To strengthen joint efforts in the fight against climate change, the Republic of Croatia and the entire European Union (EU) strive for sustainable ways of doing business and living, so renewable energy sources are one of the key tasks and goals of the entire EU to reduce environmental pollution. Climate change and environmental destruction are a major threat to the Republic of Croatia, the EU as a whole, and the entire world. The green and circular economy and sustainable development represent a great opportunity for all stakeholders in the economy, and renewable energy sources represent one of the key factors for achieving it. The need for greater energy diversity and security came to the fore caused of the Ukrainian crisis and the consequent increase in oil and gas prices. The Republic of Croatia is making great efforts to ensure and achieve an ever-increasing supply of sustainable energy, which is also evident through the increased use of wind and sun. The European Green Plan aims to make Europe climate-neutral by 2050., boost the economy with green technology, create sustainable industry and transport, and reduce pollution. Along with the European Green Plan, it aims to achieve 17 sustainable development goals by 2030. to protect people's lives and protect the planet from pollution.

2. RENEWABLE ENERGY SOURCES

Renewable energy sources are the kinetic energy of the wind (wind energy), solar energy, biomass, the thermal energy of the Earth's interior and hot springs (geothermal energy), potential energy of water flows (water power), potential energy of tides and sea waves, thermal energy of the sea. The Croatian Energy Act defines renewable energy sources as "energy sources that are preserved in nature and are renewed in whole or in part, especially water flow energy, wind energy, non-accumulated solar energy, biodiesel, biomass, biogas, geothermal

energy, etc." (NN 120/ 12, 14/14, 95/15, 102/15, 68/18). As a member of the EU, the Republic of Croatia is committed to accepting the European climate and energy package, which also includes Directive 2009/28/EZ on encouraging the use of energy from renewable sources. In addition to the European climate and energy package and Directive 2009/28/EZ, the Republic of Croatia also has its own strategy "Strategy of energy development of Croatia until 2030 with a view to the year 2050" (Narodne novine No. 25/2020) which aims to increase the share of energy production from renewable sources, greater energy efficiency and reduction of greenhouse gas emissions. This strategy represents the transition of the Croatian energy sector and alignment with global requirements in the context of mitigating climate change. In the new legislative framework that defines the movement of the energy market from renewable sources, each member state is obliged to describe its plan for decarbonization and defossilization of the energy sector (Ekonomski institut Zagreb, 2022). "In 2021, the Law on Renewable Energy Sources and High-Efficiency Cogeneration (Narodne novine 138/21) was issued, which regulates the framework for promoting the use of renewable energy in a sustainable manner and provides the basis for the development of the market for renewable energy sources" (Ekonomski institut Zagreb, 2022:8). By the legislative framework and EU Directives, the Republic of Croatia managed to achieve and records 31.33% of energy from renewable sources in the gross final consumption, while in the total consumption of energy from renewable sources the share of electricity was 53.47%, the share of heating and cooling 38.03% and the share of energy from renewable sources in traffic 6.98% (Ekonomski institut Zagreb, 2022). The support and use of renewable energy sources affect the economy and create business opportunities through the creation of a positive net effect on the economy and positive effects on net employment (Blazejczak et al., 2014). Likewise, research conducted by the author Bhattacharya et al. (2014) shows that the consumption of renewable energy sources has a significant positive effect on economic production. These are just some of the advantages of renewable energy sources visible through economic growth and development and the creation of new jobs and new business opportunities. The authors Moriarty and Honnery (2012) define in their research that the global transition to renewable energy sources will be accompanied by a large reduction in total energy consumption important for environmental sustainability. The production of little or even no waste is one of the main advantages of renewable energy sources, while more and more investments are being made in the technologies of renewable energy sources and their application (Maradin et al., 2017). The authors Moriarty and Honnery (2012) define in their research that the global transition to renewable energy sources will be accompanied by a large reduction in total energy consumption important for environmental sustainability. The production of little or even no waste is one of the main advantages of renewable energy sources, while more and more investments are being made in the technologies of renewable energy sources and their application (Maradin et al., 2017). Innovations that occur in the entire process of transformation of the energy system are an unavoidable part that greatly affects the improvement of the energy system, but also the gradual development of technologies of renewable energy sources.

3. GREEN TRANSITION AND GREEN ECONOMY

Considering the series and constant trend of negative effects on the environment, all this affects the further destruction of the environment, which significantly affects economic activity. The transition to a sustainable and efficient economy is the priority of the European Green Plan. The goal of EU member states is for their energy systems to become a fully integrated, digitalized, and competitive EU energy market based on renewable energy sources. Decisions related to sustainable development and green transition should ensure sustainable development of own resources, people, and knowledge, creation of new jobs, investment in sustainable and green investments and production.

Green economy and green growth focus on renewable energy, green buildings, clean transportation, water management, waste management, and land management. The goal of the green economy and green transition is above all to reduce harmful effects and risks for the environment and to achieve sustainable development with minimal or no environmental degradation. Green transition and green development are one of the main tasks of the Sustainable Development Goals (SDGs). They help to achieve concrete and measurable goals and create sustainable and green economic growth. Green Growth strategies adopted by OECD countries are looking for new ways of growth and development by reducing environmental pressure and achieving transition to new patterns of green growth (OECD, 2023). „The OECD framework for monitoring progress towards green growth includes indicators in four areas: (1) the environmental and resource productivity of the economy; (2) the natural asset base; (3) the environmental dimension of quality of life; and (4) economic opportunities and policy responses“ (OECD, 2023:11). As already mentioned, energy is a fundamental input for the realization and development of economic activity, and today it is largely one of the major polluters of air and the environment in general. The current energy system, based on fossil fuels, contributes to significant environmental pollution, therefore new and renewable sources of energy are needed to reduce pollution, as well as transformations in the way energy is produced and consumed. The key is to find ways of ecologically efficient transformations and energy consumption. To achieve the transformation and efficiency of the energy system, it is necessary to establish key policies to achieve a framework that should include pricing externalities; eliminating fossil-fuel subsidies; radically improving energy efficiency; and fostering green innovation (OECD, 2023).

4. ENERGY IN CROATIA AND EU

As already mentioned, the goal of the EU, and thus of the Republic of Croatia as its member, is a climate-neutral Europe by 2050. To achieve this, it is necessary to strive to reduce greenhouse gases and achieve and increase the resistance and independence of the energy system. To reduce greenhouse gas emissions and prevent climate change, in 2023. the Directive on Renewable Energy Sources, the so-called RED II, the purpose of which is to accelerate the transition to clean energy (Directive (EU) 2018/2001). According to the national regulations of the Republic of Croatia and regarding the reduction of climate change, the draft of the updated National Energy and Climate Plan from 2023. highlights the main goals, shares, and contributions of the Republic of Croatia to the common goals of the European Union (table 1).

Indicator	Goal 2030.
Reduction of greenhouse gas emissions for the Emissions Trading System (ETS sector), compared to 2005.	-50,2%
Reduction of greenhouse gas emissions for sectors outside the ETS, compared to 2005.	-16,7%
Share of renewable energy sources in gross direct energy consumption	42,5%
Share of renewable energy sources in direct energy consumption in transport	21.6%
Primary energy consumption (total energy consumption without non-energy consumption)	340.9 PJ
Direct energy consumption	274.2 PJ

Table 1. The most important goals of the National Energy and Climate Plan for the year 2030. for the Republic of Croatia

(Source: Ekonomski Institut, 2024-2, according to Integrirani nacionalni energetske i klimatski plan za Republiku Hrvatsku za razdoblje od 2021. do 2030. godine – nacrt)

In the Republic of Croatia in 2022, 14,220.5 GWh of electricity was produced, while 63.7% was produced from renewable energy sources, including large hydroelectric power plants. In the production of electricity in the Republic of Croatia, large hydropower plants participated with 38.4%, and 25.4% of electricity was produced from other renewable sources (wind energy, small hydropower plants, biomass, geothermal energy, biogas, and photovoltaic systems) (Energija u Hrvatskoj, 2022). Likewise, according to the energy efficiency index (ODEX) over the period 2000.- 2022., an improvement in energy efficiency for the entire economy in Croatia of about 20% was recorded (Energija u Hrvatskoj, 2022). According to currently available data regarding consumption and share of energy in "2022. the total share of energy from renewable sources in gross final energy consumption reached 23% at the EU level, which is about 1.1 percentage points more compared to the previous year" (Ekonomski institut, 2024-2:5, according to Eurostat 2023). In 2022., the Republic of Croatia achieved a 55.52% share of renewable energy in electricity production, 2.4% of renewable energy in transportation, and 37.21% in heating and cooling (Figure 1).

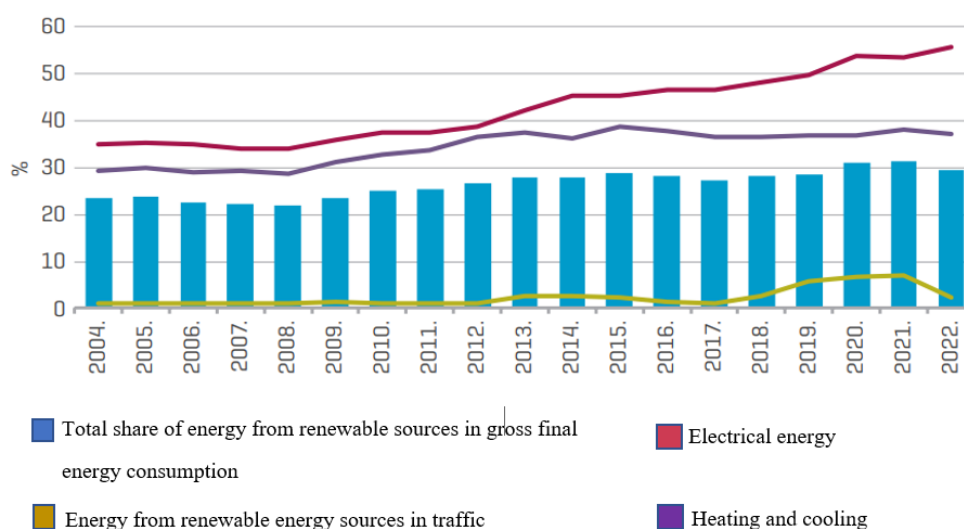


Figure 1. Shares of energy from renewable sources in gross final consumption in Croatia (2004 - 2022) and sub-sector shares
(Source: Ekonomski institut, 2024-2, according to Eurostat, SHARES summary results (2023))

Furthermore, regarding the structure of electrical energy produced from renewable sources in the Republic of Croatia in 2022, the largest share of 65.35% was hydropower, which also includes the production of electricity from large hydropower plants (Figure 2). (Ekonomski institut, 2024-2).

Figure following on the next page

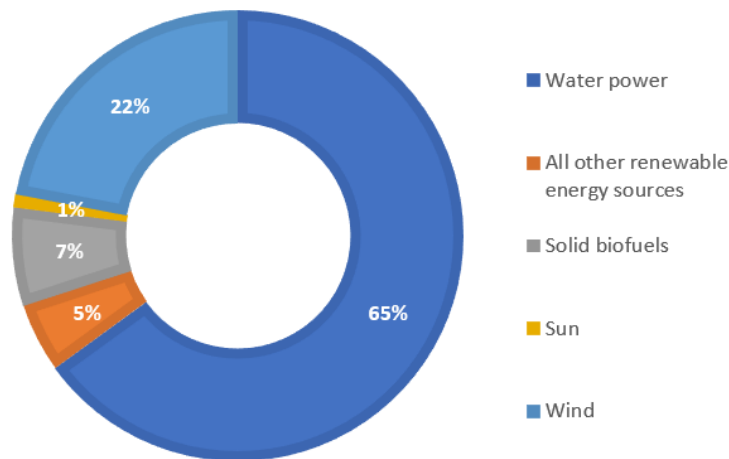


Figure 2. Structure of electrical energy produced from renewable sources in Croatia in 2022.
(Source: Ekonomski institut, 2024-2, according to Eurostat, SHARES summary results (2023))

In 2022., the Republic of Croatia achieved an increase in electrical energy production from renewable sources by 2.4% compared to 2021 (Figure 3) (Ekonomski Institut, 2024-2).

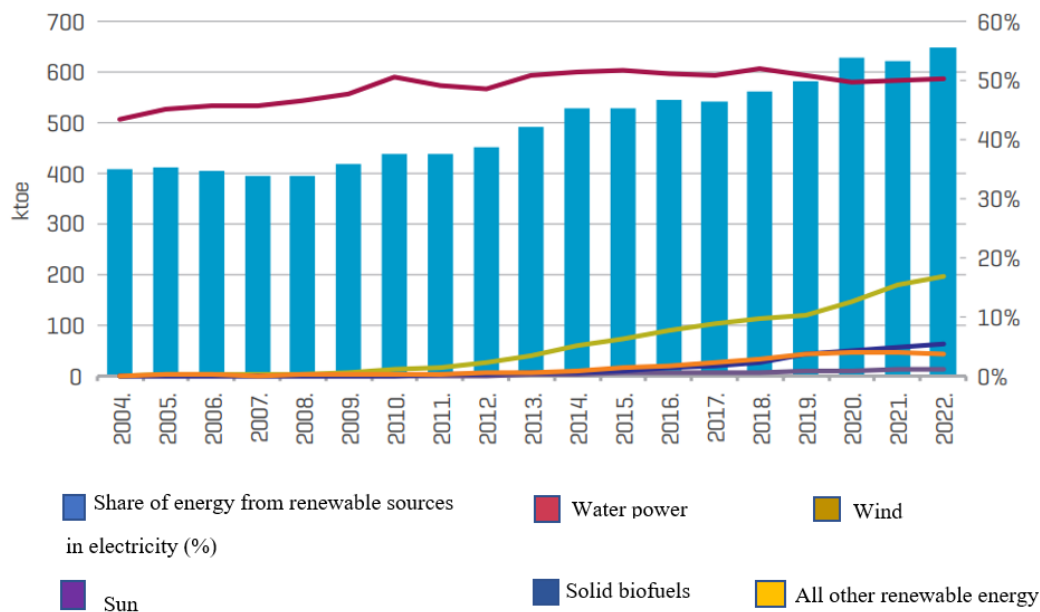


Figure 3. Trends in electricity production from renewable sources in Croatia in 2004-2022 and corresponding shares
(Source: Source: Ekonomski institut, 2024-2, according to Eurostat, SHARES summary results (2023))

Figure 4. shows the trend of reducing greenhouse gas emissions in the European Union, in the period from 2011. to 2022. amounted to -21 percent or -0.858 million tons of CO₂ equivalent (Ekonomski Institut, 2024-2).

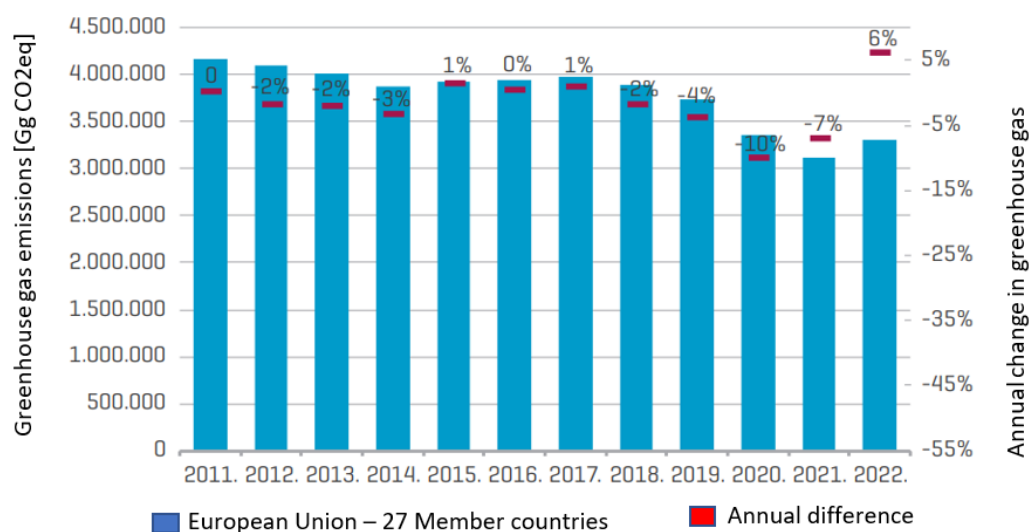


Figure 4. Trend of greenhouse gas emissions for the European Union for the year 2022
(Source: Ekonomski institut, 2024-2, according to EEA(2023))

Looking at sectors, the share of greenhouse gas emissions is shown in Figure 5.

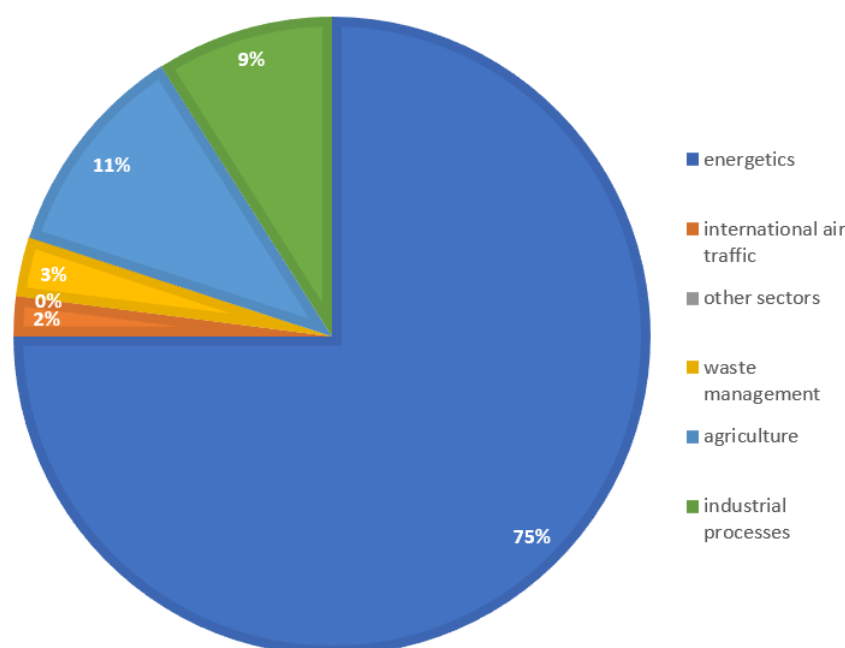


Figure 5. Shares of greenhouse gas emissions by sector in the European Union for 2022.
(Source: Ekonomski institut, 2024-2, according to EEA(2023))

Observing the share of renewable energy sources in the gross final consumption in 2022., only four member countries recorded a decrease, while 23 of them recorded an increase compared to 2021. "The largest shares of energy from renewable sources are recorded in Sweden (66%), Finland (47.1%), Latvia (43.3%), Denmark (41.6%), Estonia (38.5%), Portugal (34%) and Austria (33.4%). Other member countries have less than a third of the share of energy from renewable sources, and the smallest shares of energy from renewable sources are Ireland (13.1%), Malta (13.4%), and Bulgaria (13.8%)" (figure 6) (Ekonomski institut, 2024-2:8).

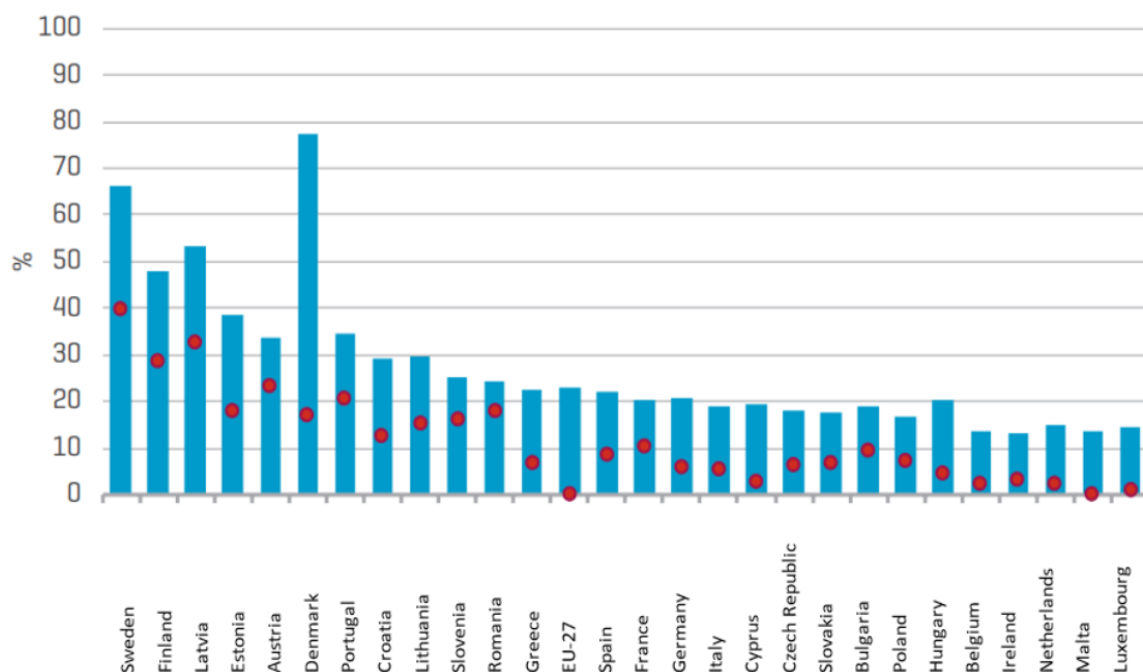


Figure 6. The share of energy from renewable sources in the total gross final energy consumption about the initial year and the achieved share in 2022, in percentages by member states of the European Union

(Source: Ekonomski Institut, 2024-2, according to EEA(2023))

According to the data presented, the Republic of Croatia is making considerable efforts to achieve the goal of climate neutrality together with the EU. Numerous regulations of the Republic of Croatia are directed towards a green economy and a sustainable economy, which is also visible through the previously presented data. Solving energy problems requires the reform of the energy system as well as its technological modernization so that the Republic of Croatia can achieve a path towards a sustainable and resilient energy future. A green and circular economy is the main foundation of sustainable business and the creation of sustainable competitiveness.

5. CONCLUSION

For the economy of a country to become climate-neutral and long-term sustainable and thus competitive, the application of renewable energy sources should be strengthened. The green economy and green growth rely on renewable energy sources and thus achieve long-term sustainable growth and development of an economy. The Republic of Croatia has enough potential to achieve the development of the segment of renewable energy sources and thereby contribute to the reduction of climate change. It is precisely the energy future that depends on renewable energy sources, and therefore it is necessary to strive for a sustainable transition of the energy system. All forms of energy affect the environment and leave consequences, while renewable energy sources have significantly less impact on the environment, so green and clean energy is a prerequisite for achieving sustainable growth and development of society. Renewable energy sources should become and be one of the key strategic goals of development to ensure and achieve all the prerequisites for achieving a green economy and green growth and development of both the Republic of Croatia and the entire EU.

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THE IMPACT OF PATENT APPLICATIONS AND R&D EXPENDITURE ON THE SUSTAINABLE BRAND INDEX: AN ANALYSIS OF INNOVATION'S ROLE IN ADVANCING SUSTAINABILITY IN FINLAND AND NORWAY

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ABSTRACT

This paper examines the influence of Research and Development (R&D) expenditure and patent applications on the Sustainable Brand Index (SBI) in Finland and Norway over a period spanning from 2017 to 2022. Utilizing linear regression analysis on annual data, the results demonstrate a strong model fit, with a substantial proportion of the SBI variance explained by the predictors. The analysis identifies a significant positive relationship between patent applications and the SBI, indicating that innovations measured through patent activities positively impact sustainability performance. In contrast, the effect of R&D expenditure on the SBI is found to be negative, although this relationship is not statistically significant, suggesting that R&D investments do not directly correlate with the observed sustainability outcomes within this dataset. These findings highlight the critical role of innovation, as evidenced by patent activities, in advancing sustainable business practices. The results also suggest complexities in the direct impact of R&D expenditure on sustainability, which may warrant further investigation to clarify the mechanisms through which R&D influences sustainable development. This research provides valuable insights for policymakers and business leaders focused on leveraging technological innovation to enhance sustainability.

Keywords: Sustainable production, Sustainable brand index, SDG 9

1. INTRODUCTION

The Sustainable Development Goals (SDGs) represent a universal call to action, aiming to end poverty, protect the planet, and ensure prosperity for all by 2030. Adopted by the United Nations in 2015, these 17 interconnected goals address a wide range of global challenges, from poverty eradication to climate action. The SDGs signify a paradigm shift in development approaches, emphasizing the interconnectedness of social, economic, and environmental dimensions. They provide a comprehensive framework for countries to tackle pressing issues while promoting sustainable development pathways. By integrating principles of inclusivity, equity, and environmental stewardship, the SDGs aim to leave no one behind and ensure a more equitable and sustainable future for all. Researchers and institutions globally have dedicated significant efforts to assessing the progress and impact of the SDGs. Various methodologies, indicators, and data sources are utilized to monitor and evaluate the implementation of these goals at national, regional, and global levels (Severo & De Guimarães, 2022). These assessments provide valuable insights into successes, gaps, and areas requiring urgent attention. The role of patents in promoting innovation is twofold: they protect inventors' interests, encouraging more investment in R&D, and they disseminate knowledge through detailed patent documents, spurring further innovation in the industry (Mairesse & Mohnen, 2004; Yang et al.,

2018; Bansal & Roth, 2000). However, some scholars caution about the quality of patents, noting that not all patents equally contribute to economic growth, and the surge in patent filings might reflect strategic behavior rather than genuine innovation (Pollák & Markovič, 2021; Chakraborty & Chatterjee, 2017). The interaction between R&D expenditures and patent applications is significant, as evidenced by numerous studies (Severo & De Guimarães, 2021). For instance, Carballo-Penela and Castromán-Diz (2015) found a complementary relationship where increases in R&D spending led to higher rates of patenting among European firms, suggesting a cyclical boost to innovation. Moreover, the strategic use of patents can enhance returns on R&D investments by securing proprietary technologies, thus fostering a competitive edge and higher market value (Hsu & Ziedonis, 2013; Pollák, Dorčák, & Markovič, 2021). In addition to the 2030 Agenda, initiatives to increase business sustainability are emerging directly from within the business sector. The Sustainable Brand Index (SBI) is one such initiative. The SBI aims to promote sustainable branding, illustrate its value, and enhance understanding of sustainability in branding and communication. Using data-driven insights, it highlights discrepancies between brands' self-perceptions and actual consumer perceptions regarding sustainability. By analyzing trends, mapping stakeholder attitudes and behaviors, and evaluating various materiality areas, the SBI offers brand-specific data and strategic tools. This approach motivates brands to improve their sustainability efforts and encourages them to communicate these efforts. Increased dialogue about sustainability raises consumer awareness, concern, and demand, fostering a positive cycle of transparency and sustainability. Innovation is a key component of Finland's sustainability strategy. The country is home to numerous startups and companies dedicated to green technologies, ranging from renewable energy to circular economy solutions. Finland's government supports these innovations through funding programs and incentives, facilitating the development and deployment of sustainable technologies (Finnish Innovation Fund Sitra, 2020). Norway and Finland share a strong commitment to sustainability and often collaborate on various initiatives to promote environmental protection, social equity, and economic development. These collaborations leverage the strengths and expertise of both countries, driving progress towards the SDGs.

2. DATA AND METHODOLOGY

The purpose of this paper is to examine the relationship between the Sustainable Brand Index (SBI) and two predictors: Research & Development (R&D) Expenditure and Patent Applications in Finland and Norway. The data consists of annual values from 2017 to 2022, capturing the SBI, R&D expenditure (as a percentage of GDP), and the number of patent applications (per million inhabitants). The data sources used for this analysis include the Eurostat database (Eurostat, 2023; Eurostat, 2024) and the Sustainable Brand Index database (SBI, 2024). We formulated the following four hypotheses:

- H1: There is a relationship between R&D expenditure and the SBI score in Finland.
- H2: There is a relationship between Patent applications and the SBI score in Finland.
- H3: There is a relationship between R&D expenditure and the SBI score in Norway.
- H4: There is a relationship between Patent applications and the SBI score in Norway.

A linear regression model was specified with SBI as the dependent variable. R&D Expenditure and Patent Applications were included as independent variables. Ordinary Least Squares (OLS) regression was utilized to estimate the relationships between SBI and the independent variables. R-squared and Adjusted R-squared values were computed to assess how well the model explained the variability in SBI. The F-statistic and its associated p-value were calculated to test the overall significance of the regression model. The Durbin-Watson statistic was used to check for the presence of autocorrelation in the residuals, and the Condition Number was examined to assess potential multicollinearity among predictors.

3. RESULTS

R&D expenditure serves as a vital indicator of a nation's dedication to innovation and technological progress. Norway allocates approximately 2.1% of its GDP to R&D, underscoring its strong focus on innovation, especially in renewable energy, maritime technologies, and sustainable solutions. In contrast, Finland is a frontrunner in R&D investment, with expenditure surpassing 2.9% of its GDP. Finland is acclaimed for its advancements in information technology, bioeconomy, and environmental technologies. Technological innovation is gauged by the number of patents filed, high-tech exports, and the overall innovation index. Norway is recognized for its forward-thinking approach to technology, particularly in green and sustainable technologies. The country boasts a high rate of patent applications and a significant emphasis on clean technologies. Finland, on the other hand, excels in technological innovation, leading in the number of patents per capita and achieving notable success in the high-tech and green technology sectors.

Model fit

Description	Value
R-squared	0.706
Adjusted R-squared	0.501
F-statistic	3.6102
Prob (F-statistic)	0.1590
No. Observations	6
DF Residuals	3
DF Model	2

Coefficients

Variable	Coefficient	Standard Error	t-Value	P-value	95% CI Lower	95% CI Upper
Intercept	-61.706263	108.209852	-0.570246	0.60842	-406.07830	282.66578
R&D Expenditure	22.794073	55.289276	0.412269	0.70783	-153.16108	198.74922
Patent applications	0.026241	0.031454	0.834257	0.46535	-0.07386	0.12634

*Table 1: Regression analysis results - Finland
(Source: own calculations)*

The p-value for R&D Expenditure (0.704) is significantly higher than the conventional significance level of 0.05. Therefore, we reject the hypothesis H1 that there is a statistically significant relationship between R&D expenditure and the SBI score in Finland. The p-value for Patent applications (0.184) is also higher than the conventional significance level of 0.05. Therefore, we reject the hypothesis H2 that there is a statistically significant relationship between Patent applications and the SBI score in Finland.

Table following on the next page

Model fit

Description	Value
R-squared	0.878
Adjusted R-squared	0.796
F-statistic	10.8022
Prob (F-statistic)	0.0425
No. Observations	6
DF Residuals	3
DF Model	2

Coefficients

Variable	Coefficient	Standard Error	t-Value	P-value	95% CI Lower	95% CI Upper
Intercept	5.473361	44.645166	0.12259	0.91017	-136.60748	147.55420
R&D Expenditure	-30.769196	11.461187	-2.68464	0.07475	-67.24380	5.70541
Patent applications	0.168406	0.054006	3.11825	0.05254	-0.00346	0.34027

Table 2: Regression analysis results - Norway
(Source: own calculations)

The p-value for R&D expenditure is 0.074753, which is greater than the conventional significance level of 0.05. This indicates that the relationship between R&D expenditure and the SBI score is not statistically significant at the 5% level. Therefore, we reject hypothesis H3 at the 5% significance level. The p-value for Patent applications is 0.052543, which is very close to the conventional significance level of 0.05. This suggests that the relationship between Patent applications and the SBI score is borderline statistically significant. Given the p-value is just above 0.05, it is marginally not significant at the 5% level but could be considered significant at a slightly higher threshold (e.g., 0.1). Therefore, we do not reject hypothesis H4, acknowledging that the relationship is borderline significant and may be considered significant at a slightly relaxed significance level.

4. CONCLUSION

For Finland, the regression analysis yielded an R-squared value of 0.706, indicating that about 70.6% of the variability in the SBI score can be explained by the model. The analysis revealed the following: R&D Expenditure: The coefficient for R&D Expenditure was -0.8339, with a p-value of 0.704. This high p-value suggests no statistically significant relationship between R&D expenditure and the SBI score. Patent Applications: The coefficient for Patent Applications was 0.0284, with a p-value of 0.184. Although lower than that of R&D expenditure, this p-value is still above the 0.05 significance level, indicating no significant relationship between patent applications and the SBI score. Based on these findings, we must reject both hypotheses H1 and H2, which posited that there is a significant relationship between R&D expenditure, patent applications, and the SBI score in Finland. The regression analysis for Norway indicated a high R-squared value of 0.878, suggesting that approximately 87.8% of the variability in the SBI can be explained by the model, which includes R&D Expenditure and Patent Applications as

independent variables. However, the p-value for R&D Expenditure (0.075) was not below the 0.05 significance level, indicating that this variable does not have a statistically significant relationship with the SBI score at conventional levels. Similarly, while the coefficient for Patent Applications was positive, the p-value (0.053) was also above the 0.05 threshold, suggesting marginal significance but not enough to conclusively affirm a strong relationship. Given these results, the hypotheses H3 and H4, which postulate relationships between R&D expenditure, Patent Applications, and SBI scores in Norway, cannot be strongly confirmed. Although the overall model is significant (p-value = 0.0426), the individual predictors do not demonstrate significant p-values. The results from both Norway and Finland highlight the complexity of the relationship between innovation indicators and sustainability perceptions. The lack of statistically significant relationships in both countries suggests several important considerations:

- **Multifactorial Nature of SBI Scores:** The SBI score likely depends on a wide range of factors beyond R&D expenditure and patent applications. These may include public policies, consumer awareness and behavior, corporate social responsibility practices, and other socio-economic variables.
- **Temporal and Contextual Influences:** The period from 2017 to 2022 encompasses significant global events, including economic fluctuations and the COVID-19 pandemic, which could have impacted both R&D activities and patent filings in ways that are not directly correlated with changes in sustainability perceptions.
- **Sectoral Variations:** Different sectors may contribute to R&D and patent applications differently. For example, high-tech industries might drive a substantial portion of patent filings, while sustainability perceptions could be more influenced by consumer goods companies' visible environmental initiatives.
- **Measurement and Data Limitations:** The use of annual data and the relatively small sample size (six years) limit the statistical power of the analysis. More granular data or a longer timeframe might provide different insights.
- **Lagged Effects:** The impact of R&D expenditure and patent applications on sustainability perceptions might have lagged effects not captured in a year-on-year analysis. Investments in R&D and resultant innovations might take several years to significantly influence brand sustainability perceptions.

This study aimed to examine the relationship between the Sustainable Brand Index (SBI) and two predictors: R&D Expenditure and Patent Applications in Norway and Finland. The regression analyses indicated that neither R&D expenditure nor patent applications had a statistically significant relationship with the SBI scores in both countries during the period from 2017 to 2022. These findings suggest that sustainability perceptions, as measured by the SBI, are influenced by a broader array of factors beyond the scope of this study's predictors.

The complexity of sustainability perceptions calls for a multifaceted approach in future research to unravel the nuanced influences of innovation and technological advancements. By broadening the scope and incorporating additional variables and methodologies, future studies can provide more comprehensive insights into the drivers of sustainable brand perceptions in different national and industrial contexts.

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IMPACT OF THE GEOGRAPHICAL LOCATION (COUNTRY/NATIONAL LEVEL) ON SMES, INCLUDING FAMILY SMES, IN A TRIPLE COMPARISON OF AUSTRIA, ITALY AND HUNGARY

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ABSTRACT

The aim of this paper is to present a snippet of the research, illustrating the national characteristics and regulatory environment affecting SMEs in the three countries. It also aims to illustrate the positive and negative characteristics of the given company in each country, which may be rivals in certain sectors (e.g., e-commerce). In other words, it is a highly intriguing question of what "national" advantages or disadvantages they will have when entering the global market. If they are not competitors, which sector will be more advantageous in one country and more disadvantageous in another? In essence, I would like to examine whether there is a clear answer or answers to the question of what is more advantageous where and what could be transposed internationally to "learn from each other." In order to gain insight into the comparative advantages and disadvantages of different sectors in different countries, I will draw upon the time series analyses published internationally on an annual basis. The unfortunate events of 2020 will necessitate the inclusion of an extraordinary 'twist' in the analyses for my research. The pandemic situation has demonstrated the necessity for different solutions and company life cycles. It will be of great interest to compare the state subsidies utilized to mitigate the economic crisis and to ascertain the impact of the disparate methodologies on businesses across various sectors. The evaluation parameters encompass the following areas: taxes, wages, productivity, human capital, regulation (legal environment), financing, infrastructure and institutions, and energy. Austria's strategic advantage is particularly evident in the infrastructure and institutions category and in the area of financial financing. It is noteworthy that Hungary has a distinct advantage in the categories of energy, tax, and regulation. However, the lack of infrastructure and institutional support in Hungary and Italy is a cause for serious concern.

Keywords: *Comparison, National Impact (A-I-HU), SME*

1. INTRODUCTION

Living and working “abroad” -not in my country of birth for more the half of my life - in a mixed European family, having over 20 years of business experience and speaking fluently more foreign languages, I have been inspired to research this topic. Illustrating the national characteristics and regulatory environment affecting SMEs in the three countries: Austria, Italy and Hungary. It is a highly intriguing question of what "national" advantages or disadvantages they will have when entering the global market. The big question: where is the best / a better place to start a business? Choosing the right location for a business is not an easy task, there are many factors to consider. In general, there is never only one perfect solution, one location is stronger in one aspect and another in another. Of course, once you have decided which country you want to do business in, it is worth choosing a region, city or district based on the criterias listed in the first point of this paper (of course, the aspects can be nuanced by sector of activity, by city, and it are different if you are a producer, a trader, if your clients are other entrepreneurs or end-users).

The number of foreign entrepreneurs and businesses in Austria, Italy, and Hungary is influenced by various factors, including economic policies, immigration trends, and the overall business environment in these countries. Austria has a notable presence of foreign entrepreneurs. As of early 2024, about 1.8 million people in Austria are foreign citizens, accounting for 19.7% of the population (Statistics Austria, 2024). This diverse demographic has a significant impact on the entrepreneurial landscape. Although exact figures for foreign entrepreneurs specifically are not readily available, it is clear that the foreign-born population contributes substantially to Austria's entrepreneurial activities. Italy has a substantial number of foreign entrepreneurs. Recent data indicates that there are over 800.000 foreign-owned businesses operating in the country. These businesses are primarily concentrated in sectors like retail, construction, and personal services (GEM, Global Entrepreneurship Monitor, 2024). This highlights the active role of immigrants in Italy's small and medium enterprise (SME) sector. Hungary has also seen a rise in foreign entrepreneurs, although specific figures are harder to pinpoint. The country has implemented various initiatives to attract foreign investment and entrepreneurship, including favorable tax policies and residency programs for investors. The presence of foreign entrepreneurs is particularly strong in Budapest, where a dynamic startup ecosystem is emerging (Global VAT Compliance). Overall, foreign entrepreneurs play a vital role in the economies of Austria, Italy, and Hungary, contributing to diversity, innovation, and economic growth in these countries. Every year the European Commission produces surveys and reports on the development of the SME sector. I would like to compare the results of these SBA fact sheets for my three research countries to illustrate how national conditions and regulatory environments affect SMEs. The Small Business Act (SBA) is the EU's flagship policy initiative to support small and medium-sized enterprises. It is a package of policies organized around 10 principles, including entrepreneurship and "responsive administration" to promote internationalization and incentives. The SBA Report is published annually and its main objective is to improve understanding of the latest trends and national policies affecting SMEs. Since 2011, each EU member state has appointed a senior government official as a national SME envoy.

2. IMPACT OF GEOGRAPHICAL LOCATION ON SMES IN EUROPE

When choosing a location for a small business, several critical factors need to be considered to ensure the business's success and sustainability. (Oliveira L., 2020) These factors encompass a range of strategic, operational, and financial considerations:

- Target-Market proximity means to analyse demographics and local customer behavior: understanding the demographics of the local population helps in assessing whether there is a sufficient customer base that matches the business's target market as also to understand their preferences and habits, which can provide insights into whether the product or service offered will appeal to potential customers in the area.
- Accessibility to transport for goods, divices, tools, employees and customers is crucial. Proximity to bus stops, train stations, other public transport stations like access to adequate roads can make it easier for customers and employees to reach the business, as can gurantee an optimal supply chain management for the business. Adequate parking facilities for delivery, employees and customers are of great importance, preferably for free of charge.
- Assessing the number (density) and strength of competitors (benchmark analysis) in the area can help determine whether there is a gap in the market or if it is already saturated. The place can have an image-building (prestige, e.g. downtown) or destructive effect.
- The cost of rent and utilities should align with the business's budget and expected revenue, that's we call affordability. Understanding the terms and flexibility of rental agreements is important for long-term planning, as also the contractual, legal environment.

- To know and analyse deeply the local laws and legal requirements as also the economic conditions (taxes, possibility of subsidies and discounts) and climate is really important. Ensuring that the business type is permissible in the chosen area and understanding any regulatory requirements or restrictions. Evaluating the economic stability and growth prospects of the area can impact business performance.
- Utility services and digital infrastructure like Internet, connectivity are nowadays really important. Reliable internet and communication services are essential for most modern businesses. Consistent and reliable utility services (electricity, water, gas) are crucial for uninterrupted operations.
- Qualified workforce availability, talent pool and employment costs are important from day 1 by starting the business as to long-term development plans. Proximity to areas with a skilled labor force can be beneficial, particularly for specialized businesses. Understanding the local labor market and typical wage levels can help in budgeting for employee costs. Keeping good staff is much cheaper and more efficient than finding new ones and always having to train them. Internal training and apprenticeship, as well as the training of substitutes, are the keys to the future. The employment costs in some kind of activities has a cost factor and is built into the price.
- High traffic areas can increase brand visibility and attract walk-in customers, which is vital for retail and consumer-facing businesses. The ability to display clear signage and maintain a strong physical presence can impact customer awareness and branding efforts.
- Proximity to suppliers can reduce transportation costs and improve supply chain efficiency. Easy access to logistics and distribution networks is essential for businesses that rely on frequent deliveries.
- Safety and security are really important like crime rates and local safety: Choosing a location with low crime rates ensures the safety of employees, customers, and inventory.
- Future growth possibility is important to consider when setting up a business or opening a new location/site as expansion scalability space for growth. Evaluating long-term market trends and potential changes in the area that could impact business growth.
- Community and networking are related to subsequent growth potential. Engagement and support can be crucial, being part of a supportive local community can enhance business prospects through word-of-mouth and local partnerships. Proximity to industry clusters or business networks can also provide opportunities for collaboration and support.

Selecting the right location for a small business involves a comprehensive evaluation of multiple factors that influence operational efficiency, market reach, and financial viability. By carefully considering these factors, business owners can make informed decisions that align with their strategic goals and enhance their chances of long-term success. Ideally, the location should be convenient for your customers, employees, and suppliers- without being too expensive for your business. (Cuervo-Cazurra, A., Ciravegna, L., Melgarejo, M., & Lopez, L., 2018) You should weigh up the advantages and disadvantages of various locations when deciding on a suitable place for your business property. As soon as there is a need to construct/build, investing a huge capital, maybe partially financed by equity or bank loan, after the preparing analyses and the final decision about the location will be crucial. (Losoncz M. – Nagy Gy., 2020)

3. COMPARISON OF THE CONTEXT OF AUSTRIA, ITALY AND HUNGARY

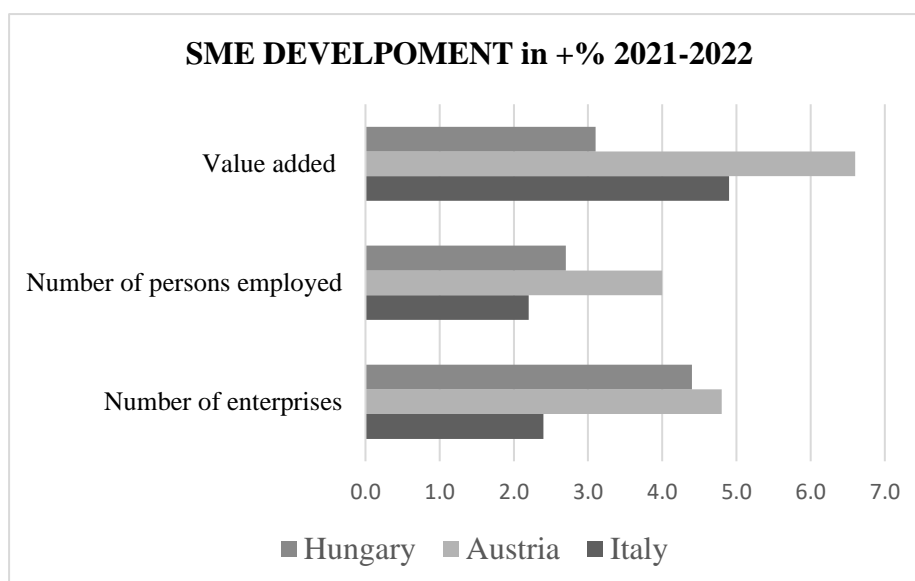
Small and Medium-sized Enterprises (SMEs) play a critical role in the economic landscape of Europe, acting as engines of growth, innovation, and employment. However, the geographical location of these enterprises significantly impacts their operational success, market reach, and overall sustainability.

This analysis focuses on the specific geographical influences on SMEs in Hungary, Austria, and Italy, examining how regional characteristics, infrastructural quality, and cross-border interactions shape the business environments in these countries. Hungary, situated in Central Europe, benefits from its strategic location as a gateway between Western and Eastern Europe. This positioning provides SMEs with significant advantages in terms of access to diverse markets and integration into European supply chains. The country's capital, Budapest, is a central hub that enhances connectivity and economic activity. Hungary exhibits notable regional disparities, with Budapest and the western regions experiencing more robust economic development compared to the eastern parts. This uneven development affects SMEs, as those located in more prosperous regions benefit from better infrastructure, higher consumer purchasing power, and greater access to skilled labor. In contrast, SMEs in less developed areas face challenges such as inadequate infrastructure and limited market opportunities. Hungary's membership in the European Union facilitates cross-border trade and investment, providing SMEs with a broader market and opportunities for collaboration. The proximity to Austria and other Central European countries fosters trade relationships and supply chain integration. However, SMEs must navigate regulatory differences and competition from more established enterprises in neighboring countries. Austria's location in the heart of Europe, bordering eight countries, positions it as a significant economic and transit hub. The country's well-developed infrastructure, including an extensive network of roads, railways, and airports, supports the efficient movement of goods and services. Vienna, the capital, serves as a key economic and cultural center. Austria is known for its strong emphasis on innovation and technological advancements, supported by a well-established education system and significant investment in research and development (R&D). SMEs in Austria benefit from access to cutting-edge technologies and a skilled workforce, which enhance their competitiveness in both local and international markets. While Vienna is the primary economic hub, other regions such as Upper Austria and Styria also play vital roles in the country's economic landscape. These regions host clusters of SMEs specializing in various industries, from manufacturing to technology. The presence of these clusters fosters collaboration and knowledge sharing, further bolstering the growth of SMEs. (Annual Report on European SMEs, 2023) Italy's geographical diversity, stretching from the Alpine regions in the north to the Mediterranean coast in the south, presents both opportunities and challenges for SMEs. The country's varied topography influences the types of industries that thrive in different regions, with manufacturing concentrated in the north and agriculture more prominent in the south. Italy is characterized by significant regional disparities, with the industrialized north markedly more prosperous than the agrarian south. This economic dualism affects SMEs, as those in the north benefit from better infrastructure, more developed markets, and access to financial services. Conversely, SMEs in the south often face structural challenges such as inadequate infrastructure and limited access to capital. Italian SMEs are highly export-oriented, with a strong presence in global markets, particularly in sectors such as fashion, automotive, and machinery. The country's strategic location in the Mediterranean facilitates access to European, African, and Middle Eastern markets. However, the reliance on exports also exposes SMEs to global economic fluctuations and competitive pressures. On the following pages I will try to give some draw upon the analyses published internationally. Basically I will use datas of the SBA of the European Commission and the interesting german Study of „Länderindex Familienunternehmen“, as also datas from the SME reports of the national statistical offices and ministries of economy of the countries presented. The SBA Report is part of the SME Performance Review (SPR) which, is one of the main tools used by the European Commission to monitor and assess countries' progress in implementing the SME Strategy and the Small Business Act (SBA). The Review provides comprehensive information on the performance of SMEs in EU countries and other partner countries.

I have used these to highlight some other perspectives, exemplified by the three countries Austria, Hungary and Italy. According to the official EC definition, SMEs are enterprises with fewer than 250 employees and either an annual turnover of less than EUR 50 million or a balance sheet total of less than EUR 43 million. The analysis in the report is based on the employment definition of SMEs only, as this is the definition used by Eurostat's Structural Business Statistics (SBS) database, the main data source for the report. Within the SME population, micro-SMEs are enterprises with less than 10 employees, small-SMEs have 10 to 49 employees and medium-sized-SMEs have 50 to 249 employees. In 2022, about 24.3 million SMEs were active in the EU-27 countries and these SMEs accounted for 99.8% of all enterprises in the non-financial business sector (NFBS). These SMEs employed 84.9 million people in the EU-27 in 2022. (Annual Report on European SMEs, 2023)

2022	Number of enterprises		Number of employees		Value added	
	Italy		58.853.482 inhabitants; 301.338 km²			
	Number	Share	Number	Share	Billion €	Share
Micro	3 551 239	94,8 %	6 531 886	42,7 %	203,4	25,5 %
Small	171 814	4,6 %	3 060 609	20,0 %	152,3	19,1 %
Medium-sized	20 597	0,5 %	1 992 123	13,0 %	145,6	18,3 %
SMEs	3 743 650	99,9 %	11 584 618	75,7 %	501,4	62,9 %
Large	3 789	0,1 %	3 716 277	24,3 %	296,2	37,1 %
Total	3 747 439	100,0 %	15 300 895	100,0 %	797,6	100,0 %
	Austria		9.104.772 inhabitants; 83.882 km²			
	Number	Share	Number	Share	Billion €	Share
Micro	311 227	87,9 %	741 054	24,0 %	36,9	15,9 %
Small	35 904	10,1 %	675 367	21,9 %	45,2	19,4 %
Medium-sized	5 464	1,5 %	542 090	17,6 %	46,3	19,9 %
SMEs	352 595	99,6 %	1 958 511	63,5 %	128,4	55,2 %
Large	1 302	0,4 %	1 124 328	36,5 %	104,2	44,8 %
Total	353 897	100,0 %	3 082 839	100,0 %	232,6	100,0 %
	Hungary		9.599.744 inhabitants; 93.036 km²			
	Number	Share	Number	Share	Billion €	Share
Micro	679 571	95,1 %	1 069 969	36,6 %	17,3	20,9 %
Small	29 434	4,1 %	547 369	18,7 %	14,4	17,4 %
Medium-sized	4 406	0,6 %	433 834	14,8 %	14,8	17,9 %
SMEs	713 411	99,9 %	2 051 172	70,2 %	46,5	56,2 %
Large	957	0,1 %	872 712	29,8 %	36,3	43,8 %
Total	714 368	100,0 %	2 923 884	100,0 %	82,8	100,0 %

*Table 1: SMEs statistics of 2022 from Italy, Austria and Hungary
(Source: SBA Fact Sheet, 2023)*

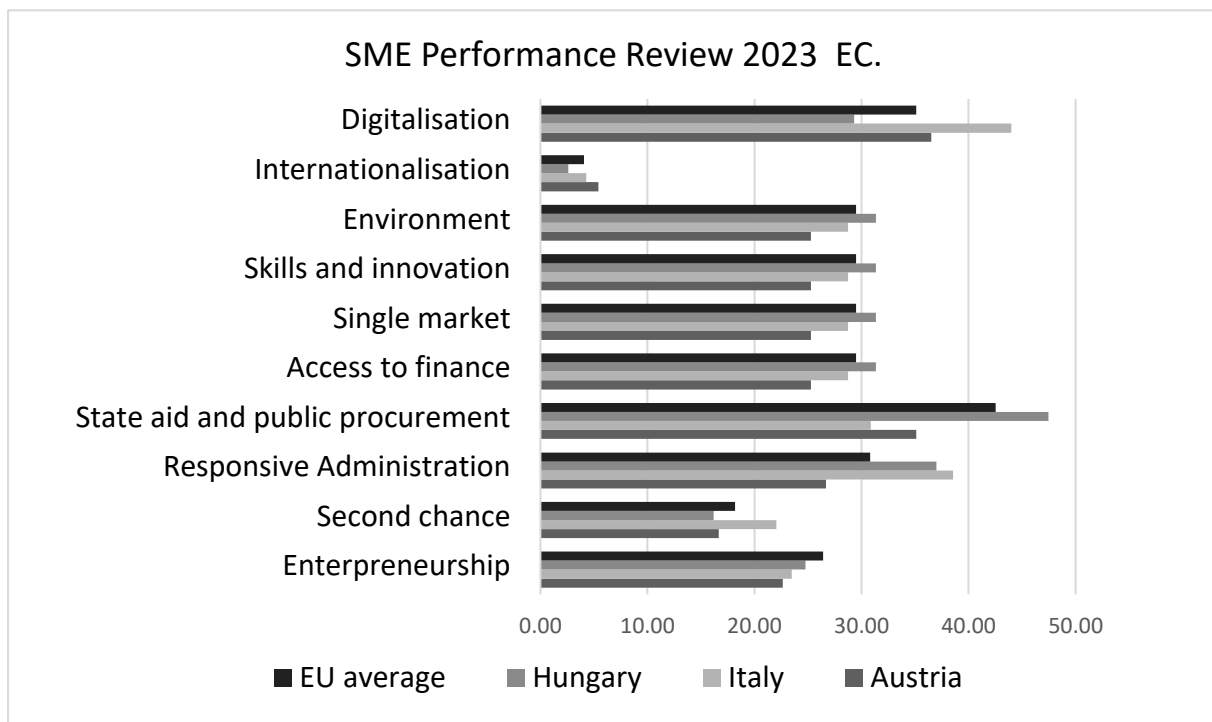


*Table 2: SMEs development 2021-2022 in Italy, Austria and Hungary
(Source: Source: SBA Fact Sheet, 2023)*

It is clear that while entrepreneurship per capita is higher in Hungary and Italy (one SME per 17 inhabitants in Hungary and one per 16 in Italy, compared to one per 26 in Austria), Austria has the highest employment rate of the three countries. In other words, there are fewer SMEs, but stronger ones that employ more people. The reasons for this, in my opinion, are partly historical, partly geographical and partly global economic. In Italy, apart from the industrial areas in the north, it is not only companies, especially family-owned ones, with a long history, but also agriculture, tourism and gastronomy, as well as handicrafts/small industries, that have been the source of income for the long and infrastructurally weak southern state, which is bordered on three sides by a coastline. Hungary's territorial distribution shows a strong predominance of industrial and agricultural zones near the capital. In the capital and Pest County, however, social enterprises account for almost half of all businesses, while in rural areas the overwhelming majority are individual enterprises. In Austria, too, the "paper economy" predominates, with the capital and the provinces of Lower and Upper Austria, as well as Styria and Tyrol, being the strongest in terms of industry and infrastructure and having a high concentration of population (and thus a strong consumer public), with a directly proportional prominence. In Italy, the economy is geographically very fragmented in terms of the role of SMEs. In some southern provinces, where heavy industry is almost non-existent, the contribution of SMEs to production reaches 97%, while in the north it is only 47%. From the SBA Review of the EU Commission we can see that in 2022, Austrian SMEs continue their recovery, with SME value added growing by 6.6% and SME employment by 4.0%. However, as value added growth is not adjusted for inflation, real growth is lower in the high inflation environment of 2022. For example, the Energy - Renewable Energy ecosystem experienced a slight increase in value added in 2021, but shows significant growth in 2022, with value added increasing by 2.0% in 2021 and 10.1% in 2022. Employment in this industrial ecosystem grew only slightly, by 0.2% in 2021, but by 2.2% in 2022. In 2023, SME value added and SME employment in Austria are expected to continue growing by 7.5% and 1.1% respectively. 50% of Austrian SMEs are classified as exporters in 2022 (EU average: 39%). SMEs are more export-oriented than in other EU countries and account for a higher share of value added in medium- and high-tech manufacturing and knowledge-intensive services (OECD, 2022). According to the European Innovation Scoreboard 2022, Austria is a strong innovator with a performance of 118.3% of the EU average. Product-innovating SMEs and business-process innovating SMEs are also above the EU average (115.2% and 132%), although their

performance has declined in the last year. The eGovernment Monitor 2022 ranks Austria 1st in the DACH region (including Germany, Austria and Switzerland) for digital government services. The GEM 2022/23 also ranks Austria 1st in an international comparison of business-related support programs. The level and number of taxes and compulsory levies still hamper the cost competitiveness of SMEs. Access to finance is generally not a major problem for Austrian SMEs. Austria performs well on the indicator "SMEs with at least a basic level of digital intensity" with a score of 64% compared to the EU average of 55% (DESI, 2022). Austria ranks above the EU average for SMEs selling online and cross-border, but the share of e-commerce in their turnover is slightly below the EU average (10% compared to 12%). The 2022 SAFE Report shows that only 5% of Austrian SMEs have experienced regular problems due to late payment (27% reported occasional problems), the lowest percentage in the EU (SAFE, 2023). As presented in the SME Review, in 2022, Italian SMEs continue their recovery, with SME value added growing by 4.9% and SME employment by 2.2%. However, as value added growth is not adjusted for inflation, real growth was lower in the high inflation environment of 2022. The construction ecosystem, for example, is one of the few ecosystems to generate positive SME employment growth in Italy in both 2021 and 2022, growing by 3.4% and 4.4% respectively. Italian SMEs in this industrial ecosystem also generated the strongest growth in value added among all ecosystems, with a growth rate of 7.9% in 2022, following an even higher growth of 13.4% in 2021. In 2023, SME value added in Italy is expected to continue to grow by 1.0%, but SME employment is expected to contract by 0.7%. Note that the forecasts for value added growth are not adjusted for inflation. Italian SMEs perform comparatively well in terms of internationalization: 16.67% of Italian industrial SMEs benefit from the EU single market by exporting to other Member States, above the EU average of 15.9%. If we look at SMEs that export outside the EU, Italy performs even better: over 15% of Italian industrial SMEs export outside the EU, compared to an EU average of 9.55% (Eurostat, 2022). Italian SMEs also perform above average on a number of innovation indices: for example, the share of SMEs introducing product and process innovations is well above the EU average, while in-house innovation is also more widespread among Italian SMEs (38.7%) than among their EU counterparts (28.6%). While Italian SMEs are generally not among the best performers in terms of digitalization, the country is well above the EU average in terms of e-invoicing, with 95% of Italian SMEs issuing e-invoices, compared to an EU average of only 32%. While Italian SMEs are generally not among the best performers in terms of digitization, the country far outperforms the EU average in terms of e-invoicing, with 95% of Italian SMEs issuing e-invoices compared to an EU average of only 32% (Eurostat, 2022). The business environment in Italy remains largely unsupportive of SME growth. Starting a business in Italy is more costly and involves more procedures (7 vs. EU average of 5.37) than in the EU, while the complexity of administrative procedures is seen as a problem by 82.4% of companies surveyed. When it comes to paying taxes, Italy fares much worse than its EU peers, with companies spending 238 hours per year to pay taxes (versus an EU average of 173.7) (World Bank, 2019). The rapidly changing regulatory environment and the comparatively high cost of enforcing contracts are also challenges for Italian SMEs (Eurobarometer, 2023). Delays in payment by the public administration (PA) are also a relevant challenge for all companies, but especially for SMEs, which have fewer resources to cope with cash flow disruptions. According to Intrum, the gap between agreed payment times and the time it actually took for companies to get paid by the PA was 22 days in 2022 (compared to an EU average of 15 days). Italian SMEs also lag behind comparatively in the use of digital tools for their activities, with online sales and purchases both well below the EU average (Eurostat, 2022). The number of SMEs generating the majority of their turnover from green products is higher in Italy than in the EU, and the adoption of energy efficiency measures is also above average (Eurobarometer). But education in Italy leaves much to be desired.

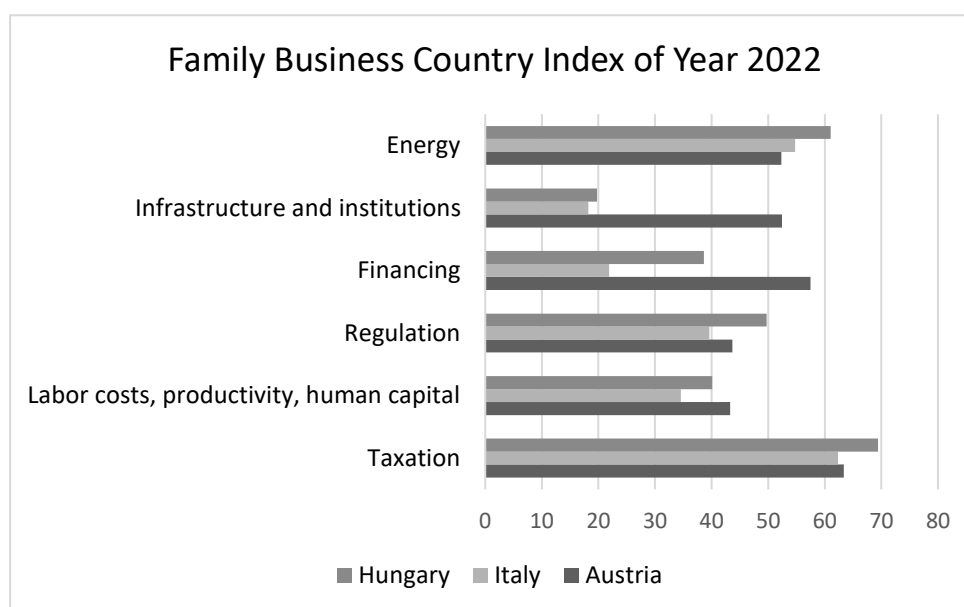
In the same European Commission review for 2022, Hungarian SMEs continue their recovery, with SME value added growing by 3.1 percent and SME employment by 2.7 percent. However, as value added growth is not adjusted for inflation, real growth was negative in the high inflation environment of 2022. The construction ecosystem grows strongly in terms of employment in both 2021 and 2022, at 5.9% and 5.5% respectively. However, SME value added in this industry ecosystem falls by 3.1% in 2022, following strong growth of 18.1% in 2021. In 2023, SME value added and SME employment in Hungary are expected to continue growing by 3.4% and 0.4%, respectively. Please note that the value added growth forecasts are not adjusted for inflation. The time to start a business in Hungary (7 days) is significantly shorter than the EU average (12.17). (World Bank, 2019) While venture capital, business angels and equity financing are relatively underdeveloped sources of finance, firms do not find it particularly difficult to obtain offers for bank loans. (Survey on Access to Finance of Enterprises – SAFE, 2023) Hungary performs well in terms of enterprises employing persons with ICT skills, with 28.9% compared to the EU average of 19.3%. (Eurostat, 2022) The number of SMEs in the electricity, gas, steam and air conditioning supply ecosystem has increased significantly. The inflation rate in Hungary was 26.2% in January 2023, much higher than the EU average. General and energy-specific price increases have had a significant impact on the ability of SMEs to do business. Both the IT and construction sectors continue to show strong growth in SME employment and value added. Adoption of key digital technologies is low.



*Table 3: SMEs Performance review 2023: EU average, Hungary, Italy, Austria
(Source: SBA Fact Sheet, 2023)*

The German "Stiftung Familienunternehmen" (Foundation for Family Enterprises, Germany, 2023) conducts a very demanding evaluation of family enterprises in European and some important international markets from the special perspective of large family enterprises and compares the location conditions in Germany, which are particularly important for these enterprises, with those of important competitor countries. For the ninth time since 2006, the Family Business Country Index, 2023, will be conducted with the support of ZEW - Leibniz Center for European Economic Research and Calculus Consulting.

All countries are compared from the following perspectives Taxation; Labor Costs, Productivity, Human Capital; Regulation; Financing; Infrastructure and Institutions; Energy. The U.S. remains at the top of the current ranking, followed by Canada, Sweden and Switzerland. The U.S.'s top ranking is largely due to excellent scores in the areas of regulation and energy. According to the 2022 results, Germany ranks 18th out of 21 countries (instead of 14th in 2020), followed by Hungary, Spain and Italy (19th, 20th and 21st in this ranking). Austria, on the other hand, ranks 13th (instead of 9th in 2020). Hungary scores lowest in the area of "Infrastructure and institutions". Its scores in the sub-indices "Labor costs, productivity, human capital" and "Financing" are also well below average. On the other hand, its score in the sub-index "Taxes" is in the upper middle range. It is noticeable that the rise of the Eastern European EU member states observed in previous editions has not continued. In Southern Europe, the lowest ranked countries, Spain and Italy, are not making any progress. Italy ranks last and next to last in the areas of "labor costs, productivity, human capital" and "financing", and also scores very poorly in the sub-indices "regulation" and "infrastructure and institutions". Italy brings up the rear. Only in the area of "taxes" does Italy score slightly above average. (Foundation for Family Enterprises, Germany, 2023)



*Table 4: Family Business Country Index 2022: Hungary, Italy, Austria
(Source: Foundation for Family Enterprises, Germany, 2023)*

From the results of this new edition of the Family Business Country Index, a number of economic policy messages can be derived for Europe and national economic policy. This finding underlines the importance of the EU policy level. Although the large debt-financed "Next Generation EU" stimulus package, with its focus on digitalization and energy transition, offers opportunities, it can ultimately only be successful if it is accompanied by targeted national reform policies and implemented by more efficient national administrations. In the area of "Labor Costs, Productivity, Human Capital", given the growing shortage of skilled workers, it is essential that education policy stops and reverses the downward trend in basic skills in mathematics and reading/writing/speaking the national language. Reforms must finally address the root causes, also with the aim of securing the country's future and enabling young people to take up vocational training. This certainly includes early language support for children with a migration background. The most commonly used inflation indicator is the Consumer Price Index. The CPI is defined as the average change in the price of the basket of goods and services demanded by households.

The prices of these goods and services are weighted according to their share in total consumer expenditure. These shares are obtained from surveys of representative samples of consumers. The percentage change in the basket thus shows how much consumer prices have risen for an average household over a given period (Foundation for Family Enterprises, Germany, 2023). Evolution of the Consumer Price Index from December 2020 to August 2022 (%) from OECD Datas: Italy 11.01%; Austria 11.37%; but Hungary had to face 21.35%. (OECD, 2022). In Hungary the effect of CPI was really heavy for all people and all enterprises. In year 2023 and 2024 the situation wasn't, isn't better. The salaries purchasing power became worst then in the pandemic years, lot of enterprises and families are in dept spiral. As soon as there will be some specific statistics about I would like to update this comparison.

4. CONCLUSION

Austria's superior infrastructural development provides SMEs with a competitive edge in logistics and operational efficiency. In contrast, Hungary and Italy face varying levels of infrastructural challenges, particularly in their less developed regions. This disparity highlights the importance of targeted investments in infrastructure to support SME growth. Austria's strong emphasis on innovation and technological capacity significantly benefits its SMEs, fostering a culture of continuous improvement and adaptation. Hungary and Italy, while also investing in R&D, face challenges in achieving the same level of technological integration across all regions. Bridging this gap is crucial for enhancing the competitiveness of SMEs in these countries. Regional disparities are a common challenge across Hungary, Austria, and Italy, affecting the equitable growth of SMEs. While Austria's regional hubs mitigate some of these disparities, Hungary and Italy exhibit more pronounced divides. Addressing these disparities through regional development policies and targeted support for SMEs in underdeveloped areas is essential for balanced economic growth. The geographical positioning of Hungary and Austria within Central Europe facilitates robust cross-border trade and integration, providing SMEs with access to broader markets. Italy's strategic Mediterranean location also offers significant trade opportunities, though the country faces unique challenges related to regional disparities and economic dualism. The geographical location of SMEs in Hungary, Austria, and Italy profoundly impacts their operational success and growth potential. While Austria's central location and infrastructural advantages provide a strong foundation for SME development, Hungary and Italy must address regional disparities and infrastructural challenges to enhance their SMEs' competitiveness. By leveraging their unique geographical positions and investing in targeted regional development, these countries can foster a more dynamic and resilient SME sector, contributing to sustained economic growth and innovation in Europe. In summary, we can say that for certain sectors, one of the three countries is preferable. For example, in the IT and hi-tech sector, one can expect more help in Austria, where it is easier to sell, even in the form of intellectual exports, due to a larger market gap, than in Italy and Hungary, where e.g. voice protection and full digitization are more underdeveloped and the demand for these business-to-business (B2B) solutions is higher. If someone wants to get into tourism, I would definitely point them in the direction of Italy. It is also clear that it is not worth planning industrial activities south of the center of the Italian boot, because the supply chain and the route to market of the finished product are neither efficient nor economical due to the infrastructure. Hungary's road and rail network is Budapest-centered, conditioned by the Danube and Tisza rivers. It is clearly a transit country. Airport traffic, both passenger and freight, is almost exclusively confined to Budapest. Similarly, in Austria, Vienna is the main access point for road, rail and air transportation. The western "language" of Austria connects German and Swiss traffic with Italy via a short corridor through Innsbruck. Italy is a "port power", while the other two countries have negligible river traffic in comparison.

The ports of Gioia Tauro and Trieste, Genoa, have a significant global trade volume, with a strong Chinese presence, and move trillions of containers per year, mainly as a hub for imports entering European markets. However, as internationalized as the EU countries have become, one thing they should all keep in mind is that in all three countries, for local management and ease of doing business (especially outside the capitals), whether the entrepreneur or the local manager appointed by the investor speaks the language and knows the culture of the country can be not only an advantage, but also a cardinal and decisive factor for business success. In Hungary and Italy, for example, without knowledge of the native language, it is difficult to expand the network of contacts, which can lead to serious business disadvantages.

“È solo la lingua che rende uguali. Uguale è chi sa esprimersi e intendere l’espressione altrui.”
– Lorenzo Milani : „It is only language that makes one equal. Equal is those who can express themselves and understand the expression of others.”

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SUSTAINABLE AND GREEN FINANCE: CONVENTIONAL VS ISLAMIC

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ABSTRACT

Climate change and numerous other environmental problems have made it clear for many years that sustainable economic development based on ESG criteria is necessary. Therefore, as result of the above, sustainable, and more socially responsible forms of financing have been developed. Among them, the most famous are green bonds, which, despite insufficient regulation, have recorded an increase at the world level since their first issue by the European Investment Bank in 2007. In addition to the sustainable forms of financing in Western (Conventional) financial systems, Islamic finance has been a rapidly growing financial industry for more than two decades, not only in the Islamic world but also beyond. Although Islamic banks are the most developed and important form of Islamic finance, sukuk - Islamic bonds, which exist in a green variant, are also of great importance and development. The special features of Islamic finance, which are based on the fundamental principles of Islamic religious law (Sharia) are a parallel to the objectives of sustainable finance in the Western (Conventional) world. The emphasised context is reflected above all in the concepts of sustainable development and climate change, because the multitude of prohibitions that Islamic finance implements is about creating a sustainable and socially responsible environment, i.e. a financial system in which great attention is paid to stakeholders and the principles of profit and loss distribution. The purpose and aim of this study is to compare the characteristics of sustainable and green finance in Western (Conventional) economies with Islamic forms of finance. Therefore the development and representation of green and sukuk bonds is presented.

Keywords: *ESG, green bonds, sukuk bonds, financial instruments, Islamic finance*

1. INTRODUCTION

Climate change poses one of the greatest environmental risks to society, but also a systemic risk to the financial system. Therefore, climate change has led to the need to develop a paradigm of sustainable economic development that is in line with ESG criteria. According to Matos (2020), the ESG comprise the following segments:

- 1) Environmental (Climate change and carbon emissions, Natural resource use and energy and water management, Pollution and waste, Ecodesign and innovation)
- 2) Social (Workforce health and safety, diversity, and training, Customer and product responsibility, Community relations and charitable activities)
- 3) Governance (Shareholder rights, Composition of boards of directors (independence and diversity), Management compensation policy, Fraud and bribery).

Given the intensity of climate change, states have begun to enact environmental regulations that are being translated into state laws to work towards slowing and reducing the above processes and protecting future generations. Sustainable financial instruments have been developed that aim to channel investment capital into climate change mitigation and adaptation, but also into improving social equity, inclusivity and justice. That financial instruments include sustainable bonds, which come in various forms (Green bonds, Sustainable bonds, Sustainable - linked bonds, Social bonds – GSSS) in terms of the type of financing, as well as Green loans. The beginnings of the sustainable finance market date back to 2007, when the first green bond was issued by the European Investment Bank. The next green bond was issued by the World Bank in 2008. After that, individual countries began to issue these bonds and other segments of sustainable financial instruments developed. As green bonds are the most widely used financial instruments, accounting for 63% of total GSSS issuance (WB, 2024), sustainable finance is usually equated with green finance. The concept of green finance is only a part of sustainable finance, which refers to the financing of projects related to climate change, but not to the financing of projects related to social and economic aspects. There is a synergy between the characteristics of sustainable finance in terms of promoting financial inclusion, social equality and environmental protection and the characteristics of Islamic finance. That specified form of finance is based on Islamic law, which includes the prohibition of interest (*riba*) and speculative investment (*gharar*), and is therefore aligned in its principles with environmental, social and management factors related to ESG criteria. Synonymous with Islamic finance are Islamic banks, which have been a rapidly growing financial industry over the last two decades due to the interest in Islamic financial products not only in Islamic countries but also in the rest of the world (Islamic windows¹). In 2023, the assets of Islamic banks grew by around 8% compared to 2022, outperforming conventional banks with a risk-weighted asset ratio of 19% and a non-performing loan ratio of around 3% (Stubing, 2024). In addition to Islamic banks, Islamic bonds - Sukuk - also make up the largest share of Islamic finance. These bonds also growing on the global market and are attractive for countries outside the Islamic world. The first European issue of Islamic bonds was made in 2004 by the federal state of Saxony-Anhalt in Germany. To date, Germany has issued several Sukuk bonds at national level. Luxembourg was the first country to issue the first sukuk bond in 2014, followed by the United Kingdom in the same year, but also in 2021 (IFC, 2021). Although the sukuk bond market rests on a more sustainable financial foundation than conventional financial systems, sukuk bonds have recognized the need for their green variants. The main contribution of this research relates to the presentation of the forms of sustainable financial instruments and the comparison of these instruments in conventional financial systems with Islamic financial systems.

2. SUSTAINABLE AND GREEN FINANCE

In this chapter definitions and representation of sustainable bonds, green bonds and green loans are given.

2.1. Sustainable finance

For more than two decades, sustainable finance and the awareness of the need to reconcile financial processes with the requirements of climate change have been the subject of scientific research. At the Earth Summit in Rio de Janeiro in 1992, the international environmental agreement “United Nations Framework Convention on Climate Change” (UNFCCC) was adopted to stabilize greenhouse gasses in the atmosphere (Schoenmaker and Schramade, 2019). Fatemi and Fooladi (2013) highlight sustainable finance as a new paradigm and propose a sustainable framework for value creation which takes into account all social and environmental costs and benefits.

¹ Islamic windows are not originally Islamic banks, but Conventional banks that offer Islamic products.

Although according to OECD (2023) there is no single definition of sustainable finance. It can be said that sustainable finance stands for financial processes (alignment of financial flows and financial products) that have a positive impact on the economic development of society and the environment, i.e. contribute to sustainable development. This means that the term „sustainable finance“ is broader than „green“ finance and financial processes related to climate change. Sources of sustainable financing are: banks, companies, international financial institutions, international organizations (UN, OECD, G20), multilateral climate funds (Green Climate Fund, Adaptation Fund, Global Environment Facility and Climate Investment Funds), national governments, central banks, regulators, institutional investors, green and sustainable investment exchanges (Luxembourg Green Exchange, LGX) (Olgić Draženović et al., 2023). Sustainable finance comes in various forms such as loans, specialized investment funds for sustainable investments, crowdsourcing, financing with national or international grants, but equity (shares) and debt financing instruments (bonds) are the most widespread. Like conventional bonds, sustainable bonds are long-term debt instruments with a fixed interest rate, but their purpose, i.e. the issue, is related to sustainable projects. They are divided into:

- 1) Sustainable bonds
- 2) Sustainable - linked bonds
- 3) Green bonds
- 4) Social bonds
- 5) Transition bonds.

According to the IFC (2024), the largest number of green bonds (2669.1 in total) were issued worldwide in the period 2012-2023, followed by social bonds (776.8), sustainable bonds (719.5) and sustainable bonds (245.7). The largest increase in social bonds in the period 2022-2023 was in Europe and Central Asia (533%) and East Asia and Pacific (excluding China) (386%). In Europe and Central Asia, 1481 sustainable bonds were issued in the same period. *Sustainable bonds* are debt securities whose proceeds are used to finance or refinance a combination of green and social projects (environmental and socio-ecological wellbeing). They therefore represent a hybrid security - between green and social bonds - and thus enable a broader range of different types of financing. According to the OECD (2024), the market for sustainable bonds has grown significantly since its emergence in the last decade. This means that in the period 2019-2023, the share of sustainable bonds at a global level grew up to 7 times compared to the period 2014-2018. *Sustainability-linked bonds* aim to further develop the key role that debt capital markets can play in financing and promoting companies that contribute to sustainability (from an environmental and/or social and/or governance perspective) (ICMA, 2024a). Their financial and/or structural characteristics may vary depending on whether predetermined sustainability targets or ESG criteria are met. This type of bond is linked to the following Key Performance Indicators (KPIs): reduction of the issuer's greenhouse gas emissions, use of renewable energy sources, energy efficiency and ESG rating. The first SLB bond was issued in 2019 by the Italian utility company Enel. There is no universally accepted definition of *green bonds* in academic and professional research, but the most common definition is that green bonds are fixed income securities that have similar financial characteristics to classic/conventional (*plain vanilla*) bonds (Mihelja Žaja and Tica, 2021). It can be concluded that the main difference between them is the purpose of their issuance, which in the case of green bonds refers to environmental protection and sustainability. Although green bonds are very similar to conventional fixed-income bonds, this bonds generally have a shorter maturity than conventional bonds (Ehlers and Packer, 2017). According to IFC (2018), around 45% of issued green bonds had a medium maturity. After 2018, the issuance of longer green bonds began. In 2019, Poland issued a green bond with a maturity of 30 years, and in 2020, 32% of green bonds issued had a maturity of more than 10 years (IFC, 2021).

The first green bond is also the first sustainable bond issued by the European Investment Bank in 2007. *Social bonds* are debt financing instruments used to finance and refinance projects that have a clear social benefit. They make it possible to channel public funds into effective social services, but also to involve private capital for social innovation and to monitor the impact of investments on social well-being (Olgić Draženović et al., 2023). They are mostly issued by the government, development banks and non-profit organizations. Dembele et al. (2021) and IFC (2024) report an increase in social bond issuance in 2020 (global representation in 2019 18.4 and in 2020 168.8) due to the COVID-19 pandemic to finance the resulting economic and social disruption. Until 2017, this bonds only existed in developed countries, and the first edition refers to the pilot project for the reintegration of prisoners in Peterborough, UK, in 2010. Social bonds fund employment, health, housing, utilities, financial services, education and cultural projects aimed at marginalized and excluded social groups: homeless, unemployed, disabled, migrants, sexual and gender minorities, women, older people and children. Transition Bonds are debt securities issued to finance activities related to decarbonization (but not green) or to achieve targets in line with the Paris Agreement. Their issuers are therefore industries that are among the biggest polluters, such as the steel, cement, aviation, shipping and mining industries (Michetti et al., 2023). The first transition bond was issued in Hong Kong in 2017 by the company Castle Peak.

2.2. Green finance

Green finance stands for financial processes and forms of financing that enable borrowers to raise capital for projects that have a positive impact on the environment. In addition to the green bonds already mentioned, green loans are also part of green financing. Although they are similar to green bonds, green loans are usually smaller than bonds and are realized through private transactions. For this reason, it is difficult to discover relevant deals and find essential information about the deals, including details such as the amount and term of the loan (Michetti et al., 2022). Green bonds usually have a larger volume, can have higher transaction costs and can be listed on a stock exchange or privately placed. The listed forms of green financing also follow different but uniform principles: The Green Loan Principles and the Green Bond Principles (GBP) of the International Capital Market Association (ICMA) (WB, 2021). Green bonds can be divided into the following forms (OECD, 2017):

- 1) Corporate bond,
- 2) Project bond,
- 3) Asset-backed security (ABS bond),
- 4) Supranational, sub-sovereign and agency (SSA bond),
- 5) Municipal bond,
- 6) Sovereign bonds and
- 7) Financial sector bond.

According to Mihelja Žaja and Tica (2021), a *green corporate bond* is a type of bond issued by a company with a right of recourse by the issuer in the event of non-payment of interest or principal. They are divided into green bonds issued by financial and non-financial companies. The development of green corporate bonds began in 2013, when there were a total of 16 issues worldwide with a volume of around USD 5 billion. The first green corporate bond was issued by the Swedish real estate company Vasakronan in the amount of USD 197 million (CBI, 2013). Until 2018, the number of issues increased every year (Tang, Zhang, 2020), and in 2018, 396 green corporate bonds with a volume of USD 95.7 billion were issued (Flammer, 2021). The *project green bond* is collateralized by one or more projects to whose risk the investor is directly exposed.

The OECD (2017) points out that a project bond is a type of corporate bond issued by a financial institution to raise capital and finance "balance sheet lending", i.e. to provide loans for green activities. Examples of such issues include the Dutch state bank ABN AMRO, which issued its first green project bond of USD 556 million in 2015, and the Agricultural Bank of China, which issued green project bonds worth around USD 3.2 billion in 2022 (CBI, 2022). An ABS bond is a special type of green bond that is collateralized by a "green" underlying asset. Income payments are derived from these assets (or funds raised or capital released are used to finance green projects). This security is linked to the securitization², which has diversified the green bond market and increased the number of smaller and less reputable issuers. According to Mihelja Žaja and Tuškan Sjauš (2020), smaller issuers have easier access to capital and lower capital costs. The first such bond was issued by Toyota in 2014 with a value of USD 1.75 billion (Ceci, 2015). The basic characteristics of green *SSA bonds* are similar to those of green corporate bonds. They are issued by international financial institutions or national development banks. The world's first green bond called „Climate Awareness Bonds“ was the green SSA bond issued in 2007 by the European Investment Bank in the amount of 600 million dollars. As previously pointed out, this was followed in 2008 by the World Bank's issue of USD 300 million (OECD, 2014). A *municipal green* bond is a bond issued by local authorities, municipalities and cities. The first government issue was issued by Poland in 2016 in the amount of EUR 750 million. In the same year, China issued green bonds worth USD 23 billion. France issued EUR 7.5 billion in 2017 and Belgium EUR 4.5 billion in 2018. According to the Climate Bonds Initiative (2024) statistics shown in the figures below, the largest issuers of green bonds are financial, non-financial companies and governments. These forms of financing are mainly used in the world's developed markets. Regionally, most green bonds are issued in Europe, followed by the Asia-Pacific region, which has overtaken North America in issuance over the past seven years. Accordingly, most green bonds were issued in EUR, which accounts for 44% of total issues. This means that 87% of issues are denominated in the following currencies: EUR, USD, CNY, GBP and INR.

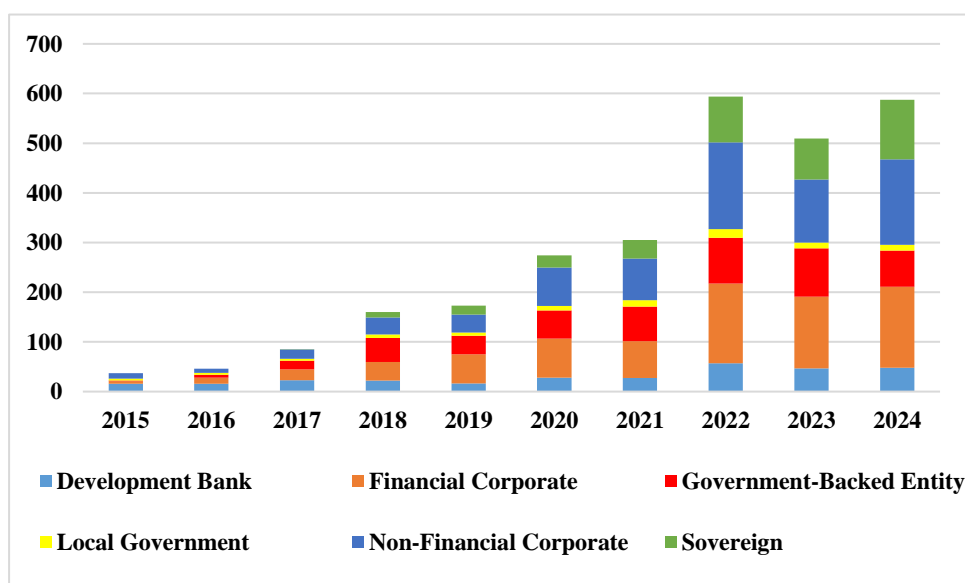


Figure 1: Amounts of issued green bonds by type of issuer, 2015-2024 (in bn USD)
(Source: Climate Bonds Initiative, 2024)

² Securitization is a process by which institutions (usually banks) convert less liquid (marketable) receivables into easily marketable debt instruments that can be placed on the capital market.

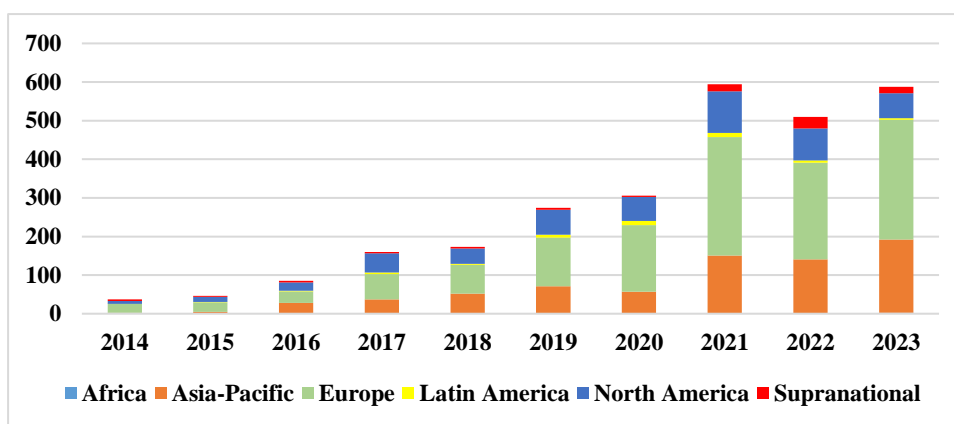


Figure 2: Amounts of green bond issues by region, 2014 -2023 (in bn USD)
(Source: Climate Bonds Initiative, 2024)

Despite the already emphasised need to further develop and issue green financial instruments, in addition to their advantages, green bonds also have a number of disadvantages for both the issuer and the investor³. Issuing green bonds gives the issuer a positive reputation, but on the other hand, insufficient regulation makes it difficult to define what is green and there are not enough large green projects to issue these securities. It is also more difficult for retail investors to access the green bond market. In the case of green loans, there has been an increase in the number of loans granted and the corresponding amounts, particularly in 2022 and 2023. According to the data from 2022, green loans account for 2% of the market. Looking at the representation of green loans by world region, they are mainly used in North America, Europe and Asia-Pacific. According to Michetti et al. (2022), 70% of the volume in 2022 comes from the Asia-Pacific region and Europe combined (35% each).

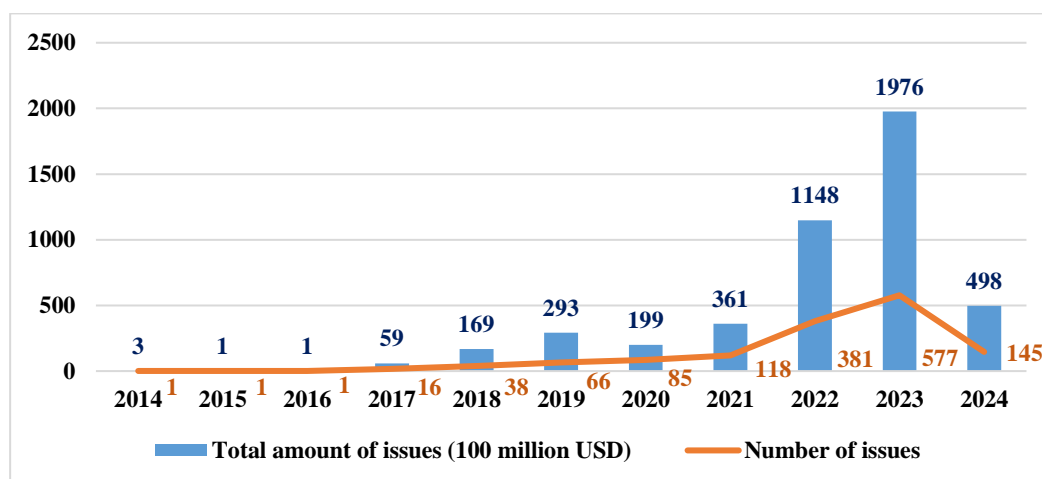


Figure 3: Global green loan total amount and number of issues, 2014-2024
(Source: Green Finance Portal, 2024)

Chen et al. (2024) point out that green loans have both positive and negative effects on the banking business. The development of green loans by commercial banks can help improve social image, achieve differentiated competition, manage environmental risks, and positively affect bank efficiency. On the other hand, the increase of green loans in the banking system increases operating costs. In addition, discounts may be lower due to the positive externalities of green projects.

³ For more in this see Suljić Nikolaj et al. (2022)

2.3. Legal framework for the green bond market

Over the years, human activity has led to global warming and a number of environmental problems, which has highlighted the need for environmental sustainability and economic responsibility. Therefore, states have begun to implement strategies to reduce the negative impact on the environment and promote environmentally friendly projects and socially responsible businesses. The Copenhagen Accord of 2009 contributed to the development of green bonds, as it was decided that financial markets have a key role to play in the fight against climate change and global warming. The standardization of the green bond market began in 2014 with the publication of the Green Bond Principles developed by banks and the International Capital Market Association (ICMA). This was followed by the 2015 Paris Agreement, the first legally binding global climate agreement adopted by 195 countries and as such a turning point for environmental awareness and the transition to a sustainable and carbon-neutral economy. It encouraged further investment in renewable energy and other initiatives to reduce global warming, including an action plan to avoid dangerous climate change and limit global warming to less than 2°C. After three years of stagnation, CO₂ emissions rose by 1.4% in 2017, although not equally in all countries. This indicates that the efforts made so far to mitigate climate change are not sufficient to achieve the goal of limiting global energy-related CO₂ emissions to below 2 °C (Bachelet et al., 2019). Further development of the green bond market is therefore necessary to influence climate change. With the Paris Climate Agreement, the European Union has committed to reducing greenhouse gas emissions by at least 55% by 2030 and achieving complete economic and social climate neutrality by 2050. At European level, the High-Level Expert Group on Sustainable Finance (HLEG) was set up in 2016 to provide clear recommendations to promote the development of green finance and establish common European standards for green bonds. The HLEG's recommendations and the new European taxonomy⁴ for sustainable finance formed the basis for the Sustainable Finance Action Plan, which was adopted by the European Commission in March 2018. As there was no uniform green standard at EU level until then, the European Commission set up the Expert Group on Sustainable Finance (TEG) in June 2018 to provide development assistance for the standardization of green bonds (Green Bond Standard, GBS) (EC, 2019). The GBS is intended to be a voluntary standard proposed to issuers wishing to follow best practice in the market and will be relevant and accessible to issuers inside and outside the EU. At the same time, it is intended to provide a solid basis for accelerating the flow of capital to achieve the European Union's environmental objectives. The GBS User Guide was published in March 2020. Between June 12 and October 2, 2020, the European Commission conducted a public consultation and information process on the work of the TEG and the establishment of the GBS, and on July 6, 2021, the regulation on the voluntary European Green Standard (EU GBS) was proposed. According to the European Parliament (Legislative Train Schedule, European Parliament, 2022), the EU GBS will set the "gold standard" for companies and the public sector when it comes to using green bonds to raise funds on the capital market to finance green and sustainable investments, while protecting investors from greenwashing⁵. In other words, with this harmonized standard, investors in the green bond market will be able to more easily identify the sustainability characteristics of their investments while protecting themselves from the potential risks of misrepresentation in the market. The advantage of the EU GBS is its openness to all issuers of green bonds, including those not domiciled in the European Union.

⁴ The EU taxonomy is a classification tool that provides clear information on the sustainability of investments and activities and supports investors and companies in investments and environmentally friendly economic activities (Climate Bond Initiative, 2022).

⁵ Greenwashing is eco-manipulation, i.e. the deception of a company that tries to convince its customers of the sustainability and environmental compatibility of its products by making them believe that they have a much greater positive impact on the environment than is actually the case.

3. DIFFERENCES BETWEEN CONVENTIONAL AND ISLAMIC VIEWS ON FINANCE

Conventional, i.e. classical Western finance and Islamic finance differ above all in their relationship to risk and the way in which risk is shared in financial processes. In the classical, conventional financial system, the focus is on profit and various insurance instruments are used to hedge the risk of capital investments. Islamic finance strives for a social relationship with the parties involved, with whom the risk is shared and no investments are made in uncertain projects (Cerović et al., 2017). For these reasons, Islamic finance is evolving into a more socially responsible form of financing. They are based on religious Islamic law (Sharia) which contains a number of prohibitions that also apply to financial institutions. The most important that applies to Islamic banks is the prohibition on the use of interest. The renunciation of highly speculative financial instruments based on derivatives and interest at the system level is intended to lead to greater stability and inherent sustainability of Islamic finance. According to (IFAC, 2024), the Islamic finance industry is well positioned to support the Sustainable Development Goals as it promotes responsible development by linking economic growth and social wellbeing. This means that ethical and faith-based investment, on which Islamic finance is based, are among the ESG approaches to responsible investment (along with socially responsible investment, best-in-class investment, green investment and impact investment) (Bogdan et al., 2023). Islamic finance has experienced strong growth over the last two decades (Figure 4), and its most developed segment is Islamic banking. According to the IFSB (2023), the size of global Islamic banking amounted to USD 1.77 trillion in 2019, USD 1.89 trillion in 2020, USD 2.10 trillion in 2021 and USD 2.25 trillion in 2022. In the period 2018-2022, the assets of Islamic banks increased by 2.5% and the share of deposits by 8.6%.

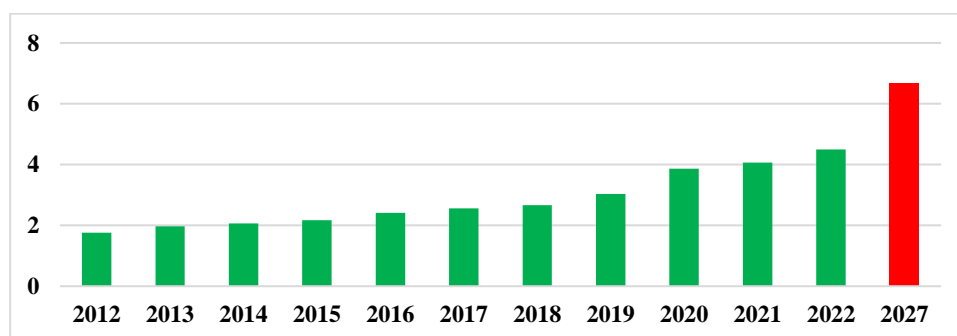


Figure 4: Total value of Islamic finance assets worldwide 2012-2022, with projection for 2027 (in trillion USD)
(Source: Statista, 2024)

In addition to Islamic banks, Islamic bonds are also important. The global sukuk market has also grown rapidly, from an estimated USD 85 billion in sukuk issuance in 2016 to an estimated USD 172 billion in 2020. Although it is a financial instrument that has only been on the financial market for 7 years, the green sukuk plays an important role. According to Mahbuba Ali and Mah Abdullah (2022), the green sukuk is a model of sustainable financing that bridges the gap between conventional and Islamic financing. In cooperation with the Securities Commission (SC), Malaysia issued the first green sukuk bonds in 2017. Indonesia stands out among the first sovereign bonds and issuing the green Sukuk bonds in 2018. These Islamic green bonds were issued with a value of USD 1.25 billion (Suljić Nikolaj et al., 2022). Green sukuk issuance has also increased from USD 500 million in 2017 to USD 3.5 billion in 2019 (IFC, 2021). The London Stock Exchange Group (LSEG) states that global issuance of sustainable bonds amounted to USD 235 billion in the 1st quarter of 2024. In the same period, sustainable sukuk issuance amounted to USD 4 billion, an increase of 17.2% compared to the 1st quarter of 2023.

Since the creation of the sustainable sukuk market in 2017, it has grown every year. From 2017 to 2024, the cumulative value of sustainable sukuk amounted to USD 42.7 billion. Total sukuk issuance in 2023 amounted to USD 212.5 billion, 8.7% more than in the previous year 2022 (ICMA, 2024b). The development of the sukuk bond market is shown below.

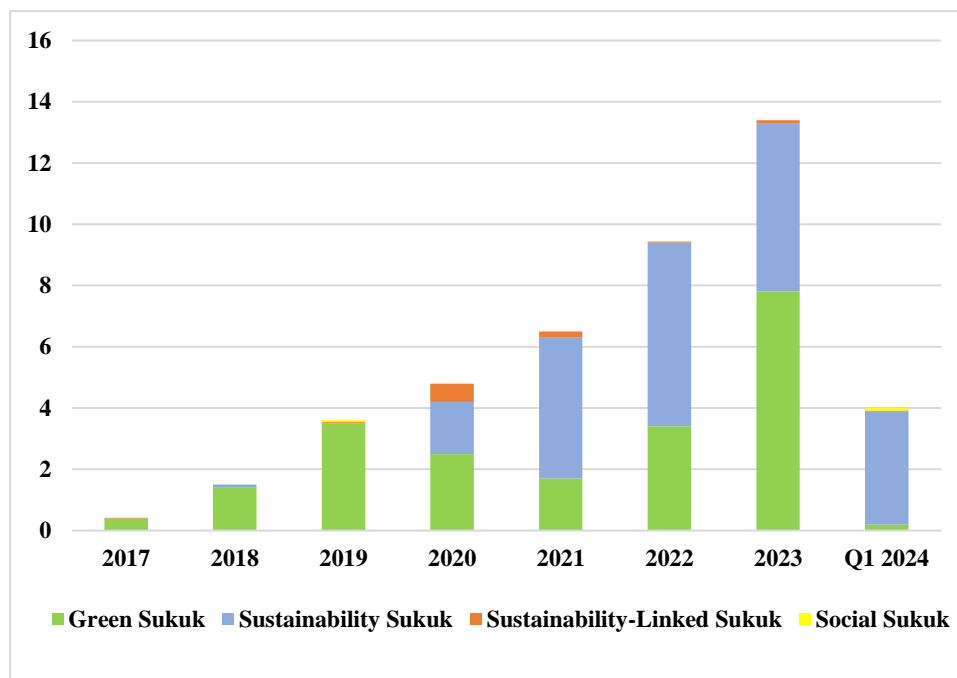


Figure 5: The structure of sustainable sukuk market, 2017-2024 (USD bn)
(Source: ICMA, 2024b)

The increase in green sukuk from USD 500 million in 2027 to USD 3.5 billion in 2019 was reduced by the occurrence of COVID-19. As a result, issuance in 2020 decreased by 44% compared to 2019. The recovery of the green sukuk market was achieved in 2022 and 2023.

4. CONCLUSION

In the face of numerous environmental problems, of which climate change is one of the greatest challenges facing the modern world, raising awareness of environmental protection and sustainable economic development in line with ESG criteria is becoming a global goal. The need for an economic paradigm shift has also been recognized by the financial markets, which is why sustainable financial instruments are being developed, of which green bonds are the most widespread. Islamic finance is fundamentally linked to the principles of sustainable development and ESG investing. The reason for this is the reliance on the Shari'ah, which prohibits the use of interest and investment in risky projects but also ensures risk sharing among stakeholders and a more socially responsible way of doing business. With the rapid growth of the Islamic finance industry, Islamic banking and Islamic sukuk bonds have grown the most. Despite the more sustainable features of Islamic financial instruments, sukuk bonds have also received their sustainable and green variants (like conventional financial instruments), which are also experiencing growth.

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AIR QUALITY AND BIOLOGICAL AGENT EXPOSURE OF ADMINISTRATIVE PERSONNEL AT A WASTE SORTING PLANT

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ABSTRACT

The management of waste is an expanding field, and it is acknowledged that the processes of landfilling, sorting, and composting waste materials can affect air quality and produce harmful bioaerosols. While many studies have focused on the health impacts of these activities on the personnel directly interacting with the waste material, information on the air quality of administrative personnel in this industry is scarce. In this study, we have conducted an analysis of the concentration of bacteria, fungi, particulate matter (PM), carbon dioxide, relative humidity, and temperature in two administrative offices and the canteen of a waste sorting plant in the morning and afternoon of the workday in the winter of 2023. Our results show that PM_{2.5} and PM₁₀ concentrations were below 25 µg/m³ with the exception of the canteen, where, on some occasions, the values were higher in the afternoon. The carbon dioxide values were higher in the offices than outdoors and increased significantly with the number of occupants, exceeding 1250 ppm in the afternoon. Temperatures and relative humidity were within the range of 16.6 - 26.4 °C and 54.5 - 99.4%, respectively, and in some cases the evaluated rooms had high concentrations of fungi. Our findings show that in several instances, the recorded parameter values, as well as their combination, are not within the optimum working conditions. Therefore, this study highlights the importance of a holistic approach to the evaluation of the air quality and the personnel working conditions in waste-sorting centres and allows the proposal of appropriate mitigation measures to ensure a safe and healthy workplace.

Keywords: *air contamination, bacterial concentration, bioaerosols, carbon dioxide, fungal concentration, indoor air quality, PM_{2.5} and PM₁₀, waste-sorting plant*

1. INTRODUCTION

Indoor air quality (IAQ) is an issue of increasing global concern. This is due not solely to the emergence of the recent COVID-19 pandemic but also because IAQ's effects on health, well-being, and productivity are becoming more clearly understood (Brambilla, Gocer and Candido, 2024). As people spend more than 90% of their time indoors, including their residences, workplaces such as offices, and enclosed vehicles (Klepeis *et al.*, 2001), indoor air pollution can have significant effects on their health and work efficiency (Mannan and Al-Ghamdi, 2021). Additionally, for the purpose of energetic sustainability, building designs lean toward airtight and insulated envelopes, which may result in a reduction of indoor air change rates (Brambilla and Sangiorgio, 2020) and, consequently, poor IAQ. Indoor contaminants include chemical pollutants, such as volatile organic compounds, and biological pollutants, for example, mould and bacteria (Brambilla, Gocer and Candido, 2024). Carbon dioxide (CO₂), a by-product of human respiration, is one of the most frequently found chemical contaminants in offices, and high concentrations can cause symptoms such as headaches, dizziness and disorientation (Brambilla, Gocer and Candido, 2024).

As CO₂ increases with occupant density and is removed by ventilation, it can be useful as an indicator of the efficiency of the ventilation system (Abdul-Wahab *et al.*, 2015). Although CO₂ concentration guidelines vary largely worldwide, there is a consensus that indoor air quality is good if CO₂ concentration is equal to or lower than 1000 ppm, moderate for 1000–1500 ppm and poor for higher values (Lowther *et al.*, 2021). In Portugal, Ordinance no 138-G/2021 sets a protection limit of 1250 ppm for buildings dedicated to services and commercial activities. Another important contaminant is particulate matter, PM, which is defined by The World Health Organization, WHO, as “a mixture of solid and liquid particles in the air that are small enough not to settle out on to the Earth’s surface under the influence of gravity” (WHO Global Air Quality Guidelines, 2021). These particles are classified by diameter equal to or less than 10 µm, PM₁₀, and equal to or less than 2.5 µm, PM_{2.5} (WHO Global Air Quality Guidelines, 2021). In a recent review of the literature on long-term exposure to PM, Chen & Hoek (2020) concluded that both PM fractions are associated with mortality from cardiovascular disease, respiratory disease and lung cancer. These contaminants may result from natural processes or anthropogenic activities (Brambilla, Gocer and Candido, 2024), such as solid waste sorting (Viegas, Almeida-Silva and Viegas, 2014), and can be disseminated over large areas (Pepper and Gerba, 2015). The guidance values for PM_{2.5} and PM₁₀, published by WHO in 2021, are 5 and 15 µg/m³, respectively (WHO Global Air Quality Guidelines, 2021). Portuguese legislation sets protection limits of 25 µg/m³ for PM_{2.5} and 50 µg/m³ for PM₁₀ (Ordinance no 138-G/2021 of July 1st, 2021). Biological contaminants include bacteria and fungi, and this microbial pollution is known to cause respiratory symptoms, allergies, and asthma and can have indoor and outdoor sources (WHO Guidelines for Indoor Air Quality, 2009). As such, the reference values found in the Portuguese Ordinance no 138-G/2021 concerning the air quality in buildings dedicated to services and commercial activities, are set comparatively to exterior microbial concentrations, for bacteria a total concentration less than that of the exterior plus 350 Colony Forming Units (CFU)/m³, and also concentrations lower than the exterior for fungi. Additionally, the ordinance states that common fungal species should not exceed 500 CFU/m³ (Ordinance no 138-G/2021). Chemical and biological factors of indoor contamination are also influenced by physical factors, such as temperature, humidity and ventilation (Brambilla and Sangiorgio, 2020). High levels of humidity and poor ventilation provide favourable conditions for the growth of fungi and bacteria and initiate the chemical or biological degradation of materials, which also contributes with contaminants to the air (WHO Guidelines for Indoor Air Quality, 2009). Therefore, dampness may be considered an indicator of the health risks of biological contamination (WHO Guidelines for Indoor Air Quality, 2009). Indoor air quality in office-like environments has significant effects on office work performance and productivity (Wyon, 2004; Fanger, 2006). In their review of the effects of indoor temperature, humidity and ventilation on human health, work and cognitive performance, Wolkoff, Azuma and Carrer (2021) concluded that lower temperature increases the risk of cardiovascular and respiratory diseases, and the latter is also increased by elevated temperatures. Optimum temperatures for work and cognitive performance are in the range of 22–24°C, although this varies according to geographic region due to acclimation, and recommended relative humidities are between 40 and 60% (Wolkoff, Azuma and Carrer, 2021). Additionally, poor ventilation increases the transmission of respiratory infections and deficient filtration of the recirculated air may facilitate the dissemination of infectious agents (Wolkoff, Azuma and Carrer, 2021). In Portugal, the optimum temperature and relative humidity working conditions for offices and commercial and service establishments are 18–22°C and 50–70%, respectively (Decree-Law no 243/1986). The equipment intended for natural or forced ventilation of the working atmosphere and common facilities must support an average flow of fresh, pure air of at least 30 m³ per hour per worker, although this may be increased to 50 m³ if environmental conditions require it (Decree-Law no 243/1986).

It is recognized that the waste management industry is a source of indoor air contaminants (Vimercati *et al.*, 2016). Studies of the IAQ of waste management installations that have included administrative personnel have observed a significantly lower exposure to airborne contamination when compared to personnel directly interacting with the waste (Hansen *et al.*, 2023; Rasmussen *et al.*, 2023). The aim of this study was to evaluate the indoor air quality of office and common spaces situated in a waste-sorting installation during the workday, focusing on various physicochemical and microbiological parameters, such as particulate matter, carbon dioxide, relative humidity, temperature, bacteria, and fungi. The sampling locations were selected where the administrative workers were during their workday and due to their proximity to the building where the waste was manipulated.

2. METHODOLOGY

2.1. Study area

The research was developed at the waste sorting plant that manages the domestic and industrial waste of the eco-centers of approximately 1 million people living in the Porto district (Portugal). Two administrative offices and the canteen that were in proximity to the Multi-Material sorting unit were selected. This unit processes the high-dimension plastics, plastic films, and other plastics collected from the municipal eco-centers and industry circuits, which are separated according to their composition: PVC, HDPE/LDPE, PP, and LDPE plastic films. While sampling was carried out, the administrative office A and B had an average occupancy of 1-2 and 5-8 workers during the workday, respectively, and both spaces were equipped with personal computers and air conditioners. The canteen had an average occupancy of 2-8 workers, several kitchen appliances and air conditioners. Outdoor air was collected near the sampling locations as a reference for the assessment of the extent of contamination from indoor sources.

2.2. Sampling and measurement techniques

Physicochemical and microbiological parameters were assessed in the mornings and afternoons in the 2 administrative offices, the canteen and an outdoor location. The physicochemical parameters were PM_{2.5}, PM₁₀, CO₂ concentration, temperature, and relative humidity using the particle measuring device BQ30 (Trotec, Heinsberg, Germany). Microbiological parameters were measured using an impaction air sampler at a flow rate of 100 L/min (SAS Super ISO 100, VWR, Milano, Italy) and 90 mm diameter plates with solid nutrient media. Sampled volumes ranged from 60 to 400 L, depending on the expected microbial concentration. At each location, three volumes were sampled in duplicate for each type of microorganism. The nutrient media for bacteria and fungi and the incubation conditions are indicated elsewhere (Manuel and Samardjieva, 2024).

2.3. Statistical Analysis

The experimental data were analyzed using IBM SPSS Statistics (version 28). A preliminary analysis of the data was performed based on the descriptive statistics measures (Pestana and Gageiro, 2014) and boxplots were constructed. The data were not all normally distributed according to the Shapiro–Wilk test, and thus, all the following tests were non-parametric. The Kruskal–Wallis test was used to compare the means of samples collected in the morning and in the afternoon for the same location and outdoors. The significance values were adjusted by the Bonferroni correction for multiple tests. Spearman’s rank correlation was used to assess the relationship between the measured parameters (Mukaka, 2012). When performing two-sided tests, differences were considered statistically significant when the p-value was lower than 0.05.

3. DATA ANALYSIS AND RESULTS

3.1. Physicochemical parameters of the indoor air

The physicochemical parameters PM_{2.5} and PM₁₀ obtained in the morning and afternoon periods (Figure 1) were not statistically different from those obtained outdoors. Even so, there was a tendency of higher concentrations of PM in the canteen in the afternoon than in the morning, probably due to the high number of kitchen appliances, air conditioning units and workers movement. Applying the Spearman's rho correlations to the data obtained from the indoor air samples, it can be highlighted that PM_{2.5} had a high direct correlation with PM₁₀ ($r = 0.896$, $p < 0.001$). With the exception of the canteen, PM_{2.5} and PM₁₀ concentrations in the two offices were always lower than 25 mg/m³, which is below the protection threshold limits, 25 and 50 µg/m³, respectively, according to the Portuguese regulation for commercial and service buildings (Ordinance no 138-G/2021). The PM concentrations of office A are also within the WHO guidelines, although those are exceeded by office B and the canteen (WHO Global Air Quality Guidelines, 2021). The PM concentrations for offices A and B are similar to those reported by Kim et al. (2022) for the open office spaces in a University Campus building and lower than those reported for offices in an office building in Slovakia (Vilcekova et al., 2017). Office spaces A, B and the canteen are situated in a waste treatment complex, however, the values for PM_{2.5} and PM₁₀ in the waste sorting areas were found to be significantly superior, this shows that the manipulation of the waste materials is not affecting the concentration of particles of these office environments (Manuel and Samardjieva, 2024). The three indoor spaces presented higher concentrations of CO₂ when compared to those outdoors, indicating a possible indoor pollution source. In addition, CO₂ concentration increased by approximately 50% during the workday in offices A and B, exceeding the protection threshold limit of 1250 ppm (Ordinance no 138-G/2021). These values were found to be weakly positively related to the workers occupancy ($r = 0.478$, $p = 0.045$) and are indicative of insufficient ventilation of these workspaces. In the three indoor spaces, temperature and relative humidity were in similar ranges, 16.6 to 26.4°C and 54.5 to 99.4%, respectively. The measured temperatures exceeded slightly the range of the optimal working conditions as defined by Portuguese Decree-Law no 243/1986, however, relative humidity often surpassed the recommended values. Correlation analysis showed that relative humidity had a moderate negative correlation with temperature ($r = -0.678$, $p < 0.001$). The combination of these factors, temperature and relative humidity, are determinants for mould germination and growth (Brambilla and Sangiorgio, 2020), and high relative humidity values are also associated with the increase of viability of influenza virus on steel surfaces (Wolkoff, Azuma and Carrer, 2021). Therefore, measures should be sought to reduce relative humidity values in these environments, also, as the analysis of the air quality of typical indoor environments has revealed the importance of daily and seasonal variations (Mentese et al., 2012), future seasonal monitorization is important to evaluate the working conditions in these offices. According to the physicochemical parameters, it is essential to manage the CO₂ concentration and relative humidity in the offices during the workday. This can be achieved by using a Heating, Ventilation, and Air Conditioning (HVAC) system. Installing additional sensors to measure relative humidity, PM, and CO₂ concentrations connected to the HVAC system could automate the regulation of these parameters within recommended ranges, thereby improving air quality while reducing energy consumption (Che et al., 2019; Mancini et al., 2020). In the canteen, the main issue is the increase in particulate matter during the workday, which can be managed by using high-quality air filters to capture fine particulates from the air. Moreover, incorporating potted plants or green walls could assist in air purification (Kumar et al., 2023).

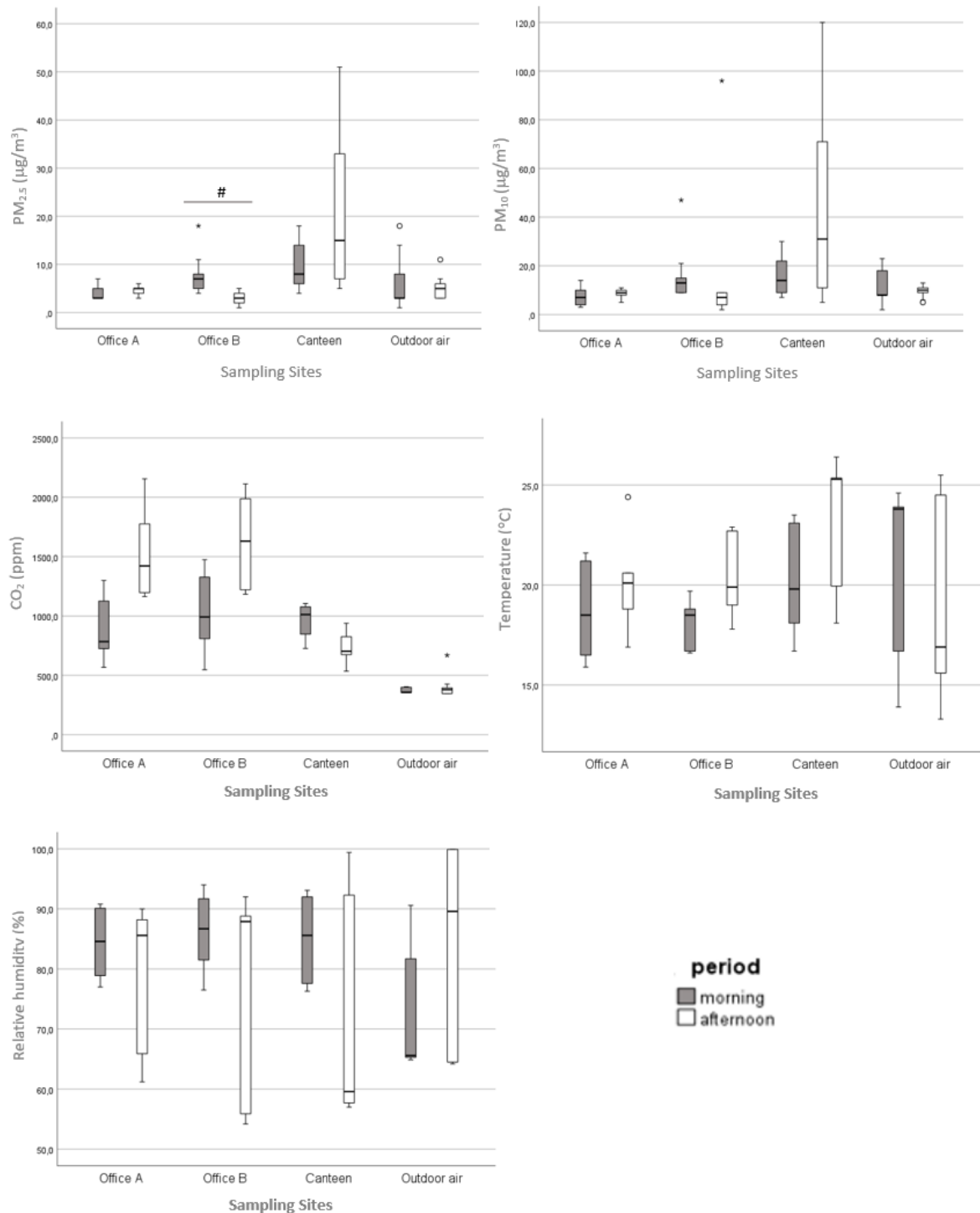


Figure 1: Physicochemical parameters of air collected inside the administrative offices, canteen and outside in the morning (grey bars) and in the afternoon (white bars) for PM_{2.5}, PM₁₀, CO₂, temperature and relative humidity. Outliers are marked with ° and extreme outliers with *. A statistically significant difference ($p < 0.05$) was found in bars marked with #, when comparing values between morning and afternoon samples.

3.2. Microbiological parameters of the indoor air

The concentration of culturable bacteria and fungi in the bioaerosols was evaluated in the mornings and afternoons in the administrative offices and inside the canteen (Figure 2). These values were not significantly different from those observed outdoors, with the exception of the

fungi in the canteen, where the average afternoon concentrations were twofold higher than in the morning. According to the Portuguese regulation concerning the energy systems and climatization of commercial and service buildings (Ordinance no 138-G/2021), bacterial concentration in indoor air should not exceed the outdoor concentration by more than 350 CFU/m³, and the concentration of fungi should be lower than the outdoor concentration. As can be observed in Figure 2, bacterial concentrations are within the referred limits, contrary to fungi whose concentrations are surpassing the threshold, especially in the canteen during the afternoon. Total bacteria were also observed to be generally below 500 CFU/m³ in an office building in Greece, where concentrations were found to be dependent on occupancy (Kalogerakis *et al.*, 2005). Another study carried out in two office buildings in Hong Kong reports bioaerosol concentrations below 1000 CFU/m³ and stresses the importance of air filtration and system management as a mechanism for bioaerosol control (Law, Chau and Chan, 2001). Moreover, the comparison of viable and total airborne microorganisms has shown that viable organisms constitute less than 0.3% (Gołofit-Szymczak and Górny, 2010), and this warrants a closer evaluation of the microorganisms present through methodologies that are not dependent on microbial culture.

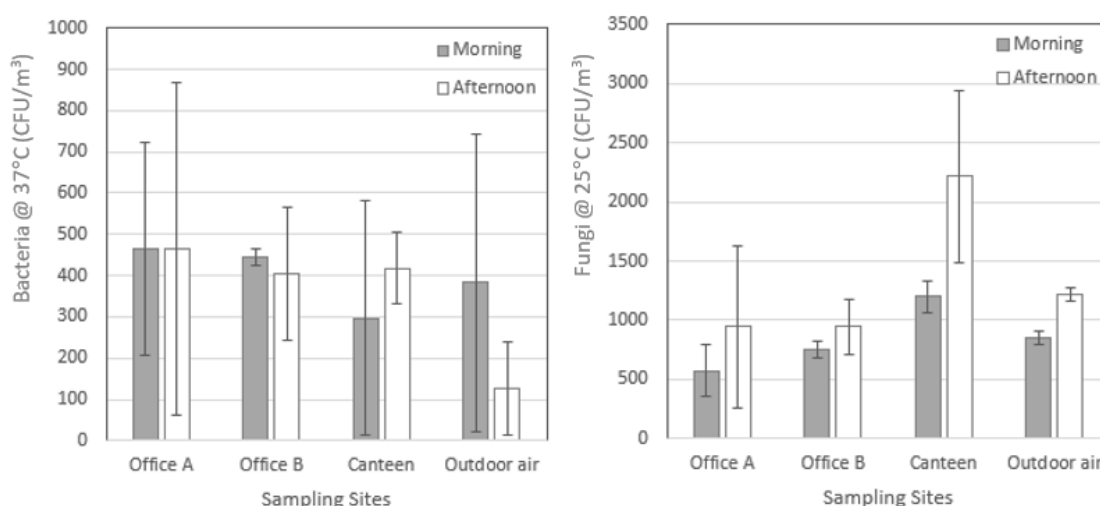


Figure 2: Microbiological parameters of air collected inside the administrative offices, canteen and outside in the morning (grey bars) and in the afternoon (white bars) for bacteria and fungi. No statistically significant difference ($p < 0.05$) was found, when comparing values between morning and afternoon samples.

Controlling fungi in the indoor air in the canteen may involve different approaches to address both the fungal growth and the dispersion of spores, such as the installation of HVAC system with high-quality air filters to capture fungal spores from the air (EPA, n. d.; Bonetta *et al.*, 2010). Moreover, the control of the relative humidity to lower percentages in the air is known to reduce fungal growth. Other beneficial options could be air purifiers with activated carbon filters, ultraviolet germicidal irradiation (UVGI) treatment and air ozonation (EPA, n. d.; Kelly and Fussell, 2019).

4. CONCLUSION

The results of this study show that the IAQ of the two offices and canteen selected for this evaluation is poor in several aspects. The increases in CO₂ during working hours suggest that the ventilation system is inefficient in maintaining healthy levels. This is also supported by the concentration of fungi in these spaces. The humidity levels are higher than recommended and at concentrations known to favour the germination and growth of microorganisms.

Although PM values were found to be within the Portuguese legislation protection limits, in some cases they exceed WHO guidelines. However, it is important to note that these values are significantly lower than those previously registered for the waste-sorting areas. Overall, it is important to initiate mitigating measures and continue their monitoring.

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CONTENT ANALYSIS OF BUSINESS MASTER THESES: RISE OF SOCIAL RESPONSIBILITY

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ABSTRACT

Leaders of tomorrow's world are currently undergoing their university education. Majority of CEOs and, government officials own a graduate degree. Usually in business. In order to test their motivation and/or exposure to socially responsible topics during their time at the university, present paper has analysed the topics of their master theses. Mere exposure can often be enough for one to increase their awareness of certain phenomena, thus, the choice of dealing with socially responsible topic as part of their higher education may indicate the perseverance to continue with such practices. To test what is the current state of affairs when it comes to topics covered as part of the process of writing a master thesis, almost 6000 summaries have been scraped from the Croatian repository of academic institutions. Each thesis was categorized as either dealing with socially responsible topics including waste management, environmental protection, ethics, sustainability, social justice, climate and crisis in general. The results have shown that around one in three thesis deals with such topics, and that this number is rising in recent years. It has also been shown that there is a significant variability in the choices of certain topic between different study programmes. Finally, analyses have shown that not all topics are well integrated with another. Aside from sustainability that is often explored along side other socially responsible topics, terms like crisis, or ethics do not usually come together. The present paper establishes the baseline measure of the importance final year business students put on the socially responsible themes. The results also serve as the starting point for future researchers wishing to extend and test the observed findings in other context, mainly in other master programmes.

Keywords: *ethics, master theses, social responsibility, sustainability, text analysis*

1. INTRODUCTION

The speed with which the information is exchanged has never been faster. The main causes for such increase in the speed of information exchange is the digitalization and the power to access information regardless of where one finds himself. With this great power, comes great responsibility. Specifically, social responsibility. The effects of socially irresponsible behaviour are no longer restrained to testimonies of those directly exposed to such irresponsible behaviour of companies, but for the whole world to see. Individuals are more aware of consequences of their actions such as reducing food waste, recycling, and choosing eco-friendly transportation, however, those in positions of power—such as lawmakers, CEOs, and government officials, have far greater ability to enforce significant changes. Majority of these positions of power require a higher education degree. For example, in the UK Parliament, around 10% of members hold a business school degree, with many others having studied political science, history, or philosophy (Study.eu, 2021). The number of business degrees is even more pronounced in the corporate world, over half of US CEOs and about a quarter of European ones have a master business degrees. Despite this, previous research indicates that educators perceive a lack of emphasis on socially responsible content in these programs (Nicholson & DeMoss, 2009). These data place universities in a position of responsibility for both the societal and environmental preservation.

Accreditation bodies like AACSB and EQUIS mandate that universities emphasize global protection, the education of socially responsible leaders, ethics, responsibility, and sustainability (AACSB, 2021; EQUIS, 2021). Therefore, the aim of this paper is to examine the extent to which topics of social responsibility are represented in the curricula of economics and business students by the time they graduate. Social responsibility in education cannot be equated with the corporate ethics; it entails a broad spectrum of societal impacts, such as environmental protection, ethical governance, and community engagement (Carroll, 1991). The integration of social responsibility into higher education curricula is crucial precondition for cultivating future leaders committed to ethical and sustainable decision-making (Matten & Moon, 2004). The need for such integration is further emphasized by the increasing demand for businesses to operate in a sustainable and ethical manner, as both the consumers and stakeholders become more conscious of corporate impacts on society and the environment (Porter & Kramer, 2011; Ali et al., 2020). Previously, research has shown that incorporation of social responsibility into business education can lead to more ethically aware and socially conscious graduates. For instance, students exposed to ethics and social responsibility training are more likely to make ethical decisions in their professional lives (Christensen et al., 2007). This finding aligns with the broader educational goal of producing graduates who are not only competent in their fields but also equipped to address complex societal challenges (AACSB, 2021). Moreover, business schools' role in fostering social responsibility is pivotal when considering their influence on future business leaders. An initiative supported by the United Nations proposed the Principles for Responsible Management Education (PRME) which state that business schools have a responsibility to advance the sustainable development goals through education, research, and partnerships. This initiative encourages institutions to embed social responsibility into their curricula, which in turn prepares students to contribute positively to society (UN Global Compact, 2015). On the flip-side, the implementation of social responsibility in education faces several challenges. Many institutions struggle with bridging the gap between the rhetoric of social responsibility in business education and its practical application (Rasche, Gilbert, and Schedel, 2013). Additionally, the perception of social responsibility as a secondary or supplementary topic, rather than a core component of business education, further hinders its integration (Nicholson & DeMoss, 2009). Enhancing faculty training, developing comprehensive curricula that integrate social responsibility across disciplines, and fostering partnerships with industry stakeholders can help bridge the gap between theory and practice (Matten & Moon, 2004). In conclusion, the responsibility of universities in promoting social responsibility is substantial, given their role in shaping the leaders of tomorrow. By embedding social responsibility into the fabric of higher education, institutions can contribute to a more ethical, sustainable, and socially conscious future. This paper aims to explore the current state of social responsibility education in economics and business programs, providing insights into how well universities are preparing students to meet the challenges of an increasingly interconnected and socially aware world.

2. CONCEPT OF SOCIAL RESPONSIBILITY

Social responsibility, specifically that of companies, is a broad term for which there is no single definition. It was mentioned for the first time in the 1930s, and gained real momentum in the period between the 1950s and 1970s, when one of the better-known definitions was offered as economic, legal, ethical and discretionary expectations that society has from organizations (Carroll, 1979). Newer definitions specify exactly what these responsibilities refer to, so the Corporate Finance Institute (2021) divides them into environmental, human rights, community and economic responsibilities. Ten years ago, at the United Nations Framework Convention on Climate Change, Paris Climate Agreement has shoved social responsibility at the public and academic focus.

This Agreement, that set Sustainable Development Goals put additional pressure on companies to influence their operations (Latapí Agudelo et al., 2019). In the meantime, the worldwide pandemic only emphasized the importance of promoting socially responsible behaviors. The Paris Agreement aimed to slow climate change linked to increased greenhouse gas emissions, which occur as a result of burning fossil fuels, industrial animal husbandry, wastewater treatment and deforestation (Latapí Agudelo et al., 2019) all of which is caused by people. For the purposes of this paper, socially responsible topic broadly defined as the term related to behaviours that can be described as ethical, that contribute to economic development while at the same time improve the quality of life in general (Moir, 2021). Additionally, similar to Yevdokimova et al. (2018), the social responsibility is equated with morality and ethics. The consequence of a too narrow operationalization of social responsibility would lead to an underestimation of students' interest in such topics. On the other hand, too broad a definition could greatly overestimate such interest. In order to balance between these two extremes. The integration of CSR into business education is crucial for developing future leaders who can navigate these complexities. As CSR continues to evolve, it is increasingly seen as integral to the strategic objectives of organizations rather than a peripheral activity. Porter and Kramer (2011) introduced the concept of creating shared value (CSV), which redefines the purpose of corporations around generating economic value in ways that also produce societal benefits. This perspective suggests that addressing societal needs and challenges can drive economic success. Research by Matten and Moon (2008) highlights the differences between explicit and implicit CSR in various cultural contexts, particularly between the US and Europe. In the US, explicit CSR involves voluntary corporate policies, programs, and strategies, whereas in Europe, CSR is often embedded within broader societal expectations and governmental frameworks. Given these evolving perspectives, it is essential to consider how educational institutions are preparing students to engage with CSR issues. By integrating CSR into their curricula and encouraging research on these topics, universities can better prepare students to address the complex challenges they will face in their professional lives. This study's methodology, focusing on the presence of CSR-related keywords in graduate theses, provides a snapshot of current student engagement with CSR topics and can serve as a benchmark for future research. The aim of this paper is not to conclusively define or debate the causes and consequences of socially responsible behaviors. The interested reader is referred to Latapí Agudelo et al. (2019), and Velte, (2022), who made an exhaustive historical overview of the representation of corporate social responsibility in practice and science, and to Carroll (2009), where the most significant works on the topic of social responsibility are presented. As for the specific work, the goal was to examine how important the topics of social responsibility are to students at the end of their higher education. For this reason, graduate theses, i.e. words from the title and/or abstract, were taken as units of observation. Text analysis is a qualitative research method that enables the researcher to observe the frequencies of certain terms and to conclude about the causes of such distributions (Silge & Robinson, 2016). Therefore, for the purposes of this paper, the presence of social responsibility in the paper is defined as the presence of one (or more) key words in the title and/or abstract of the paper.

3. METHODOLOGY

In this, exploratory, work, content analysis of the master thesis summary was applied (Frey et al., 2000). Considering the nature of the work, as well as the lack of similar ones in the literature, no hypotheses were set, but the data were described using descriptive analysis methods and were presented graphically. The purpose of the collected data is to inform future, similar, research in different contexts.

3.1. Sample, measurements and procedure

The sample unit is an individual master thesis defended at one of the two major Croatian business schools between 2015 and 2023. The Digital Academic Archive and Repository (DABAR) does not contain papers defended before 2015, therefore the conclusions are limited to the period of the past nine years. Additionally, present year (2024) has been excluded from the analyses because it would greatly underestimate the amount of produced papers, since only half of the year has passed. Only works in the Croatian language were collected as it constitutes the majority of all the theses. Out of a total of 6256 master theses that were collected, final sample consisted of 5871. Theses were excluded from the sample, before any analyses were conducted, based on the missing information, usually about the study programme to which they were submitted. The sample description is presented in Table 1.

Year	No. of defended theses	Study programme	No. of defended theses
2015	682	Finance and accounting	1444
2016	589	Entrepreneurship	818
2017	267	Management	687
2018	233	Marketing	605
2019	789	Trade and tourism	414
2020	824	International business	323
2021	829	Business informatics	270
2022	813	EU economy	78
2023	817	Macroeconomics	78
		No information	1357

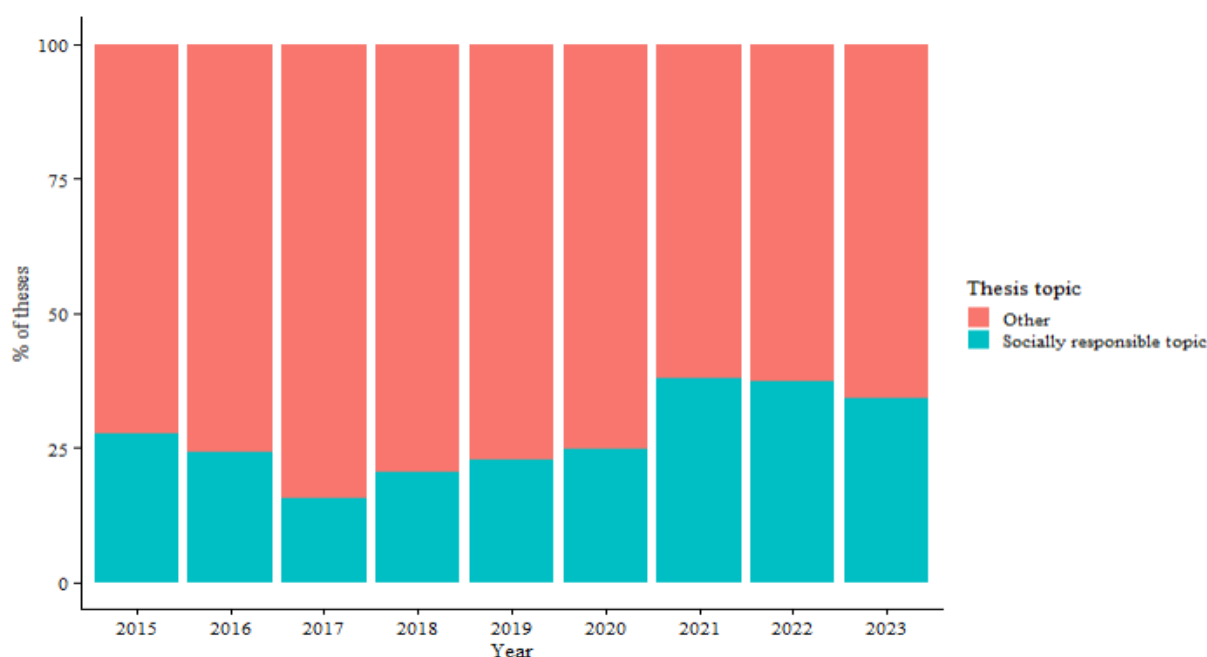
*Table 1: Sample description
(Source: Author)*

In preparing the analyses, master theses were grouped by two criteria, by the year in which they were submitted and by the study program within which they were defended. Each thesis contains information about the title of the thesis, a summary of the thesis, the date of the defence and the institution that accepted the thesis along with the study programme. In addition to these automatically collected measures, several new measures were created during the analysis. The key outcome variables are the absolute and relative number of papers and/or words in papers related to social responsibility topics. Depending on the type of analysis, the outcome variable varied. Thus, when analysing the number of master theses dealing with a certain topic, the number of theses whose title/abstract mentions a certain word was used as a dependent variable, while in other analyses the relative frequency of a certain term (in relation to the course or within the thesis itself) was analysed as a key variable of interest. All outcome variables were analysed according to the year, study programme and the socially responsible topic about which the thesis was about. The theses could be categorized as belonging to one of the seven different socially responsible categories: ethics, climate, social, crisis, sustainability, environment, waste. The analyses were carried out in the R Studio program for statistical data processing, with the help of the ‘*tidytext*’ package (Silge & Robinson, 2016), which was used for content analysis; ‘*rvest*’ package (Wickham, 2021) with which information about graduate theses was collected from the repository pages and ‘*ggplot2*’ package (Wickham, 2016) with which

visualizations were created. All theses were collected in June 2024 from Croatian repository of scientific works (DABAR), where master theses are archived after a successful defence. Some data manipulation was done. Namely, given that theses come from two independent universities, some study programmes are named differently despite being rather similar. Therefore, similar majors have been renamed to a common denominator (eg. Economics of Entrepreneurship and Entrepreneurship are categorized together as Entrepreneurship).

4. RESULTS

All the results are presented graphically, with the exception of a descriptive table describing the examined sample. Hypotheses testing was not conducted mostly because of the exploratory nature of the study, but also there were no norms to which the present results may be compared to. One of the main goal of these analyses is to propose a set of norms that can later on serve as the starting point with which the future work can compare with. First analysis showed how many students decide on taking on the socially responsible master thesis as their final university task. Each thesis is categorized as either covering socially responsible topics or covering some other business phenomena. The key criteria was the presence of a certain keyword in the thesis' summary. Anytime a thesis summary included words such as “waste”, “environment” or “ethics”, the entire thesis was categorized as belonging to the Socially responsible topic. In all other cases, the these was categorized as “Other”. Figure 1 presents the observed findings.



*Figure 1: Proportion of socially responsible topics and other topics by year
(Source: Author)*

The majority of submitted thesis does not deal with socially responsible topics, however, two observations are apparent. First, the slow but steady increase in the amount of thesis covering socially responsible topics is visible, but also, around one third of all thesis deals in some way with socially responsible topics which goes to show there is a significant portion of socially responsible themes being chosen. The aim of the second analysis was to test whether there is a variability in the popularity of certain socially responsible topics through years. For this reason, the relative frequency of the word (total number of occurrences of the word/total occurrence of all words in a giver year * 100) is shown over the years for each socially responsible topic (Figure 2).

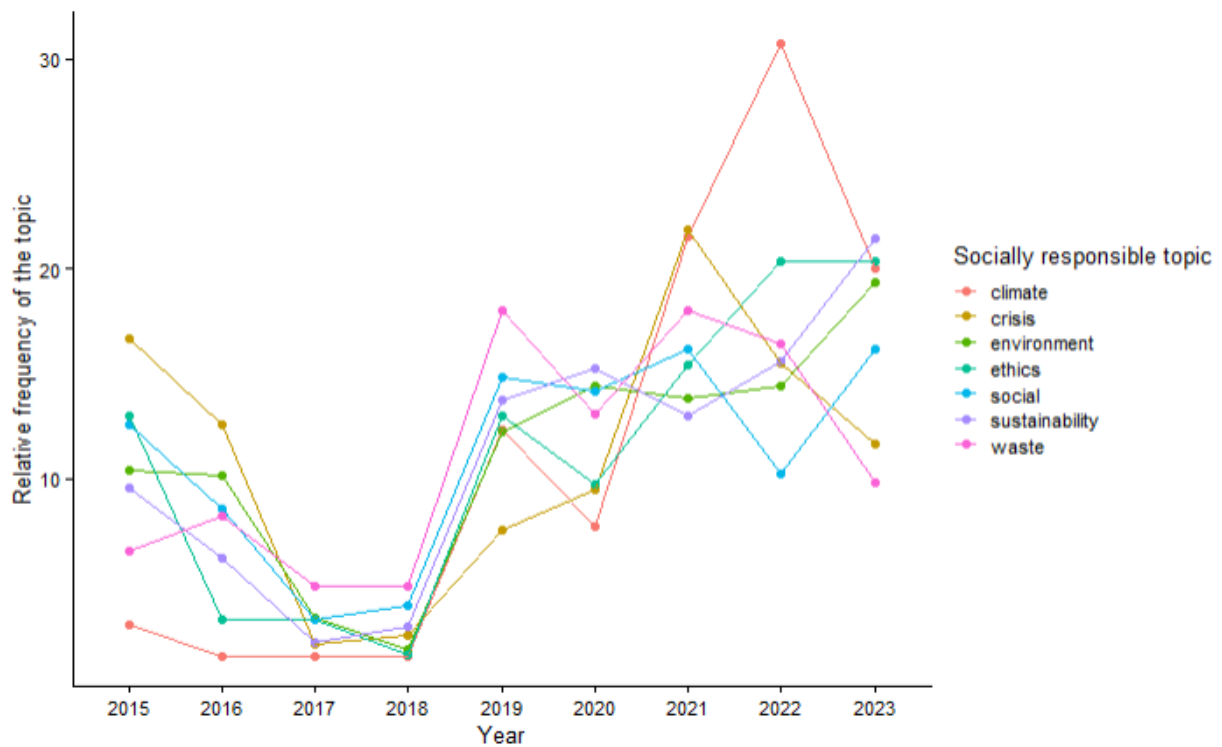


Figure 2: Relative frequency of socially responsible topic by year
(Source: Author)

The figure extends what was observed in the previous analysis. The increase in the amount of thesis covering socially responsible topics is clearly visible; it is hard to distinguish one topic from another, however, “*climate*” was significantly the most popular topic covered in the year 2022. Topic “*crisis*”, reached its peak in 2021 (it was probably paired with words such as “*corona*”, “*pandemic*”, etc.). In order to further explain observed results, the analysis was repeated, but this time taking into account the study programme to which the master thesis falls under. Figure 3 presents the popularity of each topic between different study programmes.

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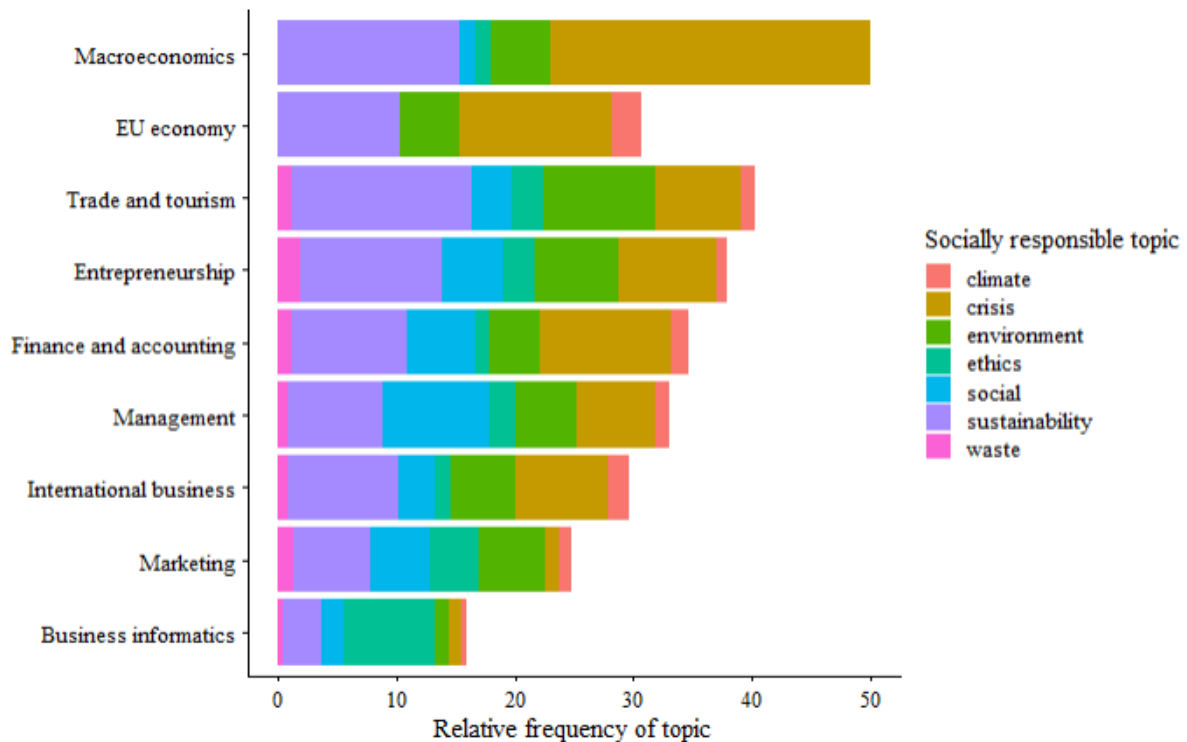


Figure 3: Comparison of topics relative frequency by study programme
(Source: Author)

Several important findings become evident from the Figure. First, macroeconomics, thanks to the often written about topic of “*crisis*” has the highest ratio of socially responsible topics in master theses of all the study programmes. However, “*crisis*” aside, Trade and tourism followed closely by Entrepreneurship and Finance and accounting, are the study programmes that boast the highest ratio of socially responsible topics in the master theses. There is also some variability in the popularity of topics depending on the programme. Tourism student most often explore topics of sustainability and environment, while Management students mainly focus on *sustainability* and *social* aspect of social responsibility. Finally, Business informatics primarily concerns with *ethics*, while a surprising observation has placed Marketing as the least socially responsible oriented study programme. Finally, it was important to test whether there is some overlap between different socially responsible topics. For this reason, each thesis summary was coded for the presence of words indicating each of the mentioned socially responsible categories. Afterwards, the Pearson’s correlation coefficient was calculated and the results are graphically presented in Figure 4, as the heat map. The more colourful the square is – the higher the relationship between the topics.

Figure following on the next page

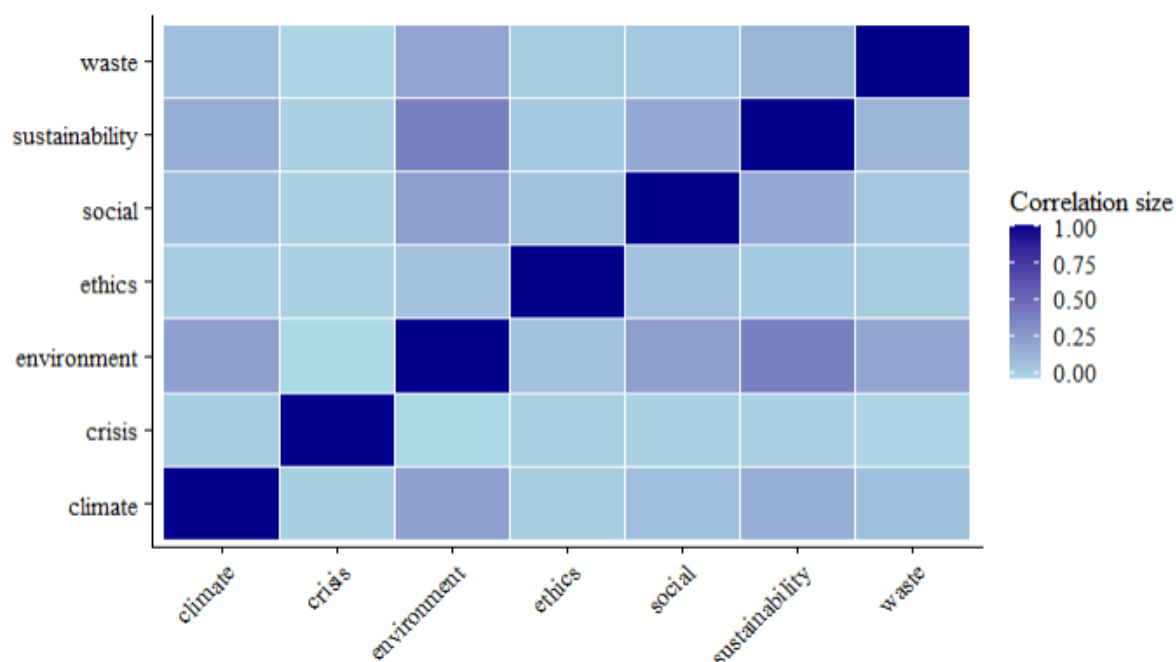


Figure 4: Pearson's correlation between socially responsible topics
(Source: Author)

As can be seen from the Figure, “*crisis*” has almost never brought in the relation to any of the other topics. “*Ethics*” is close second in being unrelated to other topics. On the other hand, “*sustainability*” is often explored in regards to “*social*”, “*waste*”, “*climate*” but especially to “*environment*” ($r = 0,39$). Even this correlation is small in size, thus, aside from “*sustainability*”, these topics are not that well integrated with each other. The implications and further discussion is presented in the following section.

5. CONCLUSION

This research is among the first to show interest levels for socially responsible topics of business students following the completion of their higher education. Previous works have examined the state of affairs in the scientific community regarding these issues (Velte, 2022), however, present findings broaden the knowledge on social responsibility by showing how are scientists, most of which are also teaching, affecting their students, and their choices of socially responsible topics. There are several promising findings observed in the study. First, the socially responsible topics represent a significant portion of all the master theses topics. Secondly, certain topics are more popular than others. For example, “*crisis*” has been in a steady decline since 2021 where it was the most popular topic, following the outburst of both the corona pandemic, but also the amount of scientific articles dealing with this topic. On the other hand, “*climate*” is always a popular topic that is being selected by the final year business students to cover as part of their master thesis. Third, the topic popularity varies between study programmes. While tourism and trade are concerned with “*sustainability*” and “*environment*”, business informatics students are more concerned with “*ethical*” aspects. Final contribution of the present paper lies in the use of a certain methodology by which both the results have been collected and analysed. Despite all of its shortcomings (Matthes & Kohring, 2008), content analysis allows for an objective probing of the actual behaviour. Instead of focusing research efforts in examining attitudes or predictions of future behaviour, both of which have rather small relationship with the actual behaviour (Kraus, 1995), researchers have the opportunity to directly observe the choices made by the soon-to-be leaders of private companies and governments.

One of the most important findings of this research is the data that roughly a quarter of graduate theses are focused on socially responsible topics, and that this trend has been stable over the years. Variability, on the other hand, exists when the ratio of papers with and without an explicit focus on socially responsible topics is compared between majors. The frequency of works varies from about 10% to about 70%, depending on the study programme. Another type of variability, equally important, was also observed for specific topics with regard to the study program. Macroeconomic courses are mostly focused on the concepts of "*crisis*", while courses such as Marketing and Management are more focused on "*society*". The Trade and tourism graduates typically choose topics close to "*sustainability*" and "*environment*". The collected results are important for three reasons. First, a starting point was established, more precisely, a starting line from 2015, the growth and development of which can further be monitored and compared with similar countries, but also with future works. Secondly, the fact that social responsibility is present in the minds of students and professors responsible for approving the topic is encouraging. Without previously established criteria, the finding that a quarter of all graduate theses includes social responsibility as one of the topic is a pledge for the future. Third, the results of the analysis of the frequency of topics per study program can serve as a guideline for the design of the teaching process. Although it is desirable for an individual to be familiar with the issue of social responsibility as a whole, the goal should be to focus students specifically on the topic on which they will potentially have the greatest impact. Therefore, results such as the fact that master theses dealing with environmental protection are rarely prepared in the fields of Finance and Markoeconomics can direct the teaching process to connecting the consequences of crises not only to the economy but also to the environment, e.g. Deer & Zarestky (2017) showed that students already after participating in one course, in which special emphasis is placed on socially responsible topics, increase their belief that they are capable of positively influencing changes.

5.1. Limitations and recommendations for future research

Couple of minor limitations, which represent a call for future research is presented next. The study design prevented unilateral conclusion that the results can be explained solely by the student's interest in this topic. The scope of the present paper is not wide enough to take into account all the relevant facts that lead to the selection of the thesis topic. Individual differences between students and mentors certainly play a role here. In addition to individual differences, the probability of seeing a problem through a socially responsible lens is also affected by the amount of study material focused on such a topic. However, the amount of sampled theses should warrant that such non-systematic variability does not affect the final results. The goal of this paper was to establish a baseline measure of the current affairs regarding the motivation of students to deal with socially responsible topics. Future works can advance this research in several ways. For example, despite having close to 6000 theses sampled, the number of universities is rather small ($N=2$). Thus, future researchers may wish to further validate the results of the present study on a more heterogeneous sample, coming from different geographical areas. Additionally, and more interestingly, comparisons can be made not only between different study programmes from the same faculty, but also to compare how much attention is paid to the socially responsible topics between different master programmes. Regardless of the limitations, this paper represents the first step in the quantification of social responsibility in today's students and tomorrow's leaders.

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THE STRATEGIC ROLE OF DIGITAL TECHNOLOGY IN GEOPOLITICS AND THE DEPLOYMENT OF SOFT POWER

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ABSTRACT

The technological revolution worldwide has altered dynamics across multiple scales. Even the conception of power has undergone a complete transformation. If the world has come to regard soft power, as coined by Nye, as a new version of power for different states, the rapid evolution of digitalization and artificial intelligence has facilitated the emergence of new players in soft power on the global stage. Digitalization has become a source of information for states, and subsequently, an important source of influence. In this regard, countries that control the flow of information have gained more power in the geopolitical arena. Concurrently, the new geopolitical landscape is now based on the network of cables in the global computer network. The intertwining of geo-technology creates a new dynamic, compelling states to increasingly engage with non-state actors who are becoming more powerful. A new form of soft power, which traditionally wasn't considered a form of power, achieves this feat. Retaining the same name and objective as before, it has changed nothing else.

Keywords: digital technology, technology, digitalization, information and communication technologies (ICTs), artificial intelligence (AI), data, innovation, internet, connectivity, automation, digitization, virtual reality, augmented reality, blockchain, cybersecurity, big data, cloud computing

1. INTRODUCTION

In today's interconnected world, understanding the evolving dynamics of geopolitics and the exercise of soft power requires a comprehensive examination of the strategic role played by digital technology. The rapid advancement of Information and Communication Technologies (ICTs), along with the proliferation of information systems, digitalization, and artificial intelligence, has introduced a new dimension to national and international politics. These technological advancements have not only transformed various aspects of human existence but have also become crucial determinants of a nation's geopolitical positioning and its ability to exert soft power on the global stage. To fully grasp the current global landscape, we must recognize the shifting paradigms that extend beyond the traditional national systems that have long served as the foundation of international affairs. Concepts such as interdependence, global society, the world system, universalism, internationalization, globalization, and globalism have gained prominence, highlighting the interconnected nature of our world. In this context, the fusion of digital technology and geopolitics has become inseparable, with digitalization and artificial intelligence emerging as essential benchmarks for development in the new world order. Against this backdrop, a fundamental question arises: How can we effectively harness the potential of digitalization as an instrument for geopolitical positioning and the exercise of

soft power? This question necessitates a multidimensional analysis, exploring the intricate relationship between digitalization, the information revolution, and the emergence of new centers of power. Additionally, it requires an examination of the role of information control in strengthening geopolitical positioning and soft power, as well as an exploration of the far-reaching impact of digitalization on the dynamics of soft power. This article aims to delve into these critical aspects, shedding light on the strategic importance of digital technology in shaping the geopolitical landscape and enabling nations to wield soft power. By understanding the intricate interplay between digitalization, geopolitics, and soft power, we can gain insights into the opportunities and challenges presented by the digital era. Ultimately, this understanding is essential for policymakers, scholars, and stakeholders seeking to navigate the complex web of international relations in the 21st century.

2. LITERATURE REVIEW

In today's geopolitical landscape, the strategic interplay between digital technology, geopolitics, and the deployment of soft power has become increasingly apparent. This literature review aims to explore the theoretical foundations underpinning the pivotal role of digital technology in shaping geopolitical dynamics and advancing soft power agendas.

2.1. Digital Technology and Geopolitical Dynamics

Digital technology, as elucidated by Castells (2010), has catalyzed the emergence of a networked society, fundamentally altering traditional power structures and geopolitical dynamics. The interconnectedness facilitated by digital networks transcends geographical boundaries, reshaping the flow of information, capital, and influence on a global scale¹. The advent of digital technology has led to a significant shift in the balance of power among nations. The ability to access and control information, communicate across borders, and project influence through digital platforms has become essential in shaping geopolitical dynamics. Digital technology has empowered both state and non-state actors to assert their interests, challenge existing power structures, and participate in global conversations.

2.2. Strategic Implications of Digital Technology

In the contemporary era, nations recognize the strategic significance of leveraging digital technology to further their geopolitical interests. Floridi (2019) highlights the centrality of digital infrastructure and capabilities in enabling nations to assert influence, exercise surveillance, and exert control in the virtual domain. The strategic deployment of digital assets has become a cornerstone of modern statecraft, shaping the contours of international relations². One of the key implications of digital technology is its impact on information dissemination and communication. The internet and social media platforms have revolutionized the way people access and share information, breaking down traditional gatekeepers and enabling individuals and organizations to reach global audiences. This has profound implications for soft power, as nations can utilize digital platforms to disseminate their cultural products, values, and narratives, thereby influencing public opinion and shaping international perceptions. Furthermore, digital technology has transformed the nature of economic power and influence. E-commerce, digital marketplaces, and online platforms have created new avenues for economic growth and participation in the global economy. Nations that can harness these digital opportunities and foster innovative digital ecosystems gain a competitive edge in the global arena.

¹ Castells, M. (2010). *The rise of the network society: The information age: Economy, society, and culture* (Vol. 1). John Wiley & Sons.

² Floridi, L. (2019). Soft ethics and the governance of the digital. *Philosophy & Technology*, 32(1), 1-8.

This digital economic power translates into enhanced soft power, as countries can showcase their technological prowess, attract investment, and project an image of economic stability and prosperity.

2.3. Soft Power Deployment

Soft power, as conceptualized by Nye (2004), represents a nation's ability to shape preferences and influence others through attraction and persuasion rather than coercion. In the digital age, soft power deployment relies heavily on the effective utilization of digital platforms and communication channels. Nations leverage digital media, social networks, and online content to disseminate narratives, promote cultural values, and shape international perceptions, thereby augmenting their soft power projection capabilities.³ Digital platforms offer unprecedented opportunities for cultural diplomacy and the promotion of a nation's cultural heritage. Through digital media, countries can showcase their art, literature, music, and films, reaching global audiences and fostering an appreciation for their cultural contributions. This cultural influence not only enhances a nation's soft power but also facilitates people-to-people connections and fosters cross-cultural understanding. The integration of digital technology into soft power strategies also enables nations to engage in public diplomacy on a global scale. Through digital platforms, governments can communicate directly with international audiences, sharing their policies, values, and visions. This direct engagement allows nations to shape narratives, counter misinformation, and project their desired image to the world.

2.4. Integration of Digital Technology and Soft Power

The integration of digital technology and soft power strategies offers nations unprecedented opportunities to extend their influence and advance their interests in the global arena. By leveraging digital platforms and communication channels, countries can amplify their cultural, ideological, and political narratives, enhancing their soft power projection capabilities (Floridi, 2019). Digital technology enables nations to tailor their soft power efforts to specific audiences and demographics, creating personalized and targeted messaging. By harnessing data analytics and artificial intelligence, countries can gain insights into audience preferences, behaviors, and trends, allowing them to develop more effective soft power strategies. Additionally, the digitization of cultural assets and the use of virtual and augmented reality technologies provide immersive experiences that can deepen cultural connections and foster a sense of familiarity and affinity with a nation's values and traditions. Virtual exhibitions, digital storytelling initiatives, and virtual tours enable audiences worldwide to engage with a country's cultural heritage, strengthening the bonds of soft power influence. This literature review underscores the intricate relationship between digital technology, geopolitics, and the deployment of soft power. In an increasingly interconnected world, nations that effectively harness digital tools and capabilities stand to gain significant strategic advantages in shaping international discourse, advancing their geopolitical agendas, and projecting soft power on the global stage. As digital technology continues to evolve, its impact on geopolitical dynamics and soft power deployment will undoubtedly expand. Understanding and harnessing the potential of digital technology in the realm of soft power is essential for nations seeking to navigate the complexities of the modern global landscape.

3. DIGITALIZATION: BETWEEN INFORMATION HUB AND CENTER OF POWER:

Digitalization played a pivotal role in the 1980s, where Western nations capitalized on information flows transmitted through media (television, radio, etc.) to project a filtered image of their development. On the other hand, peripheral countries, primarily underdeveloped nations, received less coverage from these information flows.

³ Nye, J. S. (2004). *Soft power: The means to success in world politics*. PublicAffairs.

This signifies a new logic in the transmission of power worldwide. This logic has engendered new hubs for disseminating information globally, consequently establishing new centers of power. These hubs have played a significant role in shaping a new architectural framework for the geopolitical map (cyberspace). The advent of globalization has revolutionized⁴ the mode of information transmission. Opening up international exchanges has drastically reduced the cost of information. Concurrently, the cost of information has been reduced by a factor of 1000 between the 1970s and 2000s. As a result, the world has witnessed the emergence of several poles of influence. The one-way dissemination of information critiqued by Bourges in his work "Décoloniser l'information" presented a critique of the language used by Western media with a reductionist connotation of foreignness⁵. The implementation of a global vision enabling the mastery of information flows at the international level is of great importance in terms of geopolitical positioning, improving a country's image internationally, and consequently, its influence. As the discipline of international relations evolved, the stereotypical interpretation of power slowly began to change. In particular, Joseph Nye emphasizes that the changing nature of the international framework refocuses attention on the use of intangible forms of power, such as culture, ideology, and institutions. Increasing social mobilization renders technological and digital factors more significant than geography, population, and resources, if not more so. Nye divides power into two forms: hard and soft. We will adopt Nye's definition of power as "the ability to influence others to achieve desired outcomes"⁶. The America-China duopoly exemplifies real leadership in the digital realm on an international scale. Consequently, the digital control exerted by this duopoly within the framework of international digital cooperation has strengthened international economic relations in a context of globalization and neoliberalism. These relations have bolstered the geopolitical position of certain countries at the expense of others. China has taken control of the internet with its own rules, appropriating the "made in USA" internet paradigm. In terms of storage, geolocation, and services, it's impossible to overlook the American experience. At this stage, digital world domination has enabled the exercise of technological power by these countries. China, in particular, has been able to create its own rules by leveraging the American experience in information technology fields. Investment in digital technology (networks, artificial intelligence, etc.) has become indispensable for countries seeking to position themselves on the international stage. The rest of the world remains digitally dependent on the American-China duopoly. These countries have been dispossessed of their data, allowing those who control them to have a considerable advantage in the field of artificial intelligence. Digital technology has been exploited by China and America to build a strong database of various users worldwide, while employing techniques of entertainment, socialization, and free services. In this sense, America has asserted itself through its technology in various domains, making this digital supremacy a significant leverage of power.

4. ROLE OF INTERNATIONAL INFORMATION PROCESS CONTROL:

The development of computer equipment and network infrastructure has improved the accessibility of the global population. This progress has led to enhancements in indicators related to the quality, speed, and quantity of information circulation. At the end of World War II, the United States called for a new strategy based primarily on the free flow of information. This strategy became operational with the establishment of several radio stations. Subsequently, the principle of the free flow of information became a cornerstone of diplomacy and communication at the international level.

⁴ Globalization has been defined by Olivier Dollfus as "the generalized exchange between different parts of the planet, with the global space being the transaction space of humanity." [source: Olivier Dollfus, *La Mondialisation*, Paris, Presses de la fondation nationale des sciences politiques, 1997, 167 p]

⁵ <https://journals.openedition.org/rfsic/1754>

⁶ Nye, Joseph S. (1990c) *Bound to Lead: The Changing Nature of American Power*. New York : Basic Books

The theory of modernization⁷ recommends that countries in the Global South (less developed countries) mimic the development model of countries in the Global North (developed countries). The dominance of Western media for a long period was parallel to their dominance of information, while countries in the Global South still suffer from a lack of representation in international information circulation. On the other hand, the renowned geopolitical analyst Joseph Nye believes that maintaining a strong image is crucial for global perception and national success. Indeed, appropriate government policies are more likely to succeed if the world views the country favorably. Nye argues that reputation is essential for soft power, which is the use of global influence by a country. The image of a country stems from a complex historical process that includes multiple factors such as international political and economic developments. Media also play a significant role in shaping a country's image by influencing public opinion. The public dissemination of current information is an important aspect of constructing a country's soft power. By using the media as a key tool of influence, countries can sway others. Images and narratives fall into the category of "soft power" as opposed to "hard power"⁸. Therefore, these symbolic resources count as a form of soft power or a "soft resource" (Lee 2008)⁹. Today, digitalization is considered a global public resource, utilized by various actors to enhance different aspects of their operations and relationships with other actors.

5. SOFT POWER AND DIGITALIZATION: BETWEEN OPPORTUNITIES AND THREATS

Digitalization has become a geopolitically significant object. Today, numerous digital actors have conflicting interests. Consequently, digital dominance has become a geopolitical asset. In this regard, the cables of the computer network increasingly serve as an indicator of international integration.

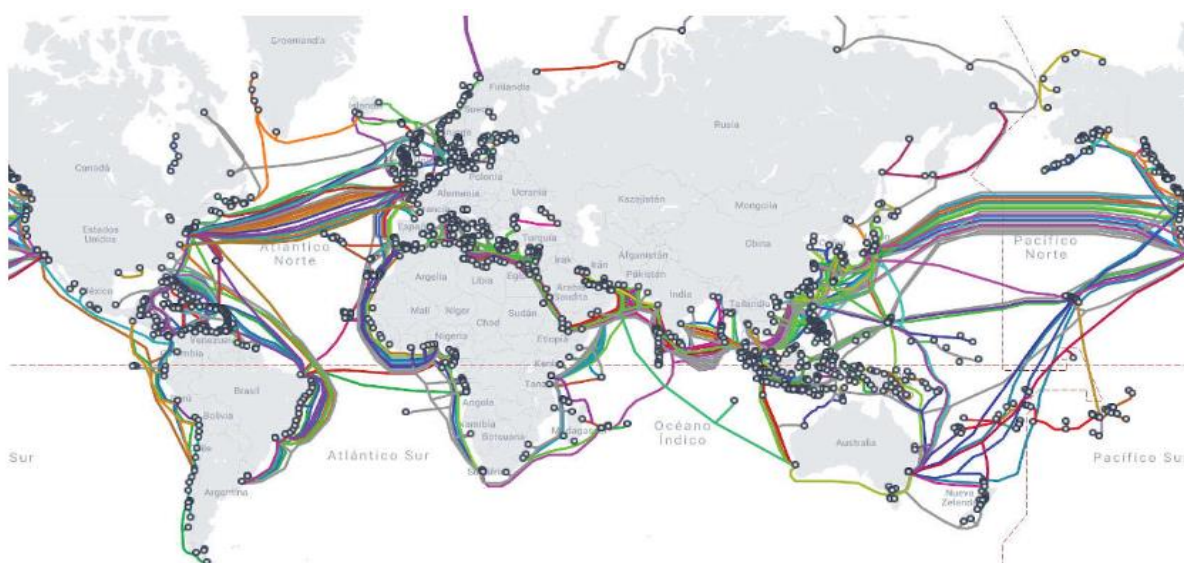


Figure 1: The connecting undersea cables [submarinecablemap.com] (2021)¹⁰

The geopolitical map (cyberspace) has become closely linked to the map of the digital network worldwide. As a result, accurate information about peripheral countries such as Africa and South America has been ignored for a long time. New media outlets are beginning to distort the balance of information in favor of industrialized countries in the North.

⁷ It is a theory that distinguishes between countries of the South and those of the North.

⁸ Hard power is the ability to influence the behavior of other actors through constraint, coercion, or even violence.

⁹ The tendency to favor the ethnic group to which one belongs and to make it the sole reference model.

¹⁰ <https://www.unav.edu/web/global-affairs/undersea-cables-vulnerability-a-hidden-network-of-vital-connectivity>

Several economic confrontations have been triggered based on certain battles of artificial intelligence. For example, the major competition existing between GAFAM¹¹ and BATX¹², and the trade war between China and the USA, have been subject to issues related to the digital industry. These competitions have formed new international alliances. A new world order is emerging thanks to the widespread adoption of digital technology. This system is administered by algorithms that control personal and professional life, government, and economic systems. There is no evidence of overt violence, but surveillance and assessment are omnipresent and endemic. As the Chinese are the only culture capable of competing with American digital practices and culture, American soft power data has been appropriated by them. This is evident in their current battle to keep 5G wireless technology out of China. Data and statistics have changed our way of seeing, thinking, living, and loving. They have also changed our way of waging war, dreaming, and creating. The word "cybernetic" comes from the Greek root "kybernetikos"¹³, meaning the practice of governing through mechanics. It refers to the science of understanding how machines govern and control all aspects of life. By definition, technology separates the world in which we live from ourselves as individuals. It then reifies our existence as a system. The art of war is becoming a computerized science thanks to artificial intelligence. Distance from a specific geographical location or emotional state prevents war between two countries or armies. When information systems are targeted by cyberattacks, lives can be lost due to vital infrastructures such as attacked nuclear plants and hospitals. Disinformation campaigns and cyberattacks can be difficult to identify as a source. However, a belligerent can still easily hide behind a protective layer of insulation known as cyberspace. A cyber-fighter on a video game console would be almost unstoppable. Digital technology has given rise to a new form of soft power. China is driving this change with its growing influence; meanwhile, private companies are benefiting from it. Joseph Nye coined the term "soft power" to represent a nation's power. It's an unstable force that compels other countries to imitate it, draw closer to it, and align their interests accordingly. Nye believed that new actors were leveraging digital soft power. Digital soft power has shifted actors; now, through acts of hacking, a single individual can influence global affairs for the first time without state assistance. An individual can also affect a company or state through systemic effects caused by an individual. New primary stakeholders are disrupting state supremacy and international relations. Some manage to establish a dependency relationship in their favor. States employ hackers to trace the origins of any cyberattack, as well as powerful groups. This blending of roles is popular among people. Public collaboration with dubious groups increasingly forces states to take risks with their reputation. Moreover, frequent collaborations daily increase states' dependence on these groups.

6. CONCLUSION

In conclusion, this article sheds light on the impressive technological advancements showcased by China, positioning it as a prominent player in the digital realm. The Chinese government has demonstrated a high level of technological sophistication, combining official efforts against cybercrime with covert activities aimed at exerting influence. This is evident in their long-standing partnership with BATX (Baidu, Alibaba, Tencent, Xiaomi), which played a pivotal role in pioneering the use of computers on a large scale. Furthermore, China has been associated with early large-scale cyber attacks against American universities and businesses, particularly targeting the theft of high-tech knowledge. These activities underscore the significant role played by China in the global technology landscape.

¹¹ GAFAM (Google, Amazon, Facebook, Apple, Microsoft) ;

¹² BATX is an acronym for Baidu, Alibaba, Tencent, and Xiaomi.

¹³ Solange Ghernaouti , «Cyber Power, Crime, Conflict and Security in Cyberspace», EPFL Press 2013, traduction chinoise 2017

The convergence of technology and politics has given rise to a new political arrangement, where powerful external forces exert influence, compelling states to engage with these non-state actors. This phenomenon has led to the emergence of a new form of soft power, which, while retaining its original definition and purpose, may have blurred the boundaries of legality. The intertwined nature of geotechnology has created a dynamic where states are increasingly confronted with powerful non-state actors. Soft power, traditionally considered a non-coercive form of influence, now plays a significant role in this evolving landscape. Despite its unchanged name and objective, it has become a potent force shaping international relations in the digital age. Overall, this article highlights the intricate interplay between technology, geopolitics, and soft power, emphasizing the transformative impact of digital advancements and the evolving dynamics of global power structures. Understanding these dynamics is crucial for policymakers and stakeholders navigating the complex terrain of the 21st-century geopolitical landscape.

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THE RISE OF POLITICAL RADICALIZATION IN THE FACE OF GROWING INFLATION: WARNING SIGNS FROM GERMANY

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ABSTRACT

Much of Europe is adversely impacted by the growing radicalization of political parties that is reflected in gridlock in parliamentary bodies and a certain segment of the opposition providing implausible solutions to the very challenging times we face. From the ‘‘Cost of Living Crisis’’ to many other names in mainstream media, it is clear that the general electorate is aware of the impact of inflation and that this issue has an influence on their electoral preferences. This paper will investigate to which extent this has impacted the radicalization and formation of alternative political options in Germany coincides with the rise of economic instability. In order to do so, the paper will implement an Ordinary Least Squares (OLS) regression model that includes with the number of members of the AfD as the dependent variable. The independent variables include inflation, migration inflows and the election results of the AfD. The robustness of the findings will be confirmed by considering how the variables react to Impulse Response Function (IRF). The paper found that, in the long-term, inflation and migration inflows are associated with a larger AfD membership. As such, voters are increasingly supporting political platforms that would previously have been considered implausible to implement and would have no major support from the electorate.

Keywords: *inflation, Cost of Living crisis, radicalization, rising prices*

1. INTRODUCTION

Years of stagflation, as well as the inflationary effects largely caused by the response to the COVID-19 pandemic, have led to an electorate in Europe that is increasingly likely to be receptive to drastic policy solutions to the increased costs of living (Bobba and Hubé, 2021). This can be seen throughout Europe, with the sustained popularity of political options such as the Front Nationale in France, the Alternative für Deutschland (AfD) in Germany and the populist Freedom Party of Geert Wilders coming increasingly close to forming a governing coalition in 2023 (Holligan, 2023). While in previous years, anti-migration sentiment, radical policy options and the embracement of political ideologies not fully backed up by facts was only acceptable to a comparative minority of the electorate, there seems to be a significant shift in that trend. Historically viewing, whenever there were candidates proposing views that were unacceptable to traditional centrist voters in Europe in the post-World War II era, voters on both the right and the left of the political spectrum would ensure that such a party or individual does not get voted into power. Perhaps the most prominent historical example of that could be seen in how Jean-Marie Le Pen was easily defeated in the runoff election for the 2002 French Presidential Election, winning just under 18% of the vote (Christofferson, 2003: 111).¹

¹ Even in this frequently referenced example, as elaborated by Christofferson (2003: 115), there were more variables to consider and the final outcome was not as simple as it may seem. Despite the fact that Jacques Chirac was able to gather a significant number of votes from the left-leaning electorate, the most impressive way was in the manner in which he managed to do so. Le Pen's main points concerned security and immigration and Chirac managed to position himself as a candidate who provided

In this case, despite not being a popular incumbent², Jacques Chirac managed to combine two successful factors in ensuring that Le Pen does not take over the presidency:

- 1) Blunting the main argument that only Le Pen could deal with the issue of crime and migration by providing a more moderate platform specifically highlighting these two issues (Christofferson, 2003).
- 2) Managing to appeal to a significant portion of the left-leaning electorate by portraying Le Pen as extreme and thus motivating almost 80% of the electorate to turn out for the second round of the French Presidential Election (Golsan, 2003).³

Perhaps most significantly, economic populism was not the primary motivator for the far right as explained by Golsan (2003) during that time and the perceived distance between the policy solutions of the far right and the practical benefits this could have on the average voter prevented them from accomplishing more meaningful accomplishments. The general view of policy solutions that reside outside of the mainstream has changed in the past decade. Political parties such as SYRIZA promoted economic populism that aimed at undermining “mainstream” positions, even at the expense of providing coherent policy solutions or respecting previous state obligations⁴ Karaliotas (2019). While the approach advocated by SYRIZA ultimately failed, there were several prominent alternative policy approaches that were ultimately accomplished, of which Brexit is likely the most significant example as nearly all credible research at the time indicated that such a move would have a detrimental impact on the economy of the UK (Du et al., 2023). Keeping these facts in mind, it is significant to consider the impact of the adverse economic trends on the rise of drastic policy solutions in Germany. The German political system post-World War II has shown respectable signs of political moderation and pragmatism as described by Helms et al. (2018) and that seems to be upended as there is growing support for the far-right AfD. This paper will analyze to what extent has the rise of the political popularity of the AfD been connected to adverse economic indicators, particularly viewing inflation. In order to do so, the paper will first provide a brief overview of conducted research on the topic. Following this, a brief methodology section will explain the use of the main variables and research framework. The following section will present the results of the conducted research and attempt to conceptualize the findings in the existing field. Finally, a conclusion will synthesize the main findings and point out areas for future research on connections between adverse economic indicators and the rise of drastic policy options.

2. LITERATURE REVIEW

In order to broader understand the impact of populism and drastic policy measures, it is significant to understand the broader impact of populist messaging. As presented by Singh (2021: 251) nearly all populist movements connect to a nationalist message and position the majority of the country as “us” versus the relative minority as a “them”. Rather than view this distinction as exclusively negative, Singh (2021) points out that the interests of the majority are advanced by these groups, despite the fact that the minority may face “heightened hostility and discrimination” (Singh, 2021: p. 250).

more rational and plausible solutions compared to the ideas of Le Pen, who even at that time was considered a marginal far right politician (Christofferson (2003: 109).

² Jacques Chirac won roughly 20% of the vote, despite the advantage of incumbency, in the first round of voting.

³ In comparison, the turnout was approximately 71% in the first round of voting, showing that even a significant number of voters who were not enthusiastic about the first term of the Chirac presidency were prepared to help him stay in power as a method of curbing the power of the far right.

⁴ During numerous rounds of negotiations with the European Union, the SYRIZA-led government tried to facilitate an approach that would have included writing off a part of the Greek public debt. In part, the government at the time claimed that the current debt levels were not sustainable and hindered growth, even though previous governments were responsible for the levels of the public debt and there is little to any precedent for ignoring such international obligations.

Another relevant aspect brought up by Singh (2021) is that the terms nationalism and populism should not be used interchangeably⁵, as they have in a number of prominent media outlets, including by Fukuyama (2018), but this distinction is usually clarified in most academic papers including in Vulović and Palonen (2022) and Varshney (2021). The rhetorical aspect of populism is considered by Schmidtke (2023) as the author explains how AfD claims to be the voice of the people, even as they hold authoritarian views and undermine the integrity of the rule of law. As further explained in Schmidtke (2023: p. 914), a central aspect that every far-right populist party has developed in order to enhance its electoral appeal is to contrast current mainstream political politics with potentially dystopian scenarios should the *status quo* continue. As was the case for Le Pen in the early 2000s, so similarly has the AfD developed its principal political appeal on an approach that primarily aims to curb migration and that has portrayed multiculturalism as an existential threat to the identity of the German nation-state. As further examined by Schmidtke (2023, p. 917), Germany has had a stable political system and a strong ‘‘firewall against the far right after the horrors of the Third Reich and the Holocaust’’ that the AfD is now fundamentally undermining, in part by claiming that the existing nation-state is actively working against the interests of the German people. The author further emphasizes that part of the rhetoric by the AfD has been to adopt slogans such as ‘‘We are the people’’ that were used by the anti-communist movements in the late 1980s, likely in an attempt to appeal to elder demographic groups (Schmidtke, 2023). As further explained by Schmidtke (2023), the AfD has positioned itself against most of the mainstream political views, starting with their continued opposition to migration but also providing vocal support against the COVID-19 security measures. In doing so, they have positioned the beliefs of their party with a certain portion of the electorate and are willing to bring in ideas that have been an anathema to mainstream German politics post-World War II (Schmidtke, 2023; Hansel and Olsen, 2022). It can be further argued that the AfD often does not have clear policy positions that can be implemented through legitimate legislative methods but that some of the proposals would be better defined by viewing the AfD as a ‘‘populist issue entrepreneur’’ that challenges mainstream parties on every possible position, regardless of the feasibility of the proposed solution (Hansel and Olsen, 2022). When reviewing the data concerning the 2021 Federal Elections in Germany, Hansel and Olsen (2022) implemented a research framework utilizing a multinomial logistic regression and found that negative attitudes towards the European Union and negative views towards immigration were common among AfD voters. Contrastingly to a significant number of studies, Hansel and Olsen (2022) found that basic socioeconomic indicators were not a distinguishing factor for AfD voters and that the party had managed to increase its share of the vote and ‘‘normalize’’ itself to a wider swath of the electorate with each passing election.

3. METHODOLOGY

The methodology of the paper is based on analyzing the rise of the political popularity of the AfD by considering the rise of its membership. While active members are only one aspect of popularity, it can be argued that active members signify the number of individuals who are prepared to aid the party’s campaign, both logistically and financially. As such, the number of active members is the factor that better captures continued support compared to elections, as elections are often impacted by time-specific factors. Data was summarized from Baah et al. (2024) and the Federal Statistical Office of Germany (2023).

⁵ This aspect is addressed in detail in Singh (2021) and a more focused discussion of the difference between these two concepts can be found in that paper. This paper generally accepts the arguments provided by Singh (2021) that while these two concepts in certain junctures do have similar goals, they should be analytically and conceptually separated as there is no guarantee that there will be a long-term synthesis between populist and nationalist goals. The ever-changing nature of the political scene of the 21st century makes it challenging to overlap such broad terms.

In order to review the impact of the relevant independent variables, an Ordinary least squares (OLS) regression model will be employed. To reduce possible errors related to skewness, a log transformation will be done on some of the variables. framework of the paper can be summarized per the equation below:

$$(1) \quad \log(AfD \text{ member}) = \alpha + \beta_{1,t}(el_res) + \beta_{2,t}(I) + \beta_{3,t}(MI) + \epsilon$$

The model further includes a constant, error term, as well as the coefficients that will be determined through the OLS regression. The precise details of the variables utilized in the OLS regression are shown in Table 1.

Table 1: Description of variables

Name of the variable	Abbreviated form	Unit of measurement	Interval	Relevance to the regression models
Number of active members in AfD	AfD member	Number of individuals	2013 - 2023	Dependent variables
Inflation	I	Percentage change in GDP deflator		Independent variables
Linear extrapolation of AfD federal election results	el_res	Percentage share of the total vote		
Migration inflows	MI	Number of individuals		

Source: Authors' summary of variables from Baah et al. (2024) and the Federal Statistical Office of Germany (2023)

In addition to conducting the OLS regression, a Vector autoregressive (VAR) model will also be implemented as a method of ensuring that any conclusions are robust. Summary statistics for all the variables are provided in Table A1 in the Appendix. The paper does recognize certain methodological shortcomings. One of which is the choice of the dependent variable, which is not a perfect proxy for measuring general support among the electorate. Another methodological shortcoming is that there is only annual data, given that no data about the number of members in the AfD is widely available. All of the previously mentioned shortcomings will be considered when evaluating the final results.

4. RESULTS AND DISCUSSION

As discussed in Heinze and Weisskircher (2021) the AfD does have some specific aspects of its organization that make it unusually structured for a far-right political party. In addition, there was some in-fighting within the party that may have had an impact on the number of active members. Keeping these aspects into account, the OLS regression results are provided in Table 2.

Table following on the next page

Table 2: OLS Regression model

Variable	Coefficient value
const	14.3*** (0.0004)
el_res	6.92*** (0.0004)
I	2.34 (0.35)
MI	-0.333* (0.076)
R squared	0.885
Adjusted R-squared	0.836
P-value	0.001
White's test for heteroskedasticity	8.68 (0.467)
Breusch-Godfrey test for autocorrelation	1.45 (0.27)

Source: Authors' calculations in GRETLE

*note: *, **, and *** indicate statistical significance at the respected 0.1, 0.05, and 0.01 levels.*

As is clear from Table 2, the model is stable and does not contain possible errors deriving from autocorrelation or heteroskedasticity. With an R value of 0.885, the predictability value of the model is acceptable, and the P-value indicates that the findings are statistically significant. In terms of the coefficients, there is a strong and statistically significant link between the electoral success of the AfD and its membership increasing. This to some extent conforms to the findings by Dilling (2022) who has reiterated that the AfD has even taken some traditionally leftist positions in an attempt to widen its appeal. This also conforms to the view of Hansel and Olsen (2022) who reiterated the unprecedented nature of some of the policy positions taken by the AfD and that these positions may not be attainable. In essence, as the AfD has been normalized in the minds of many voters, it seems that its consistent electoral success has made voting for them plausible, even though as established by Schmidtke (2023) their political positions are far outside the political mainstream. The OLS model has not determined any statistically significant link between migration or inflation to the growth of membership, although this could in part be due to the previously mentioned methodological shortcomings. Additionally, IRFs have been implemented based on a VAR framework and the results are presented in Table 3.

Table 3: IRF response to a shock in the independent variables

	el_res	I	MI
Year 1	0.035	0.062	-0.0001
Year 2	0.015	0.057	0.002
Year 3	0.017	0.073	0.00
Year 4	0.014	0.071	0.013
Year 5	0.012	0.069	0.017

Source: Authors' calculations in GRETLE

The IRF provides additional clarity on how these variables impact the membership of the AfD in the long-term and show particularly inflation to be the strongest driver of increasing membership. The findings related to the IRF conform to the views of Kleinert (2023) and show that anti-migration and economic populism are essential policies driving support for the AfD, which in turn leads to larger membership in the AfD.

While the OLS model found that there was a significant link between its electoral success and the number of members it has, the IRF provides an additional element of nuance. While the relationship is positive in the long-term, it seems to have diminished returns compared to inflation, illustrating that a negative macroeconomic outlook and increased inflation are significantly associated with the electoral success of the AfD.

5. CONCLUSION

As voters are prepared to support an ever-growing number of alternative policy solutions, it seems that the real-world pain related to issues such as the cost of living crisis is one of the main causes for such decisions. Despite the fact that the AfD and similar policy options are still not viable for taking power, it is clear that a growing percentage of the electorate is prepared to support such policy options. The paper has found that inflation has a strong connection to increasing the number of AfD members in the long-term and has also found that the electoral success of the AfD, both in the short-term and in the long-term, has led to a growth in the membership. As argued in Heinze and Weisskircher (2021), the development of such logistical and financial networks can further support the AfD. While some of the policy positions maintained by the AfD may prevent them from obtaining power or being part of a coalition government in the near future, it is clear that a growing number of the electorate is willing to support drastic policy measures in response to macroeconomic imbalances. Finding policy solutions to reduce inequality and to alleviate the cost of living crisis should be considered priorities to prevent such populism from receiving more prominence than it already has.

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APPENDIX

Summary statistics for all of the variables used is provided in Table A1.

Table A1: Summary statistics

	AFD member	I	MI	el_res
Mean	27587	0.022	1,774,243	0.088
Median	30125	0.015	1,560,851	0.104
Minimum	16385	0.0014	1,190,350	0.019
Maximum	34751	0.068	2,938,572	0.135
Standard deviation	6700.1	0.022	580,721	0.037

Source: Authors' calculations in GRETLE

NORMATIVE TENSIONS IN REGULATION OF MEDICAL TOURISM IN THE EUROPEAN UNION

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ABSTRACT

Medical tourism can be defined as consumption of health services from abroad. This paper deals with legal aspects of medical tourism in European Union Law and its interplay with national laws of Member States and other jurisdictions. Medical tourism in European Union (EU) context in general is part of wider global phenomenon. According to the Organization for Economic Cooperation and Development (OECD) despite high-profile media interest and coverage, there is a lack of hard research evidence on the role and impact of medical tourism for OECD countries. The legal aspects of medical tourism in the European Union involve various legal sources. In the EU Secondary Law of particular importance are Directive 2011/24/EU on Patients' Rights in Cross-Border Healthcare and Regulation (EC) No 883/2004 on the Coordination of Social Security Systems. The paper produces normative analysis. The paper elaborates on development in the case law of the European Court of Justice with emphasis on landmark cases have shaped the legal landscape of cross-border healthcare in the European Union. Comparative context of medical tourism and its influence on the EU Law is analysed. Fundamental thesis of this paper that medical tourism in the European Union is overregulated in comparison to other competing markets.

Keywords: Medical Tourism, Health Services, European Union Law, Competitiveness

1. INTRODUCTION

The global growth in the flow of patients and health professionals as well as medical technology, capital funding and regulatory regimes across national borders has given rise to new patterns of consumption and production of healthcare services over recent decades. A significant new element of a growing trade in healthcare has involved the movement of patients across borders in the pursuit of medical treatment and health; a phenomenon commonly termed 'medical tourism' (Lunt et. al, 2011). Medical tourism can generally be defined as consumption of health services from abroad. Since the early 1990s, medical tourism, whereby individuals choose to travel across national borders or overseas to receive treatments, has been increasingly recognized in the United States and Asia (Carrer & Lunt, 2010). Despite high-profile media interest and coverage, there is a lack of hard research evidence on the role and impact of medical tourism for OECD countries (Lunt et al, 2011). In the limited literature on the reasons for medical tourism, the suggested reasons include the costs of treatment at home and abroad, the speed of obtaining treatment, treatments not being available (or legal) within home countries, the desire for privacy, and the wish to combine traditional tourist attractions (hotels, climate, food, cultural visits) with medical procedures (Turner, 2007). The key features of the new 21st century style of medical tourism are summarized below:

- the large numbers of people travelling for treatment;
- the shift towards patients from richer, more developed nations travelling to less developed countries to access health services, largely driven by the low-cost treatments and helped by cheap flights and internet sources of information;

- new enabling infrastructure – affordable, accessible travel and readily available information over the internet;
- industry development: both the private business sector and national governments in both developed and developing nations have been instrumental in promoting medical tourism as a potentially lucrative source of foreign revenue (Lunt et al, 2011).

The range of treatments available as Lunt (2011) detects from marketing materials (both print and web-based sources), for prospective medical tourists is wide, including: cosmetic surgery (breast, face, liposuction); dentistry (cosmetic and reconstruction); cardiology/cardiac surgery (by-pass, valve replacement); orthopaedic surgery (hip replacement, resurfacing, knee replacement, joint surgery); bariatric surgery (gastric by-pass, gastric banding); fertility/reproductive system (IVF, gender reassignment); organ, cell and tissue transplantation (organ transplantation; stem cell); eye surgery; diagnostics and check-ups.

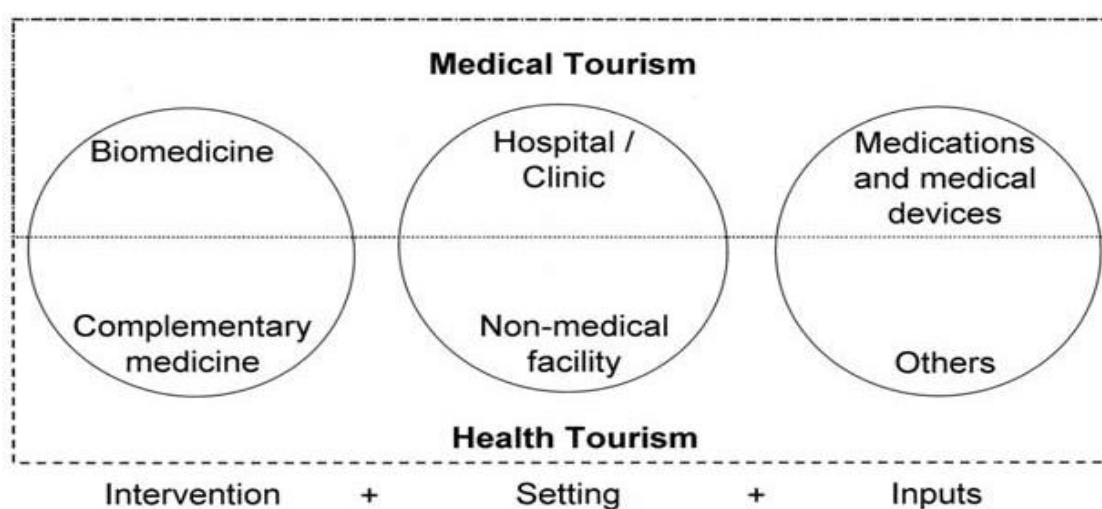


Figure 1: A conceptualization of medical tourism
(source: Carrera & Lunt, 2010, Carrera, 2007)

Medical tourism in European Union (EU) context is thus part of the wider global phenomenon. Geographical proximity is an important, but not a decisive, factor in shaping individual decisions to travel to specific destinations for treatment (Exworthy and Peckham, 2006). For the purposes of this research we can categorize medical tourism in EU/EEA (European Economic Area) in the following categories:

- medical tourism when EU/EEA citizen uses health services outside EU/EEA
- medical tourism when foreign citizens travel to EU/EEA for the purposes of receiving health services
- medical tourism when EU/EEA citizen use health services within EU/EEA.

Categorization is necessary since there are different legal regimes applicable to each of aforementioned three categories. This paper will primarily explore primarily third category – medical tourism when EU/EEA citizen use health services outside their countries on nationality but within EU/EEA. That third category is the most regulated one. Reasons for that are numerous. Firstly, it has strong normative legal basis in EU primary law. Treaty on Function of the European Union stipulates in Article 168 (Title XIV, TFEU) that a high level of human health protection shall be ensured in the definition and implementation of all Union policies and activities. Harmonisation of health and social security systems within the EU has been achieved on a high level.

Legal provisions of the Primary law were used extensively by the Court of Justice of the European Union (CJEU) in its case development, including on health services as one the fundamental market freedoms (thus primarily in free movement of services but not excluding other freedoms) as we will see in this paper. This case law was used for further development of EU secondary law, primarily in adoption Directive 2011/24/EU on Patients' Rights in Cross-Border Healthcare.

2. CASE LAW DEVELOPMENT

The European Union case law has significantly shaped the understanding and implementation of the right to health services, primarily through the rulings of the Court of Justice of the European Union. The landmark case is *Kohll* from 1998. Mr. Kohll, a Luxembourg national, sought reimbursement for orthodontic treatment of his daughter, a minor, by an orthodontist established in Germany, received in Germany. The Court of Justice ruled that the requirement to seek prior authorization for such treatments constituted a restriction on the freedom to provide services, which could only be justified under certain conditions. The Court applied of the fundamental principle of freedom of movement in the field of social security limited its restrictions on the ground of public health. In the related *Decker* case Mr. Decker purchased spectacles in Belgium and sought reimbursement from his Luxembourg insurance fund. The Court of Justice ruled that goods related to medical treatment fall under the free movement of goods (Article 34 TFEU), and restrictions on reimbursement for these goods purchased in another Member State were not justifiable. Judgment of the Court of Justice in *Vanbraekel* case from 2001 extended the principles established in *Kohll*. The Court ruled that patients must be reimbursed for medical treatment received abroad if that treatment is among the benefits covered by the national health system. The judgment clarified the extent of financial coverage and reimbursement mechanisms. In the following *Geraets-Smits and Peerbooms* case Court of Justice confirmed that requirement for prior authorisation can be applied. Requirement that the assumption of costs, under a national social security system, of hospital treatment provided in another Member State must be subject to prior authorisation appears to be a measure which is both necessary and reasonable. The CJEU ruled that prior authorization for hospital treatment could be a justifiable restriction on the freedom to provide services but must be based on objective and non-discriminatory criteria, and must not create undue obstacles to the exercise of free movement rights.

In the interesting case *Watts v Bedford Primary Care Trust* from 2006 Yvonne Watts, a UK national, sought hip replacement surgery in France due to long waiting times in the UK. The CJEU ruled that undue delay in receiving treatment in a home Member State could justify receiving treatment abroad at the expense of the home Member State's healthcare system. This case reinforced the principle that patients should not face excessive wait times for treatment. In the case *Stamatelaki* from 2007 the Court of Justice confirmed that non-hospital care also falls under the scope of Article 56 TFEU. Mrs. Stamatelaki, a Greek national, sought reimbursement for non-hospital medical services received in Germany. The CJEU ruled that the free movement principles applied equally to non-hospital care. In the judgment in the case *Elchinov* from 2010 the Court of Justice ruled that a patient who received authorization for treatment abroad must be reimbursed in full according to the rates of the Member State where the treatment was provided, rather than the rates of the home Member State. Judgment in the *Elchinov* case is also important from the standpoint of procedural EU Law since the has held that national courts are not bound by precedents established by superior courts in circumstances where those precedents are incompatible with EU Law.

Described case law development can be summarized in the following points:

- the freedom to provide and receive medical services is protected under EU law;
- restrictions on this freedom, such as prior authorization, must be justifiable, objective, and non-discriminatory
- patients are entitled to reimbursement for cross-border healthcare under specific conditions.
- the principles apply to both hospital and non-hospital care.

3. DIRECTIVE ON PATIENTS RIGHTS IN CROSS-BORDER HEALTHCARE

The development of case law, described in the previous title of this paper, has significantly influenced the EU's policies and directives on patient rights in cross-border healthcare, culminating in Directive 2011/24/EU on the application of patients' rights in cross-border healthcare. The Directive aims to establish rules for facilitating access to safe and high-quality cross-border healthcare in the Union and to ensure patient mobility in accordance with the principles established by the Court of Justice and to promote cooperation on healthcare between Member States, whilst fully respecting the responsibilities of the Member States for the definition of social security benefits relating to health and for the organisation and delivery of healthcare and medical care and social security benefits, in particular for sickness. Directive stipulates patient rights and access to healthcare, right to treatment abroad. Patients have the right to seek healthcare services in another Member State. Patients are entitled to reimbursement for cross-border healthcare, up to the cost that would have been covered had the treatment been received in their home country. Member States may require prior authorization for certain types of healthcare, particularly hospital and specialized treatments, but this must be based on transparent and objective criteria. Each Member State must establish national contact points to provide information to patients about their rights, available healthcare providers, and reimbursement procedures. Healthcare providers must provide patients with clear information about the treatment, including details of prices, quality, and safety standards. Healthcare providers must comply with the national standards and guidelines of the Member State in which the treatment is provided. Mechanisms must be in place to ensure continuity of care when patients return to their home country after receiving treatment abroad. Under the provisions of the Directive Member States are encouraged to collaborate on health technology assessments to support the exchange of information and best practices. The Directive promotes the development of European reference networks to facilitate cooperation in the diagnosis and treatment of rare diseases. Member States should work together to develop interoperable eHealth systems and tools (eHealth). Member States are under the obligation to ensure that cross-border healthcare does not undermine patient safety and quality of care. The Directive does not affect the right of each Member State to decide which healthcare costs will be covered and to what extent. Patients seeking cross-border healthcare must not face discrimination based on nationality or place of residence. Directive establishes clear guidelines for patient rights, reimbursement procedures, information transparency, and cooperation between Member States, while maintaining high standards of safety and care.

4. CONCLUSIONS AND DISSCUSION

The regulation of medical tourism in the European Union (EU) presents several normative tensions. We could categorise them in external and internal tensions. Fundamental external normative tensions are between global vs. regional standards and regulations. Primary internal normative tensions are between free movement rules of EU Law and national healthcare systems. Second significant internal tension that reflects first one is the tension between uniform reimbursement and financial burden This creates financial tension, as wealthier countries might see a drain on resources if many patients seek treatment abroad, while less wealthy countries might struggle with an influx of patients seeking cheaper services.

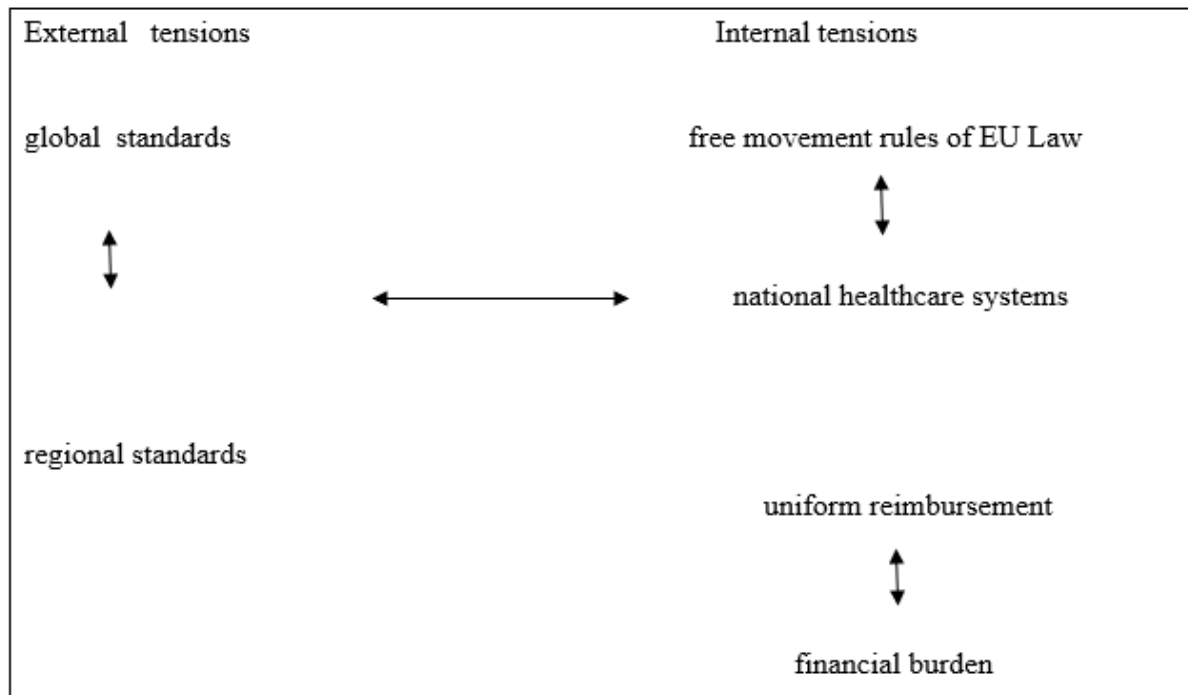


Figure 2: Normative tensions of regulation of medical tourism in EU
(source: authors)

It is conclusion of this paper when it comes to the third category of medical tourism in EU/EEA (medical tourism when EU/EEA citizen use health services within EU/EEA) that EU standards are (due to the development of the EU Secondary Law and case law of the CJEU) obviously higher than global standards. This gives EU citizens with high level of human health protection in accordance with the Article 168 TFEU but at the same time impacts negatively on the competitiveness in the sector of medical tourism. Due to the high standards of health care protection in-between EU Member states they are not as free to liberalize their medical and social security systems in order to enhance development of medical tourism. Thus, main conclusion is that existing regulatory framework of health services as part of free movement rules impact negatively development of medical tourism in EU in comparison with more liberal and less extensive global regulation and competing national jurisdictions.

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DEMOGRAPHIC STRUCTURE IN THE REPUBLIC OF CROATIA AND ITS INFLUENCE ON ECONOMIC GROWTH

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ABSTRACT

In modern economies, the demographic determinants of the population represent an important factor in its growth. The age and educational structure, but even more so the tendencies of future trends, are important for making strategic decisions at the state level concerning current and future economic growth and overall development. Since the second half of the last century, Croatia has been facing the problem of an aging population, and the processes of demographic transition took place in unfavorable economic and social conditions. These processes have led to an almost unsustainable demographic situation that prevails today, but the consequences of which will be fully felt in the next few decades. Fertility rates are far below the level that would ensure simple reproduction, and an additional problem was compounded by the noticeable outflow of a large number of people from the working and fertile contingent. Although the emigration of young people seems to have stopped, no significant return has yet been observed. As a result of all this, today the Republic of Croatia is characterized by a very unfavorable demographic situation and worrying demographic trends. This further calls into question the future way of financing the pension and health system, as well as the functioning of the economy in the medium, but especially in the long term. Since economic growth requires a stable demographic structure, population policy is set as one of the priorities of the economic policy of the Republic of Croatia, as well as a strategic priority of its overall policies. In the paper, the authors investigate the determinants of the demographic structure of the Republic of Croatia, analyze its impact on economic growth, and provide guidelines for adopting future policies and strategies.

Keywords: *Demography, Economic growth, Population policy, Social welfare system*

1. INTRODUCTION

The demographic structure of a certain country with its characteristics directly affects the economic growth and development of the country. The aging of the population as a process that is expressed in more and more countries, among other things, leads to a decrease in the labor force, i.e. to negative trends in the labor market (Obadić and Smolić, 2008). Such unfavorable trends in the labor market affect the social welfare system, primarily the pension and health insurance system (Buterin, D. 2021; Mečev and Vudrag, 2012). Furthermore, demographic aging accompanied by a decline in the total number of inhabitants has a significant impact on the decline in aggregate consumption, i.e. on consumer preferences (Miletić, 2018). The Croatian economy is increasingly facing this problem. One of the priorities of Croatian economic policy in the medium and long term is the establishment of long-term sustainability of the financing of the pension and health system.

In doing so, one should keep in mind the maintenance of the stability of Croatian public finances and the competitiveness of the Croatian economy. The effects of the reforms so far can be reduced to temporary removal of problems, but not to their permanent solution. Studies and analyzes of demographic trends in the Republic of Croatia indicate further depopulation, accompanied by an increase in both the share of the old population and its number. This further indicates the unsustainability of the current way of financing the pension and health system in the medium term. This implies changing the taxation system with far-reaching effects on the economy and with long-term effects on the population as a whole. The demographic strategy must therefore be linked to the economic development strategy. Such an approach is certainly one of the most demanding tasks of the economic policy of the Republic of Croatia.

2. DEMOGRAPHIC DETERMINANTS OF CROATIA

Based on the population census conducted in 2021, it was determined that the Republic of Croatia has 3.87 million inhabitants, which is a decrease of 9.64% compared to the census conducted ten years earlier. In absolute terms, the population of the Republic of Croatia decreased by 413,056 people. The last census determined that Croatia recorded the lowest number of inhabitants since official records were kept and that it was closest to the figures from 1953 (Majstorić, 2022). Figure 1 shows the movement of the population of the Republic of Croatia according to the censuses conducted in the last seven decades.

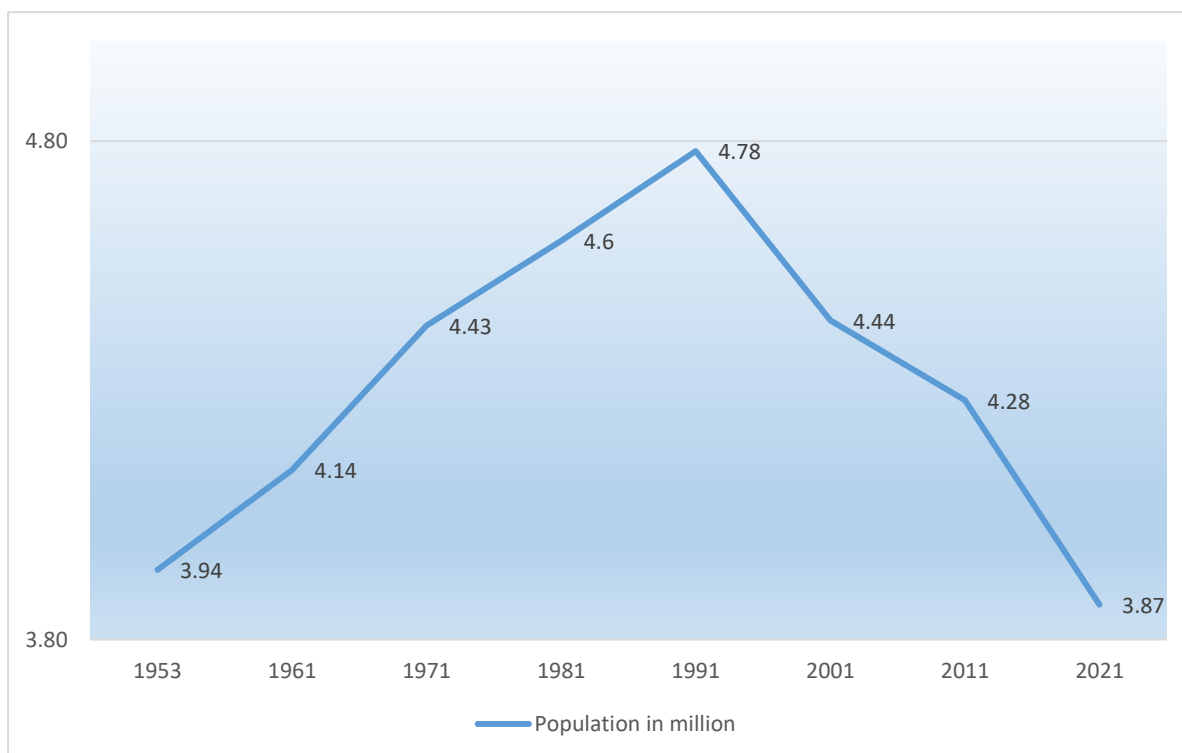


Figure 1: Movement of the total number of inhabitants in the Republic of Croatia from 1953 to 2021
(Source: DZS, 2024)

After the Homeland War in 1991, there was a thirty-year decline in the number of inhabitants. Mortality caused by war suffering was reflected in the age and gender structure of the population, as it primarily affected men of reproductive age. The uncertain economic, social and political future that followed the war led to significant emigration of the population, again primarily in the young and reproductive age. Already in the first subsequent census, the one from 2001, a population decrease of 7.25% is visible.

This reduction continues continuously until the last census in 2021, and in addition to the absence of adequate demographic measures, the causes should also be cited as joining the European Union in 2013, which led to a significant new wave of migration, and the consequences of the COVID-19 pandemic. Migration did not affect all parts of Croatia in the same way. Figure 2 shows the total population loss by county, which includes natural outflow and migration balance.

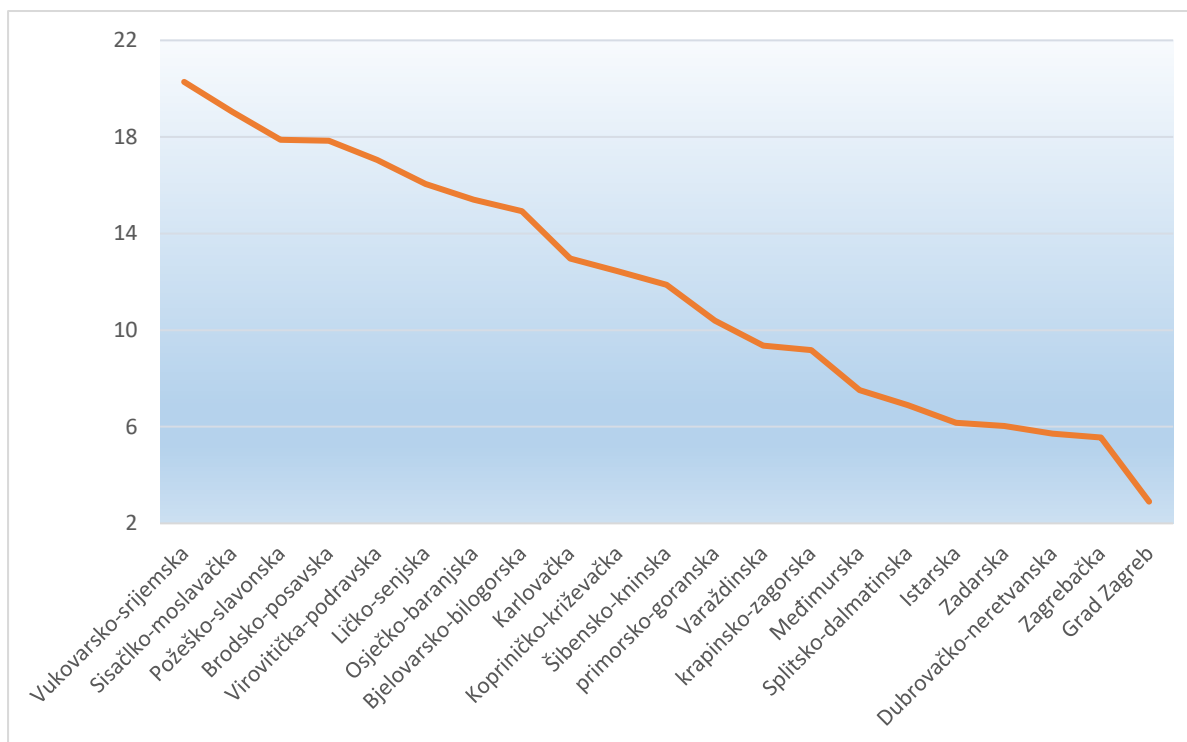
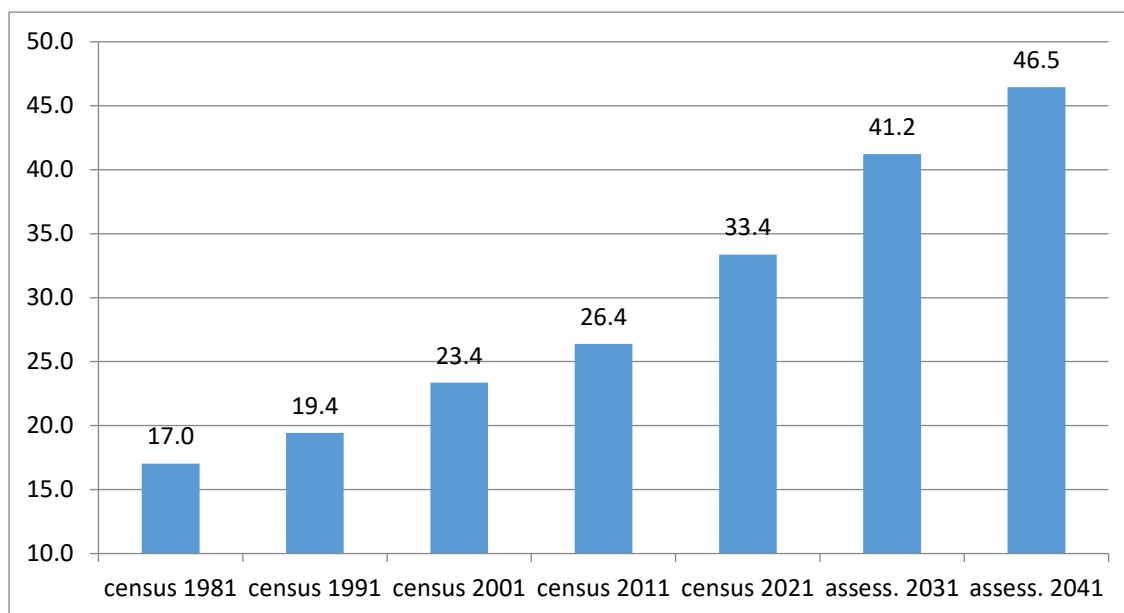


Figure 2: Relative population change by county, percentage decrease between 2011 and 2021 (Source: DZS, 2024)

The smallest demographic loss was recorded in Zagreb, which is expected since Zagreb is the economic and political center of Croatia. However, relatively less developed counties record a relatively greater demographic loss, which further worsens their economic and social prospects. This is partly the result of a smaller outflow from more developed parts abroad, but also of relocation within Croatia where the population decides to move to more developed parts of the country. Regarding immigration, in the last few years more and more foreign workers, mostly men, are immigrating to the Republic of Croatia, who are employed in deficit occupations. However, statistics show that they do not stay long in the country. In addition to the demographics, the family structure is also changing, which is reflected in an increasing number of children born out of wedlock, a later average age at first marriage and birth of the first child, and a higher rate of divorce and partnerships. Also, the problem of infertility is becoming more pronounced, which leads to an increase in the number of children born from medically assisted fertilization (Strategija demografske revitalizacije Republike Hrvatske do 2033. godine, 2024). The causes of the population aging process are the consequence of the low number of births and the emigration of young people, as well as the increasingly long life expectancy. Despite the increase in life expectancy, there are still above-average levels of mortality associated with preventable and curable causes, resulting from risky health behaviors. The process of demographic aging in Croatia began before the end of 20th century. Namely, already in 1971, there were 47.2 old people per 100 young people, and the index 40 is the threshold by which the process of demographic aging on a certain area has started.

By 2017, the situation had even worsened, with 136.9 old people per 100 young people. The latest population census undoubtedly indicates the continuation of this unfavorable trend. The scale of aging rate can be observed by the dependency ratio of the elderly. This indicator shows number of older than 65 per one hundred working-age people. The higher ratio means higher utilization of the working contingent with the post-working contingent. Figure 1 shows the age dependency ratio in Croatia.



*Figure 3: Changes and estimates of age dependency ratio of elderly in Croatia
(Source: DZS, 2024; Buterin, D. et al, 2023a)*

By 2041, it is estimated that the working contingent will be burdened with 46,5 elderly people, which means extremely high age dependency that brings the sustainability of social welfare system in a question. Croatia has joined the group of countries where the population is decreasing and is no longer being renewed. Most of the developed European countries face the similar demographic trends, and they can be said to be in the post-transition stage of population development, that is, in some of the stage of the second demographic transition. In a process of second demographic transition it can be noted a decrease in the total fertility rate from a low positive one to the negative level that can no longer ensure a population renewal (Kaa, 1997). According to the 2021 census, Croatia, with 19.4% of its elderly population, is among the oldest nations on the European continent (DZS, 2024). The Republic of Croatia has so far had various attempts to implement population policies, from expansionary to redistributive, but none of them have brought significant demographic changes. The reasons for the failure of Croatian population policies can be identified in the short implementation time and insufficient evaluation of the results and set goals. Demographic processes were tried to be influenced by partial measures, which were primarily related to the lowering of certain costs in the sense of tax benefits or to subsidizing certain parts of the costs. However, due to the lack of a systematic approach that would cover the entire demographic issue, the measures so far have not produced noticeable results. In 2024, the Strategy for the demographic revitalization of the Republic of Croatia until 2033 was adopted, which is the first act of strategic planning related to demographic processes adopted after the accession of the Republic of Croatia to the European Union. It is based on the National Development Strategy of the Republic of Croatia until 2030, which is the highest strategic act in the hierarchy, and its components are family policy and migration policy. It identified eight main areas of intervention in which the Republic of Croatia intends to face demographic challenges in the long term.

The areas that will be affected simultaneously by subordinate policies are (Strategija demografske revitalizacije Republike Hrvatske do 2033. godine, 2024):

- 1) Material and non-material support
- 2) Tax credits
- 3) Housing care
- 4) System of early and preschool, primary and secondary education
- 5) Higher education, lifelong education and active aging
- 6) Healthy environment
- 7) Cooperation with Croats outside the Republic of Croatia
- 8) Population mobility

The general demographic goal of the aforementioned strategy is to achieve a balanced age structure of the population in the Republic of Croatia. Table 1 shows the ways of evaluating the strategic goal related to a stimulating environment for families and young people, and Table 2 shows the ways of evaluating the strategic goal related to the balanced mobility of the population.

Performance indicators			Initial value (2021)	Target value (2033)
1	Share of live births by working mothers in the total number of live births	The indicator at the annual level shows the share of live-born children who were (self-) employed before birth	80,0%	90,0%
2	Share of children in the total population	Share of people under 15 in the total population of the country	14,3%	15,0%
3	The average age of leaving the parental home	The average age of leaving the parental home is an approximate measure based on whether respondents and their parents live in the same household	33,4	29,0

Table 1: Indicators of the strategic goal: Built stimulating environment for families and young people

(Source: Strategija demografske revitalizacije Republike Hrvatske do 2033. godine, 2024)

Performance indicators			Initial value (2021)	Target value (2033)
1	Net migration rate	The number of people who moved in minus the number of people who moved out in a certain period divided by the number of inhabitants in the same period. It is expressed as the net number of migrants per 1,000 inhabitants	+3 per thousand	+4 per thousand
2	Share of the rural population in the total population	Rural population refers to people living in rural areas as defined by national statistical offices. It is calculated as the difference between the total population and the urban population.	42,0%	45,0%

Table 2: Indicators of the strategic goal: Balanced population mobility

(Source: Strategija demografske revitalizacije Republike Hrvatske do 2033. godine, 2024)

It has been shown that countries with a more educated population and higher productivity of the workforce can achieve higher growth rates (Mervar, 2003). The main characteristics of the Croatian population are its accelerated aging and negative migration balance. The decline in the total number of inhabitants accompanied by the trend of emigration, the decrease in the birth rate, the unequal regional distribution of the population, disturbances in the age and gender structure with a direct impact on the education, health and pension system and on social and economic growth have been highlighted as the most important demographic problems of the Republic of Croatia for years (Wertheimer-Baletić, 2017).

3. GROWTH AND THE POPULATION

In the middle of the last century, the works of Tinbergen (1942), Fabricant (1954), Abramovitz (1956), Kendrick (1956), and Hicks (1965) who intensively deal with economic growth were noticed, but already Ramsey (1927), who studied the problem of optimization of households and Harrod (1939) and Domar (1946) can be considered the real originators of modern growth theories (Buterin, D., et al., 2023b; Mervar 2003). A group of endogenous models, named AK models, considers economic growth exclusively as an effect of the accumulation of human capital and physical capital. The most important theorists of this group are usually considered to be Becker, Murphy and Tamura (1990), Jones and Manuelli (1990) and King and Rebelo (1990). In fact, this is a neoclassical theory of growth, only with no diminishing returns. In this group of endogenous models, sustainable growth occurs due to externalities between individuals who accumulate human and physical capital. For achieving a desired level of growth rate, it is necessary to encourage savings that will finance technological development, which will then result in faster growth. Encouraging savings and capital accumulation are the basis of growth, unlike other models in which growth is determined by investment in research and development. Since human capital is formed during technological development as a part of the aggregate accumulated capital, there are no diminishing returns on capital. This is where spillover effects come into play, compensating for differences in marginal returns.

The essence of these models is contained in the aggregate production function:

$$Y_t = AK_t \quad (1)$$

Where A is a constant level of technology and K is physical and human capital. Production, on the other hand, is the effect of consumption and investment:

$$Y_t = C_t + I_t \quad (2)$$

Net investments are defined as investments minus the fixed depreciation rate δ :

$$K_t = I_t - \delta K_t \quad (3)$$

It follows that the growth rate of production is the same as the growth rate of capital, which in turn depends on savings. If saving is shown as a fixed ratio (Frankel, 1962):

$$s = 1 - C_t/Y_t \quad (4)$$

economic growth takes on the expression:

$$g = sA - \delta \quad (5)$$

Instead of being given exogenously, if saving is shown as a function of utility maximization in the intertemporal horizon of the household (King and Rebelo, 1990):

$$\int_0^{\infty} e^{-\rho t} \frac{C_t^{1-\sigma}}{1-\sigma} dt \quad (6)$$

the production function takes the form:

$$Y_t = C_t + (1 - \tau)I_t + T_t \quad (7)$$

Where τ is the investment subsidy financed by a flat tax T_t . It follows that the rate of economic growth can be expressed as (Aghion and Durlauf, 2009):

$$g = \frac{\dot{c}}{c} = \frac{\frac{A}{1+\tau} - \delta - \rho}{\sigma} = g \quad (8)$$

In AK models, there is no important difference between physical and human capital. According to them, the unlimited growth can exist even in a perfect competition, and that it is fueled solely by the accumulation of capital, both physical and human. Nowadays, endogenous theories that continue the neoclassical tradition in the search for balance prevail in the field of growth theories. According to them, equilibrium is not considered a stable equilibrium state, but a stable growth path is considered that category. When the population is considered as a factor of economic growth, it is necessary to see it as the bearer of economic activities and the beneficiary of its achieved results. The population, due to its size and numerical movement, can be an obstacle to economic growth if it has an expansive growth, but also if its number drops significantly. In developed countries, the population is an extremely important factor for economic growth (Benić, 2016). The optimal number of inhabitants represents the necessary number of inhabitants that would maximize the output per inhabitant and thus contribute to the improvement of the standard of living. It is defined on the basis of the natural resources that the country possesses, the amount of natural factors and the degree of technological development. However, such an optimum cannot be measured, but can only be theoretically defined. Demographic investments are extremely important for increasing economic growth. They are defined as investments that ensure GDP growth equal to the population growth rate. With its numerical and qualitative growth, the population determines the minimum level of output growth in the economy so that it can remain equal in relation to the population (Modrić, 2023). The origin of all financial problems of the social security system in Croatia lies in the unfavorable demographic structure and unfavorable demographic trends (Buterin, D., 2020). Achieving the long-term financial sustainability of the pension and health system without jeopardizing the stability of public finances and without jeopardizing the competitiveness of the economy is an important problem of Croatian economic policy, the solution of which should be carefully and systematically addressed. Namely, the pension and healthcare systems of the Republic of Croatia have been undergoing changes over the past few decades, which can already be said to have become continuous. Several pension and health reforms have been implemented and numerous accompanying laws have been changed, but apparently, apart from interventions in demographic policy, in the foreseeable future it will be necessary to make a radical reform of the financing of the social security system. Analyzes of the age structure of the population show that the aging process will continue in Croatia, i.e. the process of increasing the share of the population aged 65 and over, and that the depopulation process will continue. Demographic conditions in Croatia point to the near end of the sustainability of financing the social security system in the current way.

On the other hand, structurally changing the financing of the pension and health system is one of the most complex tasks of the overall economic policy, the long-term and far-reaching implications of which can be reflected in numerous economic and social areas, and it is necessary to approach it with particular caution.

4. CONCLUSION

The Republic of Croatia has been facing demographic problems for many years, and since the middle of the last century, these problems have become noticeable in terms of the aging of the population. Wartime demographic losses and several large waves of migration before and after the war led to an additional loss of part of the fertile and able-bodied population. As a result, the situation worsened even more, and today Croatia not only has a very unfavorable demographic situation, but also very worrying demographic trends. In achieving economic growth, the population, i.e. its educational, age and gender structure plays a very important role. Current demographic prospects indicate that Croatia will have a demographic deficit in the long term, which will negatively affect growth rates. An additional problem is the foreseeable unsustainability of the existing way of financing the social welfare system, primarily the pension and health system. Increasing expenditures induced by demographic characteristics and demographic changes require a radical reform of the system, but even more require a change in demographic trends. This becomes one of the most important tasks of overall Croatian politics. Previous attempts to change demographic policies have not brought the desired results in terms of increasing fertility or the return of the emigrant population that is still of working and fertile age. Therefore, a strategy of demographic revitalization was adopted, which is in accordance with the national development strategy, the application of which will try to influence the change of negative demographic trends. At the same time, it will be necessary to change the financing of the pension and health systems in order to achieve their long-term sustainability. Monitoring the implementation of the demographic revitalization strategy, as well as the success of achieving the goals set by it, represent a very important segment of its implementation. In future research, it is necessary to analyze the relevance of each individual part of the strategy, the success of adopted policies, and propose possible changes in a timely manner.

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DIGITAL PUBLIC ADMINISTRATION AND GOOD GOVERNANCE

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ABSTRACT

The modernization of public administration and use of new technologies is an evolutionary process with more than two decades. This process offers some opportunities, in particular, the faster procedures, increased efficiency and democratization in access to public utilities. Despite this, there are also some risks such as the exclusion of some social groups, personal data protection failures and security problems. Good administration and good governance mean, nothing more and nothing less, dignifying and improving the living conditions of citizens. It demands the affirmation of the priority of the human being, the conception of public policies for citizens and an ethical behaviour of the rulers. In recent formulations on the essence of good governance and good administration, the ethical dimension is often present, probably because it has been realized that the government and management of public institutions is not a neutral activity, an inert activity, a mechanical activity. So, a digital public administration must be oriented to the integral well-being of citizens. The investigation questions are: can governments ensure compliance in digital process with the rule of law and fundamental rights? Can law regulate technology and assure a digital public administration for all? Developing these questions we find other important issues, such as the preservation of the rule of democratic law, the critical capacity thoughts about fundamental issues, setting the limits for science and technological advancements. The aim of this research is to understand how to maintain the digital public administration process with respect for the rule of law and the protection of human rights.

Keywords: *digital public administration, digital process regulation, human rights*

1. INTRODUCTION

The modernization of public administration and the use of new technologies are an evolutionary process. The digital transition of public administration offers numerous opportunities, including speeding up procedures, increasing efficiency and democratising access to public services. However, it also poses significant risks, such as the exclusion of some social groups, which are more vulnerable, without technological skills or the economic means to acquire them, in addition to failures in the protection of personal data and cybersecurity problems. Considering this duality, it is important to stress that ensuring good governance presupposes providing the digital public administration with the means to ensure that no one is excluded from access to all public utilities. In some EU countries, with older populations, and poor digital literacy, both for employees and citizens, guarantee a good governance in digital public administration is not an easy task.

We can say, therefore, that the first challenge of digital public administration is to guarantee universal access to all citizens, protecting the most vulnerable (Anjos, 2016). Without universal access to public utilities, we cannot achieve a good public governance system focused on social progress and democracy survival (Anjos & Mimoso, 2018). In last decade, around the world, we have seen a dangerous rise of autocratic governments and not even the EU is safe from this trend. So, is not time to «let it be», is time to do something useful to begin facing the facts and try to give our contribution to preserve freedom, human rights and democracy in the world. At this point is obvious that a digital public administration can be a wonderful road to progress, but it can be, also, a passport to human rights abuse and a profound democracy crisis. Anyway, it must be aware that public administration modernization depends on digital progress, the use of new technologies has more than two decades and is an unstoppable process. The digital tools allow faster procedures, increased efficiency in access to public utilities **if** government guarantee the universal access. Otherwise, there are also some risks, such as the exclusion of some social groups, personal data protection failures and security problems. We must be aware of all the opportunities and risks to avoid the exclusion of any citizens and the collapse of our humanist system. To leave someone behind is against the law, a rule of law violation. To endanger democracy and all human rights won with sacrifice and dedication of several generations, will be a great disappointment and a terrible mistake. The digital age must have the purpose of improving our lives and individual accomplishment's, the community's integration, and, of course, reinforce our democracies. To achieve these goals, it is necessary to ensure a good governance in public administration, what is, nowadays, the major problem in public sector. This research work aims to be a theoretical contribution to clarify the main concepts and instruments of public governance for a successful process of digital public administration. In fact, we limit our analysis to some questions around the concept of «*good governance*», so that we can then develop a sectoral and specialized incursion into each of the most decisive areas of public administration.

2. THE CONCEPT OF «GOOD GOVERNANCE»

The concept of good governance can be defined as a governance oriented towards efficiency, responsibility, transparency, predictable, participatory and dynamic government to all (universality). This last characteristic (universality) is not a characteristic referenced by all reference authors in this matter. But, from our point of view, this is the most relevant characteristic that encompasses all the others, that is: good governance is oriented towards all citizens having access to an efficient, accountable, transparent, predictable, participatory and dynamic public administration. As Rodriguez-Arana, «*the service to the community is the central axis of good governance and public ethics. This idea of service to the public is the constitutional foundation of a good public administration or good governance.* » (Rodriguez-Arana, 2017). In short, good governance means a public administration that provides quality services and promotes the exercise of the citizen's fundamental rights, in a digital performance or, if this is not possible, in a traditional and personal way. Good governance means, nothing more and nothing less, dignifying and improving the living conditions of citizens (Rodriguez-Arana, 2004). It demands give priority of the human being, the conception of public policies for citizens and an ethical behaviour of the rulers. In recent formulations on the essence of good governance and good administration, the ethical dimension is often present, probably because it has been realized that the government and management of public institutions is not a neutral activity, an inert activity, a mechanical activity. Thus, a digital public administration must be oriented towards the integral well-being of citizens, the social progress and according to an ethical behaviour and rule of law respect. The social progress (Anjos & Mimoso, 2018) for all is the essential meaning of all public activity, without which no model of public administration can be classified as «*good governance*».

3. THE STATE OF ART: A LITERATURE REVIEW ABOUT «GOOD GOVERNANCE»

According to Rodríguez-Arana, (Rodríguez-Arana J., 2004) the right to good administration is a fundamental right of every citizen to have the decisions handed down by the institutions impartial, fair and reasonable in terms of their substance and at the time at which they are taken. In this regard, some important authors have been converging on the understanding that good governance in the era of digital public administration requires reinforced ethics and more effective regulation. The big question is how to ensure that digital processes comply with the rule of law and protect fundamental rights. The law needs to regulate technology and ensure a digital public administration accessible to all, in a global world. Analysing the guidelines of the 2030 Agenda (SDGs), we can clearly see this concept of good governance, in the new digital public administration, centred in citizen's, «*from people to people*». That is essentially the meaning of good governance. The continuous development of technology has reconstructed some traditional concepts from different fields of human, social and legal activities. For Wilson Engelmann (Engelmann, 2021) the technology coexists, is already available to part of the population and is constantly used to develop numerous daily tasks, which were previously developed exclusively by man. Throughout this continuous process of technology innovation, mechanisms have emerged that facilitate repetitive and manual activities performed by man, which consequently are being inserted into the legal sphere. Artificial intelligence, also known as *machine learning*, operates through robots that can learn and simulate human behaviour and are generally used to replace human activities. (Fux, 2022). As example of legal applications, in Brazil, it is already use by national and supreme courts (Fux, 2022) and has been demonstrating a significant evolution to achieve the principle of reasonable time of processes decision, leading to a considerable acceleration in the manual and repetitive work performed (Ferrari; Becker; Wolkart; Navarro, 2018). As an example, in Brazil, the Court of Accounts of the Brazilian Union (TCU), an external body of the Federal Government, which is also responsible for acting in compliance with administrative principles and, therefore, acting in compliance with morality in the tasks assigned to it, has also been adhering to these innovations, using ChatGPT as a tool, among others, reduce the time in text production and make adaptations to simple language. A large part of the vulnerable population, with the gradual introduction of technology, has been going through a process of digital exclusion, due to the absence of conditions to access these new tools, which contradicts the idea of a democracy based on social inclusion (Habermas, 1996). In the European Union, it should be noted that algorithms are already being used to make automated decisions without human intervention, as is the example of Estonia. The litigation parties can obtain the resolution of the dispute using artificial intelligence in proceedings up to €7,000.00 (Grecco, 2020). However, these techniques, once used, must be implemented without neglecting the due precaution that is due to them, since they are techniques associated with artificial intelligence, which sometimes do predictive analysis, through data, statistics and are still capable of developing discriminatory behaviours (Fux, 2022) and it is against the interests of the foundation of the dignity of the human person, (Scarlet, 2011). Some Constitutions, as Portuguese, Brazilian and others, consider the human dignity as *supreme ratio* of the State of Law. As example the Brazilian Constitution in its article 1, III, provides for the dignity of the human person, as the foundation of the foundation and the maximum objective of respect for human rights, his duties, his freedoms and guarantees arises, «*respect with being and not with having*» (Jorge Miranda, 2006). If any guarantee, such as the access to services, use of digital tools, or others, is frustrated or if the use of these techniques collides with the duties of the public administration (for example, the duty to inform), we are faced with a violation of the principle of legality, *due process of law*, and consequent violation of the dignity of the human person required in the legal relationship between the State and the citizen (Moncada, 2006).

On the other hand, the use of technology, even when it is accessible to citizens, presupposes their ability to express their will, and it is certain that having access to technology does not mean knowing how to use it. To do so, it is necessary to have digital skills. Now, in the relationship between the State and the citizen through digital tools, it is necessary that the autonomy of will is not frustrated or even manipulated by the adoption of complex and pre-defined tools that limit the expression of the citizen's will. Comparatively, the Portuguese Constitution provides in Article 26 for the fundamental principles to which the public administration is bound, such as respect for the principle of equality, proportionality, justice, impartiality and good faith. It is important to mention that all procedural and administrative phases must respect the principle of information and the administrative procedure provided for by law. Furthermore, the State must promote public policies of equality, which imposes justice and ethics (Neves, 1999), which requires a legal hermeneutic that only human rationality can achieve (Greco, 2022). Were this not the case, in the face of the introduction of techniques associated with artificial intelligence, the responsibility of the public administration and its employees would be eliminated, which seems unacceptable. Some Authors mention the need for a regulation on the use of the technologies, to define which acts can be practiced with the use of artificial intelligence, in conformity with the essence of the law and the ethics imposed on the administrative activity. Some authors, such as Rodriguez-Arana, 2017; Grecco, 2022) pointed a need for more conformity between the law regulating the proper use by the public administration and the guarantee of access of all citizens to these technologies, to dignified and guaranteeing access to public services for all. (Grecco, 2022). The ethical dimension of good administration is not only an obligation or a principle of organization, but also a fundamental right. (Rodriguez-Arana, 2024). The implementation of digital public administration has been driven by technological advances that promote efficiency and accessibility to government services. Pioneering countries have yet demonstrated the transformative potential of these initiatives. (Kassen and Heeks; 2019).

4. ANALYSIS OF THE LITERATURE REVIEW

The research literature shows that there are some good examples of the implementation of digital services in public administration in Europe and abroad. But it also shows that there are many risks of non-compliance with the rule of law. Thus, we tried to synthesize all the contributions to find some conclusions that allow us to define some fundamental principles for good governance in the era of digital public administration. Another important issue is to understand what needs to change in the public administration architecture to allow the advancement of digital without offending the fundamental rights of citizens and keep good governance all over the process. The following subchapters present the general lines of the conclusions drawn from the literature review carried out.

4.1. The ethical dimension of the concept of «Good Governance»

It is consensual that good governance aims to dignify and improve the living conditions of citizen users, requiring the affirmation of the priority of the human being. The design of public policies centered on citizens combined with ethical behaviour of government officials. In recent formulations on the essence of good governance and good administration, the ethical dimension is often highlighted, recognizing that government and the management of public institutions are not neutral, inert or mechanical activities. However, the continuous evolution of technology brings with it new challenges, such as data protection and ethics in artificial intelligence, which require constant adaptation of governmental strategies (AI Ethics Guidelines, 2023). Therefore, the ethical dimension for a good governance in a digital public administration is back on the agenda.

4.2. The social and progressist dimension of the concept of «Good Governance»

A digital public administration must be geared towards the integral well-being of citizens and social progress. Note that this idea is not recent, we can find that in some important administrative studies, by referee authors as Meilán Gil (Meilán Gil, 2006), Rolland (Louis Rolland, 1934) or Gastón Géze (Gaston Jéze, 1926). For Meilán Gil, technological progress is the key to improving social progress, this is the major meaning of all efforts of the humankind looking for new scientific and technological findings. And so, for the same author, administrative law is a tool to guarantee this progress, in defense of human rights, ensuring that the executive branch is governed by the guarantee everyone's access to new technological tools in conditions of equal opportunities. All these ideas remain current and probably more relevant than ever in a digital government context.

4.3. Good practices of «Good Governance»

In a digital public administration is essential implementing good governance practices faces several challenges, including resistance to change, lack of knowledge or resources, and an inadequate organizational culture (Oliveira & Souza, 2021). The theory of the networked society (Manuel Castells, 2000) highlights the transformative impact of information technologies on social and administrative organisation, underlining the need for effective regulation to mitigate potential breaches of fundamental principles. This scenario is even more complex in the European Union context and in an increasingly globalized world, where it is imperative that digital public administration strategies are inclusive, fair and equitable (Norris, 2001, p. 35). Estonia Republic is the most cited example in European Union as a success case in the digital transition of public administration, and evidence of how a systematic and innovative approach can promote more effective and transparent governance. In other words, good practices make the difference and are the key to success in implementation of governmental digital tools. The implementation of good governance practices faces several challenges, such as resistance to change, lack of knowledge or resources, and an inadequate organizational culture (Oliveira & Souza, 2021, p. 115). To overcome these challenges, it is urgent to adopt training and capacity building strategies, cultural change, improvement of information systems, and actively involve stakeholders in the digital process. Good practices pay off, lead to good results for companies and, of course, for public institutions and for people in general. Aligned with this understanding the United Nations highlighted, the principles of good governance, essential for effective public administration, include transparency, accountability, operability, equity (treating all stakeholders fairly and equally), and participation. The 2022 United Nations report on this matter reveals that 80% of global organizations with participatory governance practices report higher stakeholder satisfaction. Implementing effective internal control systems, regular audits, and creating an environment that promotes ethics are essential practices of good public administration. These practices contribute to increased public confidence, improved operational efficiency, risk reduction, and long-term sustainability. The United Nations Global Compact (2023) reveals that 80% of companies that adopt sustainable governance practices report greater resilience to economic shocks (United Nations Global Compact).

4.4. Administrative law principles, regulation, compliance and «Good Governance»

The administrative law principles must be respected in digital governance. From the point of view of the United Nations, the principles of good governance, essential for effective public administration, include transparency, accountability, operability, equity (treating all stakeholders fairly and equally), and participation. Regulations are crucial to ensuring that the principles of the rule of law are respected in an ever-evolving digital environment, so that digital processes are transparent, fair and respect democratic principles.

Compliance with the rule of law requires that digital processes be legally sound, transparent, and accessible. These principles are essential to protect the fundamental rights of citizens, and effective regulation is paramount to prevent potential violations of these principles. The preservation of the democratic rule of law and the critical capacity to reflect on technological advances are fundamental to ensure that human rights are respected (Dobusch & Schoeneborn, 2015, pp. 178-180). Effective regulation plays a crucial role in mitigating potential violations of these principles. Poor digital literacy limited to older people and vulnerable groups remains a significant obstacle to full digital inclusion in public administration (OECD, 2021, p. 27). Educational strategies and public policies are needed to empower these groups and ensure that no one is left behind in the digital age. For example, Estonia has taken the initiative to digitalise public services (e-Estonia, 2023), achieving best practices in the implementation of digital public administration that promote inclusion and accessibility. To this digital literacy training was promoted for the entire population (employees and citizen users). The future of digital public administration will be shaped by continuous technological evolution and the ability of governments to adapt their strategies to address new challenges, such as data protection and ethics in artificial intelligence (AI Ethics Guidelines, 2023). The General Data Protection Regulation (GDPR) is an important milestone, ensuring that citizens' data is protected and that digital processes are conducted in a transparent and fair manner (European Commission, 2022). These regulations are essential to ensure compliance with the rule of law in a dynamic and secure digital environment. The European Union has played a crucial role in regulating digital public administration, establishing guidelines that aim to protect citizens' rights and promote equal access to digital services (European Commission, 2022). Designing a digital government format, which meets the needs, ensuring effective access to public services, would bring effectiveness to the implementation of digital government and compliance could bring greater management and transparency to the format, because compliance is nothing more than a way to adapt the activities to carry out the activities in accordance with the law, structure the management of the private sector with the regulation of the law as well as take care that during the management, there are no responsible failures, both in the civil and criminal fields, including if there is a contract of this company with a state entity. (Coutinho, 2019). The definition of compliance comes from the English verb, to comply, and means, to comply, to follow the law, with the legal norm in force, but compliance is not legislation, compliance is ethical is to introduce governmental ethical structures among its peers and between the administration and its administered (Coutinho, 2019). To this end, public institutions should use a multidisciplinary team that guides and raises the level of awareness of its employees, managers, directors and its entire team, so that it aims to minimize risks, since one of the objectives of compliance is to minimize risks for the company. Compliance from this perspective proves to be effective to be implemented during digital government, because at this point, the law itself modulates the *modus operandi* of the strategies and procedural compliance how the strategies are used in accordance with other legislation and must be executed and may bring more transparency to public acts. Implementing good governance practices faces several challenges, such as resistance to change, lack of knowledge or resources, and an inadequate organizational culture (Oliveira & Souza, 2021, p. 115). To overcome these challenges, it is urgent to adopt training and capacity building strategies, cultural change, improvement of information systems, and actively involve stakeholders in governance processes. It is important to highlight the relevance of people and make public employees available for a more specific and judicious face-to-face service. The European Union has played a crucial role in regulating digital public administration, establishing guidelines that aim to protect citizens' rights and promote equal access to digital services (European Commission, 2022).

4.5. Citizens' right to «Good Governance»

The study shows that «good governance» is a citizen's right. It means citizens have the right to see all issues of individual and general interest resolved by public authorities, without exception, in a fair, equitable, objective manner and within a reasonable timeframe, constantly promoting human dignity. Moreover, it is an obligation inherent in the essence of the public authorities and a principle of administrative action. Citizens, therefore, have the right to demand such characteristics of objectivity, impartiality, justice, equity and resolution within a reasonable time in the functioning and activity of all public administration's certain standards of quality in the administration action. The right, principle, and obligation of good public administration bind the way in which public institutions should be run in an advanced democracy (Rodriguez-Arana, 2017). In other words, public institutions in democracy are not the property of their leaders, they are of the people who are the holders of sovereignty. The public official must know, and practice accordingly, that good governance obliges him to be continuously accountable to the citizens and that the search for quality in public service presides over all his actions. In a digital public administration environment this idea is even more important and must be enforce.

4.6. Framework and conformity with the European Union Law

Article 41 of the European Charter of Fundamental Rights, approved in Nice in December 2000, applicable in Spain by virtue of the Treaty of Lisbon of December 2007, constitutes a series of different citizens' rights, of no less than fundamental, which over time and throughout the different legal systems have characterised the central position that citizens have today in everything that refers to Administrative Law. Today, in the twenty-first century, the citizen is no longer an inert subject who simply receives public goods and services but must participate in the determination of the general interest, which is no longer unilaterally defined by the public administration since, as the Constitutional Court says in a judgment of 7 February 1984, this is defined through an intercommunicated action between public authorities and social agents. Article 41 of the European Charter provides that: (1) Everyone has the right to have his or her affairs dealt with impartially, fairly and within a reasonable time by the institutions and bodies of the Union. (2) This right includes in particular: the right of every person to be heard before an individual measure is taken against him that affects him adversely; the right of every person to access the file that affects him/her, with respect for the legitimate interests of confidentiality and professional and commercial secrecy; the obligation incumbent on the Administration to give reasons for its decisions. (3) Everyone has the right to compensation from the Community for damage caused by its institutions or servants in the performance of their duties, in accordance with the general principles common to the laws of the Member States. (4) Any person may address the institutions of the Union in one of the languages of the Treaties and shall receive a reply in that language. So, we can say that there is a fundamental right to good governance, in the sense that any person has guaranteed the access to public utilities in a digital or face-to-face administration, and this is the minimum for a social progress and equality of opportunities between citizens. It means the return to the founding idea of public utilities and the rule of law.

5. FINDINGS

The digital transition in public administration has revolutionized the way government services are presented to citizens, promoting efficiency, transparency and accessibility. This shift promotes efficiency and transparency, but it also raises crucial questions about how the law can adequately regulate these technologies to ensure universal accessibility and compliance with democratic principles and fundamental rights.

This article explores, current landscape, and prospects of digital public administration, *focusing on the *modus operandi* of governments to ensure legal and ethical compliance in a dynamic digital environment, called «good governance»*. To this end, it is urgent for legal regulation to address the challenges faced by poor digital literacy, the elderly (most of whom are dependent) and the most vulnerable groups. The central question is to know how governments can preserve the democratic rule of law, the critical capacity to reflect on fundamental issues and the definition of limits to scientific and technological advances. Important international institutions such as European Union or United Nations are aware about the importance of regulation, good practices, compliance and rule of law respect and, above all, the fundamental right to a good governance. At the end of the day, the sustainability of democracy depends on all this. Answering our initial questions, it must be stated, without a doubt, that the Law can and should regulate technology, punishing, if necessary, those who take advantage of it in an exclusive, discriminatory or against the rule of law. The principles of good governance, essential for effective public administration, include transparency, accountability, operability, equity (treating all stakeholders fairly and equally), and participation and they must be the legislator's beacon in its regulatory task. Good Governance means an ethical action of public institutions. So, governments can and should ensure compliance in digital process with the rule of law and fundamental rights. Studies show that the difficulty in implementing e-government structures is often related to the implementation of these technologies and not to the strategies associated with the implementation. The presentation format of this digital government should be aimed at the public, in a universal way, to facilitate their access. In recent formulations on the essence of good governance and good administration, the ethical dimension is always present, probably because it has been realized that the government and management of public institutions is not a neutral activity, an inert activity, a mechanical activity. It must be oriented to the integral well-being of citizens and must therefore facilitate those who carry it out, and those for whom it is directed, their personal improvement, their growth as people. The importance of ethics in relation to the very noble public activity, to the stewardship of the affairs of the community, continues to be at present one of the most complex aspects to face, probably because power, money and fame are still three great idols that are worshipped with intense devotion and persecuted on occasion and without it. At last, the government and administration of the res publica cannot be reduced to the simple articulation of procedures, as this is one of its most fundamental aspects; The government and the public administration must start from the radical affirmation of the pre-eminence of the person, and of his rights, to which the public powers, having cleared up all temptation of despotism or authoritarianism, must subordinate themselves. Specifically, the good administration and good governance of public institutions consists, no more and no less, than dignifying a task aimed at improving the living conditions of citizens. The affirmation of the priority of the human being, of the fundamentality of the human being in the conception of public policies is the key element of its ethical configuration. We must take on regard that digital public administration at the distance of a click or face to face, is a mission designed from people to people! Last worth to respeak that good governance is the minimum all we can expect from government in a democratic system, and that this is not negotiable, is an imperative of the rule of law.

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INTELLECTUAL CAPITAL IN CONTEMPORARY BANK STRATEGIES-THE EXAMPLE OF POLISH LISTED BANKS

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ABSTRACT

Globalization, technological progress, and unlimited access to information have become the main factors in the development of the world economy. Nowadays, banks have focused on developing their intangible assets, i.e. the ability to introduce innovations, develop IT systems, build relationships with stakeholders, and manage employee skills. The dynamics of changes in financial markets have led to an increased interest in product, process, and organizational innovations. The intensification of these activities among banks in Poland occurred as a result of the effects of the COVID-19 pandemic, but also the ongoing war in Ukraine and the monetary policy. Intellectual capital (IC), perceived as one of the main resources of intangible assets, has become a key factor ensuring competitive advantage and sustainable development of organizations in the medium and long term. Intellectual capital (IC) is hidden in the relationships and skills and knowledge of employees, partners, customers, competitors, or shareholders. It has a significant impact on the creation of a relational mechanism concerning the organizational sphere, innovation, and contacts with the external and internal environment. When constructing the pillars of the strategy, banks consciously take into account not only achieving financial benefits, but also environmental protection and building good relations between the company and investors, contractors, customers and employees (i.e. elements of IC subsystems). The study will include an analysis of reports and strategies of 10 listed banks in Poland in the years 2009-2023. The author will construct a synthetic measure of banks' competitiveness, which will take into account 26 diagnostic indicators reflecting IC subsystems.
Keywords: intellectual capital, innovations, bank, strategy, business model, competitiveness

1. INTRODUCTION

Since the beginning of the 21st century, an increasing number of scientists and practitioners have drawn attention to the essence and structure of intellectual capital (IC) and its role in building banks' strategies. This can be explained by the current era of knowledge - a knowledge-based economy in which information is considered an important resource of every enterprise, especially those in the service sector (Arszułowicz, 2019). The growing importance of intangible assets in the global economy has inspired scientists to look for the causes of the discrepancy between the book value and the market value of enterprises. As a result, intellectual capital was indicated as the main causes of this discrepancy. It has become the subject of research not only in the area of accounting, but also in the entire economy and management (Michalczyk, Rutkowska, 2022). Intellectual capital is a special type of enterprise asset that is unique, distinguishes the organization from the competition, proves its development potential, and, importantly, is difficult to copy (Sharabati, Jawad, Bontis, 2010). When making strategic decisions, in addition to financial data, companies increasingly use information characterizing their intangible resources, allowing them to assess the use of employee knowledge and experience, as well as innovation and the ability to build relationships with stakeholders (Mesjasz-Lech, Włodarczyk, 2020). Sustainable development of a bank and increasing its competitiveness are currently inextricably linked to the ability to flexibly respond to changes in the market environment and creatively use its resources and experience (Xu, Li, 2019).

The most important factors in the functioning of banks include: internationalization and globalization, the emergence of new services, changes in customer behavior and their expectations, and technological progress (Kozak, 2021). Banks have been forced to take actions that strengthen their economic foundations (constant care for economic capital - material assets), but at the same time increase their attractiveness, creating the brand of a 21st century organization (capable of building socio-economic values) by using the full potential of intangible resources, including intellectual capital (IC). Effective management of intellectual capital (IC) is becoming a key competence of modern banks and therefore its individual elements are emphasized in bank strategies. The bank's strategy is to increase its competitiveness on the banking market. Competitiveness in the article is understood as building a long-term competitive position of the bank based on the accumulated competitive potential, the possibility of using the ability to compete in specific conditions of the external environment and achieving a lasting competitive advantage, while intellectual capital (IC) is hidden in the relationships and skills and knowledge of employees, partners, clients, competitors or shareholders. It has a significant impact on the creation of a relational mechanism concerning the organizational sphere, innovation and contacts with the external and internal environment. The network of organizational, pro-innovation and institutional relations is the foundation of the ability to create socio-economic values, which are the basis for sustainable development. Hence, the article uses the division of IC into subsystems: organizational capital (ORG), innovative capital (INN) and institutional capital (INS) (Rosińska-Bukowska, 2020). The aim of the article is to present the general concept of intellectual capital of enterprises and the intellectual capital of the bank divided into three subsystems: organizational, innovative and institutional, and to assess the significance of intellectual capital in the bank's strategy and building its competitive advantage on the market. The research question is: is intellectual capital a key factor in building a long-term competitive position of banks and is an inseparable element of their strategy? The author used a critical analysis of the subject literature, a case study of the research group and multidimensional statistical analysis in the study. The research period is 2009-2023.

2. THE CONCEPT AND IMPORTANCE OF INTELLECTUAL CAPITAL

Knowledge and technological progress have rapidly gained importance worldwide over the past few decades. In most cases, business patterns are changing in both developed and developing economies. Empirical studies reveal that a production-based economy is changing to a knowledge-based economy with a technologically intensive and rapidly changing nature (Tiwari, Vidyarthi, 2018; Shih, Chang, Lin, 2010; Onumah, Duho, 2020). Nowadays, every enterprise requires a comprehensive analysis of information about its operations and the directions of changes determined by market challenges. The ability to use intellectual capital in the conditions of environmental volatility and the development of the information society is becoming a necessary condition for every organization competing in the market. This is consistent with the view that the structure of resources determines the value of the enterprise. The key competence of enterprises in this area is the effective management of intellectual capital (Nguyen, Le, Ho, 2021). In today's economy, most companies have to find a new way of thinking to survive in an environment of strong competition, achieve new goals and face challenges such as cybersecurity threats. The category of intellectual capital is becoming particularly important, especially in the context of the growing importance of the issue of sustainable development of organizations. It has been noted that intangible assets, commonly recognized as a key source of competitive advantage, can also provide significant support for the organization's goals in the field of sustainable development. More and more entrepreneurs are convinced that in the global market, combining intangible asset management and a pro-ecological approach can generate more business opportunities (Ramesh, Saha, Goswami,

Dahiya 2019). Intellectual capital is a set of company resources that contribute to the creation of value, but are not included in the company's standard financial reports. The key components of intellectual capital of companies are: employee knowledge and experience, technology, brand, know-how and company reputation. The first two elements play a particularly important role here - employee knowledge and experience, because they are necessary to create the added value of the company (Rehman, Ashfaq, Bresciani, Giacosa, Mueller, 2021). In the 21st century, the required leadership for organizations is about establishing organizational capabilities and resources, with a focus on intellectual capital. Intellectual capital is a key contributor to achieving competitive advantage for any organization. Leaders should “strategically” manage these key assets for the organization so that they enhance the organization’s capabilities to achieve overall strategic alignment and sustainable competitive advantage. Strategic development and management of these assets involves assessing available assets and implementing changes, such as acquiring/building and disposing of intellectual assets that accelerate the implementation of the company’s strategy and gaining advantage in the marketplace (Mollah, Rouf, 2022). Intellectual capital creates value for the organization, which can be critical in creating sustainable competitive advantages. In increasingly competitive and dynamic markets, where innovation is the watchword, it is important for organizations to improve and maintain their ability to strategically manage and maximize the value that comes from their intellectual capital. The banking sector of the 21st century has changed, as evidenced by, among other things, the appreciation of the microeconomic approach to assessing the competitiveness of its participants. Certainly, the specificity of the banking sector still lies in its role in the economy and, as a result, its subjection to a number of regulations, much stronger than in other – non-financial – areas of the economy. As a result, the rules of competition in the banking sector depend on the degree of concentration, the number of leading entities, the rules for building the efficiency of domestic market participants. These elements are of significant importance for the competitiveness of individual banks, although the changes taking place make it seem to be losing some of its importance (Murinde, Rizopoulos, Zachariadis 2022). In the literature on the subject, there are some differences between researchers in the interpretation of intellectual capital in the literature and its components, but in general it is perceived as one of the intangible assets that drives the activities of companies (Ghosh and Mondal 2009; Mondal and Ghosh 2012), as one of the main resources increasing competitive advantage, company value, stakeholder trust and supporting economic growth (Caputo et al. 2016; Jardon and Martínez-Cobas 2019). In a bank, employees are another important component of intangible assets (intellectual capital). Human capital is not analyzed solely from the perspective of typical quantitative criteria, such as education, training and experience. In the case of a bank, employee efficiency is more important, which depends on initiatives, innovation, flexibility, risk-taking skills, problem-solving and teamwork (Nasser, 2021). Moreover, in works devoted to the intellectual capital of a bank, the important role of organizational culture is emphasized, manifested in values, norms, attitudes and behaviors. Banks require specialist knowledge, intensive use of modern technologies and building relationships with customers. Appropriate use of intellectual capital also determines the stimulation of innovative ideas and the implementation of new solutions. In addition, banks play a fundamental role in promoting sustainable development (Jayakumar, Pradhan, Dash, Maradana, Gaurav 2018). They can influence the pace and direction of the development of corporate social responsibility. Analyzing the literature on the subject, it can be noticed that the brand, reputation and image of the bank are indicated as some of the most important intangible assets, which are of fundamental importance from the perspective of efficiency and influence on building a strategy for achieving market advantage (Alvino, Di Vaio, Hassan, Palladino, 2021). An identifiable brand, positive image and impeccable reputation affect all groups of consumers.

They influence customers' decisions to buy a given product, investors' decisions to buy shares and the willingness of current and potential contractors to conclude a transaction. Banking operations are largely based on customers, and banking products are not industrial products, banks must offer customers the highest quality and a variety of services in order to survive. Banks invested intensively in human resources, brands, systems and processes. Given that IC is a multi-dimensional resource of experience, knowledge and practical capabilities, this would help banks increase their effectiveness and efficiency, thereby maintaining a long-term competitive advantage (Balkan, 2021). Intellectual capital is increasingly recognized as a key driver of innovation and competitive advantage in the global economy. Theories rooted in the resource-based view of the firm posit that its resources, particularly intangible assets such as intellectual capital, are key drivers of its performance and sustainability. As global markets evolve and competition intensifies, strategic management of these intangible assets becomes critical to ensuring long-term organizational success. Intellectual capital is particularly critical in the banking sector because of the information-based nature of financial services and the growing importance of sustainable business practices (Koster, 2023). Banks are now expected to be economically efficient and adopt practices that ensure environmental sustainability and social responsibility. Growing regulatory and consumer pressure on banks to adopt sustainable practices further reinforces the emphasis on sustainability (Różycka, 2021). In this context, intellectual capital management – including human, structural and relational capital – can significantly affect a bank's ability to innovate and maintain competitiveness in a rapidly changing economic landscape. The introduction of intellectual capital into the strategy involves recognizing the importance of intellectual resources in the organization and developing a comprehensive plan to increase and effectively use these resources (Smuda-Kocoń, 2019). Researchers agree that the role of human capital in the banking sector is emphasized. In some studies, human capital is considered to be the foundation of intellectual capital as integrating, permeating all cooperating intangible assets (it is therefore not a separate subsystem of IC). Human capital is also not sufficient to build a competitive position on its own. The article assumes that intellectual capital (IC) is hidden in the relationships, skills and knowledge of employees, partners, customers, competitors or shareholders. It has a significant impact on the creation of a relational mechanism concerning the organizational sphere, innovation and contacts with the external and internal environment. The network of organizational, pro-innovation and institutional relations is the foundation of the ability to create socio-economic values, which are the basis for sustainable development. As a result of recognizing the justification for emphasizing these IC values and emphasizing the important role of knowledge in a modern bank, it was assumed that intellectual capital should be studied as a system composed of three subsystems (Rosińska-Bukowska, 2020):

- organizational capital (ORG) – the effectiveness of the organizational system, management principles and organizational structures (in terms of the industry); material values, i.e. trademarks, patents, copyrights, databases and IT systems, which are the effect of human capital activity in the bank;
- innovative capital (INN) – creating innovative products, services or solutions as a result of cooperation between human and technological capital;
- institutional capital (INS) – the specificity and model of building relationships with the external and internal environment, allowing the bank to adapt to specific market areas, gain customer loyalty and build the organization's reputation.

Despite the growing awareness of the importance of knowledge, intangible assets (intellectual capital) in banks, these issues are not fully reflected in financial statements (although the situation is systematically improving).

The basis of this situation are the difficulties related to measuring and presenting the value of knowledge of enterprises (including banks) in traditional accounting systems, which focus on reporting data on results to external stakeholders. Very often, there is a lack of full disclosure of information on intangible assets in them. The fact that IC is not recorded in financial and accounting reports shows that traditional measurement systems are not designed to cope with the complexity of IC, the value of which is difficult to determine and is strongly dependent on the context in which it occurs in the organization. The abstractness, ambiguity and complexity of this concept cause individual authors to define and divide it differently. The lack of a standard for understanding and structure of intellectual capital means that knowledge on this subject is fragmentary and is not sufficiently used in practice. It should become important for researchers to standardize the definition of intellectual capital, its structure and to indicate the possibilities of its use in the activities of enterprises.

3. INTELLECTUAL CAPITAL IN BANK STRATEGIES - CASE STUDY ANALYSIS

The study consisted of analyzing the strategies of 10 stock exchanges over the years 2009-2023¹. From the point of view of the study objective, the fact that the selected 10 banks account for more than half of commercial banking customers in Poland is of key importance – this allows for an attempt to generalize the research results. The group of banks studied consists of entities that provide the possibility of obtaining comparability of basic data, efficiency indicators, numerical characteristics, allowing for verification of the level of development advancement, taking into account intangible assets, including: digitalization, innovation, quality of customer service. These banks are: Alior, BNP Paribas, mBank, Citi Handlowy, Millenium, ING Bank Śląski, Pekao, PKO BP, Santander, BOŚ. An identical research scheme was adopted for each of the banks. The author analyzed the elements of the banks' strategies in subsequent years and specified the elements of intellectual capital. Based on the analysis of the literature on the subject, it should be emphasized that currently building competitiveness/competitive strategy (including banks) should be largely identified with the ability to sustainable development, based on the exploration of IC subsystems (structures, innovations, relationships). The challenge in building long-term competitiveness is the skillful use of intellectual capital as a base for socially responsible activities. The main area is the innovativeness of products and services (INN), activities for employees (ORG) and the quality of external cooperation with various stakeholder groups, as well as institutional capital (INS). Attention was paid to the actions taken both in the context of building the image of an innovative entity, focused on changes improving the quality of the organizational system, and actions aimed at creating the image of a socially responsible bank. These elements are inseparable attributes of strategies focused on the challenges of the 21st century. These issues are also key components building intellectual capital - respectively in the layer of innovation, organization and relations. Table 1 presents the pillars of the strategy of each of the analysed banks, with emphasis on elements indicating the exploration of IC potential. The strength of each element in the strategy is indicated by the symbols: "+++" – the key role of the given element (the strongest emphasis in the strategy); "++" – the significant, growing role of the given element in the strategy and "+" – the element currently perceived only at a basic level in the industry, used less than by competitors.

¹ The article is a continuation of the considerations raised in the doctoral dissertation entitled "The role of intellectual capital in building the competitiveness of banks in Poland" by Dr Karolina Anielak-Sobczak, written under the scientific supervision of Professor Magdalena Rosińska-Bukowska and auxiliary supervisor Ph.D Artur Mikulec, University of Lodz Repository: <http://hdl.handle.net/11089/43835>.

Pillars of strategy	Adjusting the offer to the requirements of specific customer segments	Quality of customer service	Employee competencies	Sustainable development	Digitalization	Process automation	Multichannel	Cybersecurity
Alior Bank	+++	+++	+++	++	+++	+++	+++	+
BNP Paribas Bank	+++	+++	+++	+++	++	+++	++	+
mBank	+++	+++	+++	++	+++	+++	+++	+++
Citi Handlowy	+++	+++	+++	++	+++	+++	+++	+
Millenium Bank	+++	+++	+++	++	+++	+++	+++	+
Pekao Bank	+++	+++	+++	+++	+++	+++	+++	++
PKO BP	+++	+++	+++	+++	+++	+++	+++	++
Santander Bank	+++	+++	+++	++	+++	+++	+++	+
BOŚ Bank	+++	++	+++	+++	+	+	++	+
ING Bank Śląski	+++	+++	+++	+++	+++	+++	+++	+++

Table 1: Strategy pillars of banks from the research group

(Source: own study based on the analysis: the +, ++, +++ scale shows the strength of pressure on a given element in the presented strategy)

In all the banks analysed, it can be noticed that the greatest emphasis in the strategy, i.e. banks emphasize the key role (+++) of "adapting the offer to the requirements of specific customer segments", "customer service quality" and "employee competences". In addition, BOŚ Bank, BNP Paribas Bank, ING Bank Śląski, PKO BP and Pekao Bank stand out by focusing their activities aimed at improving competitiveness on sustainable development. In these banks, CSR elements were particularly appreciated as strengthening the bank's IC. Digitalization, similarly to multichannel, is a key parameter in the strategies of 8 out of 10 banks examined, with the exception of BNP Paribas (significant ++) and BOŚ (+ only basic level). Multichannel, i.e. diversification of service provision channels, is also key in the strategy of 8 banks examined, for BNP Paribas and BOŚ Bank it is an important element. Both parameters are closely related, as they allow for the rapid introduction and improvement of principles and methods of providing services. A shift in focus is visible across the entire research group – from traditional bank branches to solutions such as mobile banking and contactless ATMs, mobile and online payments, chat with an employee. According to the study, banks attach the least importance to cybersecurity. However, it is a priority for mBank, as well as ING, and an important parameter for PKO BP and Pekao. Given the emphasis on digitization, this issue should become "key" in the future. Considering that during the COVID-19 pandemic, customers have reoriented themselves to handling most matters using remote channels (including non-financial ones). Cyberattacks have become an increasingly complex and frequent phenomenon at this time. They bring with them severe consequences – from the leakage of personal data to the loss of money deposited in the account. Enforcing changes in this area should definitely be recommended as a criterion for the sustainable development of the sector. Another element highlighted in the banks' strategy is process automation, which is related to the trend of introducing innovative process solutions and cost optimization in the banking sector. As many as 9 out of 10 banks indicate process automation as a "key" element of the strategy. Only BOŚ Bank does not appreciate its importance, not taking significant initiatives in this area. The strategies of the 10 banks studied have evolved since 2009 towards non-financial aspects, i.e. intellectual capital discussed in the work. Each bank in the research group emphasized that it strives to improve the quality of customer service, develop digital channels and create its role as a promoter of good practices in the field of sustainable development.

Nowadays, banks, while striving for efficiency in basic aspects of their operations, such as: the volume of loans or deposits and taking care of its stability and limiting basic risks, see long-term benefits related to the proper use of the potential of intellectual capital (institutional, innovative and organizational). It should be noted that most of the banks in the research group have foreign entities in their ownership structure. Analysis of their strategies and activities in the field of sustainable development or approach to innovation indicates that compatibility with subsidiaries operating on the Polish market is significant. Banks operating in Poland adopt the patterns of activities undertaken by parent companies and adapt them to the prevailing conditions and market trends in Poland. Usually, these connections have a beneficial effect on the business practices of the company operating in Poland, as it uses already proven business practices, which in turn allows for accelerated implementation on the Polish market. Another important factor is the fact that in the case of the analyzed banks, their mission is based on providing customers with personalized services and products. The current era of customer-centricity forces banks to constantly introduce innovative solutions that will help them stand out from other participants in the banking market. Cooperation with FinTech companies is often used for this purpose. This model of cooperation is observed in all the studied cases of banks included in the research group - they are the initiators of introducing innovations, providing all possible tools. They engage in this process not only specialist FinTech companies, but also increasingly highly qualified employees, as well as very often suggestions and experiences of customers. In this way, they expand the network of relationships and broaden the group of stakeholders, which indicates the growing importance of institutional capital. Due to the complexity of the concept of "intellectual capital", an attempt to verify its significance in building a competitive strategy for banks required the use of multidimensional statistical methods. A synthetic measure was used as one of the methods of multidimensional statistical analysis, which is a function of a set of diagnostic indicators, because synthetic measures are widely used in the analysis of socio-economic phenomena (Luty, Kukuła, 2015). The use of a synthetic measure allowed for the inclusion of factors that are omitted when using traditional measures of bank competitiveness and the division of intellectual capital into the three indicated subsystems: organizational, institutional and innovative capital. The following key indicators for assessing economic capital were included in the bank competitiveness measure in the study:

- return on assets [ROA], return on sales [ROS], net interest margin [NIM], return on equity [ROE], sales revenues/assets [S/A], costs/income [CIR], profit per employee [P/E], value of loans granted by the bank / value of banking sector loans [L/SL], value of deposits collected in the bank / value of banking sector deposits [D/SD], capital adequacy ratio [CAR], loans / deposits [L/D], value of bank assets / value of banking sector assets [A/SA]; and variables illustrating individual layers of intellectual capital:
- innovative: training expenditure per employee [T/E], training value/total employee benefits value [T/TB] number of clients actively using online banking/total number of clients [EB/C], number of clients actively using the mobile application/total number of clients [MB/C];
- organizational: number of clients per employee [C/E], number of branches/number of banking sector branches [B/SB], number of branches per 10,000 clients [B/C], value of employee benefits per employee [E/TB];
- institutional: number of good CSR practices [GP_1, GP_2], number of awards granted (in prestigious national and international competitions) [INC_1, INC_2], results obtained in the Złoty Bankier ranking [GB_1, GB_2].

The ranking of banks based on the method used is presented in Table 2.

Table following on the next page

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Alior Bank	10	8	7	8	8	8	6	7	7	8	9	9	9	6	5
BNP Paribas	6	9	10	9	9	9	9	10	9	7	6	3	4	3	6
mBank	7	6	6	6	6	6	8	5	6	4	5	7	6	8	9
Citi Handlowy	3	5	4	3	5	7	7	8	8	6	8	8	5	2	4
ING Bank Śląski	4	4	5	5	3	4	3	4	4	2	3	1	1	4	2
Millenium Bank	8	7	8	7	7	5	5	3	3	3	7	5	8	7	8
Pekao Bank	2	2	3	4	4	3	4	6	5	9	4	4	7	9	7
PKO BP	1	1	1	1	1	1	1	1	1	1	1	2	3	4	3
Santander Bank	5	3	2	2	2	2	2	2	2	5	2	6	2	1	1
BOŚ	9	10	9	10	10	10	10	9	10	10	10	10	10	10	10

*Table 2: Ranking of banks based on synthetic indicator in the years 2009-2023
(Source: own study)*

Additionally, in the case of the results of the three banks occupying the best positions in the ranking in the years 2009–2023, i.e. PKO BP, Santander Bank, ING Bank Śląski, the most strongly related to the final measure were institutional capital (PKO BP), economic capital (Santander Bank) and innovation capital (ING Bank Śląski), which indicates the importance in assessing the bank's competitiveness not only of efficiency in the management of material resources, but also intangible assets. The least competitive banks include Alior Bank, BNP Paribas and BOŚ. Based on the obtained results, it can be stated that the value of the competitiveness measure (Mikulec, 2015), allowing banks to maintain a high position in the ranking - is the result of high values of its components, among which the greatest impact was had by: economic capital (EC), institutional capital (INS), innovative capital (INN) and organizational capital (ORG). This order was established based on the number of high correlation coefficients of individual capital layers with the value of the synthetic measure over the period under review. Additionally, it is worth noting that a significant impact of selected indicators of economic capital (EC), institutional capital (INS) and organizational capital (ORG) occurred over the entire period under review (2009-2023). A significant impact of the innovative capital indicator (INN) was revealed only from 2016, when the development of digitalization processes can also be observed in the banking sector in Poland.

4. CONCLUSION

The specifics of building strategies and competitiveness in the banking sector have changed along with the broadly understood deregulation of financial markets, which has led banks to operate in a new formula. The boards responsible for managing banks focus primarily on ensuring that these institutions generate the highest possible level of profit in their operations, but at the same time they take care to stand out from the competition. In the period 2009–2023, bank strategies evolved from focusing solely on achieving the appropriate level of financial indicators to increasingly appreciating subsequent non-financial aspects. Each bank in the research group emphasized that it was striving to increase efficiency related to its core activity. At the same time, in all cases, the importance of improving the quality of customer service, developing digital channels and creating its role as a promoter of good practices in the field of sustainable development and a reliable and caring employer was emphasized. It should also be noted that banks from the research group with foreign entities in their ownership structure adopted patterns of actions undertaken by parent companies and adapted them to the specific conditions and market trends in Poland. This enabled specific entities to quickly implement proven business practices, but also raised standards for the entire banking market in Poland.

It should be recognized that in the light of research based on the analysis of the records of the banks' strategies in their annual reports from the period under review, the foundations for building the leader's position in the research group were: innovation, a modern organizational structure and a system of multi-level developed relationships (including, first and foremost, with customers). They contributed to the multiplication of economic capital. The potential accumulated in economic capital is multiplied by exploring the potential contained in structures, relationships and innovations, for the purpose of creating added value to the constantly evolving standards of the modern banking sector. Based on the study conducted using a synthetic measure, the role of intellectual capital in building the bank's competitiveness was also revealed. The fact that economic capital (EC) is indicated as key does not undermine these results, because, as assumed in the article, it plays the role of a necessary foundation in building the competitiveness of banks. Additionally, in the study using a synthetic measure - in order to emphasize its importance - a weight of 0.6 was assigned to EC. The applied quantitative research methods allowed for a more comprehensive assessment of the role of IC in building the bank's competitiveness, with a clear separation of all subsystems of intellectual capital. It should be emphasized here that intellectual capital is the basis for the ability to improve the bank's competitive position in the long term, while economic capital (financial and market) is still treated as the foundation of its development. Both types of capital complement each other and are inextricably linked. Bank managers should focus not only on including elements of intellectual capital in the strategy, but also on managing it appropriately. The basic tool enabling control is a unified structure and, above all, a reporting system. This would also enable evaluation against the competition.

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THE ROLE OF TOURISM IN REGIONAL ECONOMIC RECOVERY IN CROATIA

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ABSTRACT

In recent regional economic studies, resilience has emerged as a pivotal concept since the global financial and economic crisis of 2008, with research intensifying following the latest shock caused by the COVID-19 pandemic. Consequently, there is a sustained interest in the literature concerning regional economic resilience, commonly defined as the capability of regional economies to resist, adapt to, and recover from shocks. The literature recognizes regional economic resilience as a multidimensional process encompassing phases such as resistance, recovery, renewal, and reorientation. This paper extends the exploration of tourism's role by investigating its impact on the economic recovery dimension of resilience, specifically in the context of the COVID-19 shock, using a sample of Croatian NUTS 3 regions. The dependent variable, regional economic recovery, is measured as the shift in gross value added (GVA) in 2022 compared to 2020. The primary independent variable is tourism, with the model controlling for common explanatory variables identified in the literature. Given their importance, spatial spillover effects are also considered. The Spatial Durbin Error Model (SDEM) is employed, and the results confirm the significance of tourism in the economic recovery process of Croatian NUTS 3 regions. These findings suggest that policymakers should leverage tourism to bolster economic recovery effectively.

Keywords: *Croatian NUTS 3 Regions, Economic Recovery, Regional Economic Resilience, Tourism Demand, Spatial Durbin Error Model*

1. INTRODUCTION

Since the global financial crisis of 2008, resilience has become a prominent concept in regional and urban economic studies (Martin, 2021; Martin and Sunley, 2015). The interest in regional economic resilience has only increased following the COVID-19 pandemic, which caused substantial economic disruptions with varied impacts across different sectors, regions, and socio-economic groups (OECD, 2021). Di Pietro et al. (2021) emphasize the importance of examining the regional characteristics that influence economic resilience, a question with significant policy implications. The COVID-19 pandemic has also offered important insights for tourism scholars, prompting a re-evaluation of the industry's resilience (Gunter et al., 2022). The pandemic significantly affected the tourism sector due to social distancing, reduced international transport, and government lockdowns and travel restrictions (Sigala, 2020). In 2020, the travel and tourism sector's contribution to global GDP and employment saw a substantial decline. According to the World Travel and Tourism Council (WTTC, 2021), the industry's global GDP contribution fell by 50.4% (nearly USD 4.9 trillion), and 62 million jobs were lost, reducing employment in the sector by 18.3% to 272 million. The COVID-19 outbreak had a profound and varied impact on European regions, particularly those heavily dependent on tourism, like the Mediterranean and Alpine areas (Bailey et al., 2021). Croatia, with the highest tourism GDP share in the EU, was significantly affected. According to WTTC (2023), tourism's contribution to Croatia's GDP decreased by 51.1% (USD 8,099.1 million) in 2020, though it still made up 13.2% of the economy. Additionally, tourism employment dropped by 17.4%, leaving 325.1 thousand workers in the industry, and international visitor spending fell by 54.3% (USD 5,815.7 million). However, studies have shown that the tourism industry tends to recover strongly after crises (Jucan and Jucan, 2013; Kuliš et al., 2018; Šimundić, 2022).

The potential impact of tourism on regional economic resilience, as explained by Bellini et al.(2017), lies in its growth dynamics, its inherent resilience, and its integration with other regional economic sectors. By 2022, Croatia had surpassed its pre-pandemic levels. WTTC (2023) data reveals that the tourism sector's GDP contribution increased to USD 18.1 billion, a 10.4% rise from 2019, with tourism comprising 25.8% of GDP. The sector also saw job recovery, with 428.56 thousand positions, 6.8% more than in 2019, making up 24.7% of total employment. International visitor spending grew by 17.7%, accounting for 40.9% of total exports at USD 14.6 billion. In Croatia, this is of great importance as almost 90% of visitor spending is attributed to international tourists, highlighting their dominance over domestic spending. Given the significant role of tourism in Croatia's economy and its remarkable recovery by 2022, this study aims to explore tourism's impact on regional economic resilience, particularly during the short-term recovery phase. To the best of the author's knowledge, this is the first study to specifically address tourism and regional economic resilience in Croatia. It also contributes to filling several general research gaps, enriching the limited field that links regional economic resilience with tourism (Jang and Kim, 2022) and tourism with regional science (Bassil et al., 2023; Calero and Turner, 2020). Moreover, the application of spatial econometrics in this study enhances its contribution, as this method is rarely applied in tourism economics (Romão and Nijkamp, 2018).

2. LITERATURE REVIEW

Recent research by Sutton et al. (2023) enhances understanding of the types, definitions, dimensions, and measurements of regional economic resilience. This concept refers to the ability of regions to withstand, adapt to, and transform in the face of shocks, ensuring recovery that maintains or improves economic performance. Key dimensions of resilience include preparation, vulnerability, resistance, renewal, and recoverability. Preparation includes actions taken by economic actors to enhance their region's resilience to future shocks. Vulnerability denotes how susceptible regional economies are to shocks. Resistance measures how sensitive these economies are and the degree of impact they experience. Renewal reflects how regional economies adjust, adapt, and transform during and after shocks. Recoverability assesses the extent and path of a region's economic recovery from shocks. Additionally, resilience can be measured through economic performance indicators. The study recognizes various forms of resilience, including engineering, ecological, adaptive, and transformative. Sutton and Arku (2022) explain that engineering and ecological resilience both regard resilience as the capacity to return to a state of equilibrium. This view presupposes that regional economies are in a balanced state and, after a disturbance, can revert to this state or shift to a new equilibrium. However, this perspective has been criticized for its static nature, as regional economies are seen as constantly evolving and not in a fixed state. On the other hand, evolutionary and transformative resilience take an adaptive approach, focusing on flexibility and change. Adaptive resilience involves incremental adjustments, whereas transformative resilience entails comprehensive changes. These forms of resilience recognize that regional economies, consisting of varied economic actors, are continually adapting to new conditions, thus avoiding stasis. Differences in how regions handle economic shocks can be partly explained by various factors that contribute to regional economic resilience (Grabner, 2021). Research has pinpointed several influential determinants, including the level of regional development (Giannakis and Bruggeman, 2017), the skills and education of the workforce (Annoni et al., 2019), innovation and smart specialization (Muštra et al., 2023a), the quality of institutions (Rios and Gianmoena, 2020), benefits from urban environments (Faggian et al., 2018), openness to international markets (Wang and Wei, 2021), spatial and infrastructural connectivity (Chacon-Hurtado et al., 2020), and economic sector diversity (Giannakis et al., 2024).

Just before the COVID-19 crisis, a growing body of research began to examine tourism's effects on regional resilience (Bellini et al., 2017; Cellini and Cuccia, 2015). Ibanescu et al. (2023) studied Romanian rural destinations and found that tourism positively contributes to economic resilience, a phenomenon they termed tourism-induced resilience. Furthermore, in their study, Pascariu et al. (2021) explored the role of tourism in boosting regional economic resilience across European Union NUTS 2 regions after the 2008-2012 financial crisis. Their research confirmed that tourism positively influences regional economic resilience, proposing the "tourism-led resilience hypothesis," which advances beyond the traditional tourism-led growth hypothesis. Lee et al. (2021) examined economic resilience in Florida concerning disaster events from 2010 to 2015 and concluded that specialization in hospitality services typically strengthens resilience. Furthermore, through panel analysis of 55 European NUTS 2 regions, Romão (2020) investigated the interactions among tourism, sectoral specializations, regional economic growth, and resilience for the period 2006-2017. Findings from the study show that although rising tourism demand promotes faster recovery and strengthens regional economic resilience, excessive employment in tourism can detract from growth and increase susceptibility to economic shocks. In response to the COVID-19 crisis, much research has transitioned from studying tourism's contribution to regional economic resilience to investigating tourism's territorial resilience, as highlighted in various papers (Boto-García and Mayor, 2022; Costantino et al., 2023; Duro et al., 2022). Research on regional economic resilience in Croatia is scarce, particularly studies that include tourism. A notable exception is the research by Kuliš et al. (2022), which examined 21 NUTS 3 regions in Croatia. Their study aimed to explore the role of reorientation during the resistance and recovery phases following the 2008 global financial crisis, using tourism demand as an explanatory variable. The findings confirmed that tourism activities can enhance resilience and recovery capacity. Other noteworthy studies on regional and economic resilience in Croatia include research by Čupić and Muštra (2021), who examined labour market resilience in NUTS 3 regions, focusing on employment, unemployment, and labour force participation during the 2008-2009 crisis. Their study found Zadar County to be the most resilient, while other regions showed varied resilience levels, underscoring the need for more research on labour market complexities. The study by Håkansson and Bejaković (2020) examined the impact of labour mobility on mitigating labour market bottlenecks and improving labour market resilience in Croatia. Moreover, Đokić et al. (2016) highlighted the impact of the 2008 financial crisis on Croatian national and regional development, revealing significant disparities. Additionally, Šimundić et al. (2021) explored the concept of resilience in the protected areas of Jadranska Hrvatska (NUTS 2 region), stressing the importance of innovative strategies to enhance socio-ecological system resilience.

3. RESEARCH METHODOLOGY, RESULTS, AND DISCUSSION

As previously detailed, this paper explores the significance of tourism in the economic recovery phase of regional resilience within Croatian NUTS 3 regions. Therefore, defining regional economic recovery is crucial. The literature employs a range of methodologies and indicators to empirically evaluate regional economic resilience (Petrić et al., 2020; Petrić et al., 2021), with a predominant focus on performance metrics such as gross value added (GVA) and employment dynamics indicators (Sensier and Uyara, 2020; Sutton et al., 2023), which is the approach taken in this study. This research particularly addresses the recovery phase of resilience, following the framework by Ginnakis and Bruggemann (2017), and measures the recovery of Croatian NUTS 3 regions in comparison to the EU average. The goal is to provide policy recommendations compatible with the cohesion policy funding mechanism, which allocates funds to regions with development below the EU average (Giannakis and Bruggemann, 2020).

To sum up, the calculation of short-term regional economic recovery is as follows:

$$\text{Recovery} = [(GVA_{2022}^R - GVA_{2020}^R)/GVA_{2020}^R - (GVA_{2022}^{EU} - GVA_{2020}^{EU})/GVA_{2020}^{EU}] / |(GVA_{2022}^{EU} - GVA_{2020}^{EU})/GVA_{2020}^{EU}| \quad (1)$$

This reflects the change observed in 2022 relative to 2020, with GVA^R denoting the gross value added (GVA) in purchasing power standards (PPS) at the regional level, and GVA^{EU} representing the GVA (in PPS) across the EU-27. The ARDECO database (2023) serves as the data source for assessing regional economic recovery.

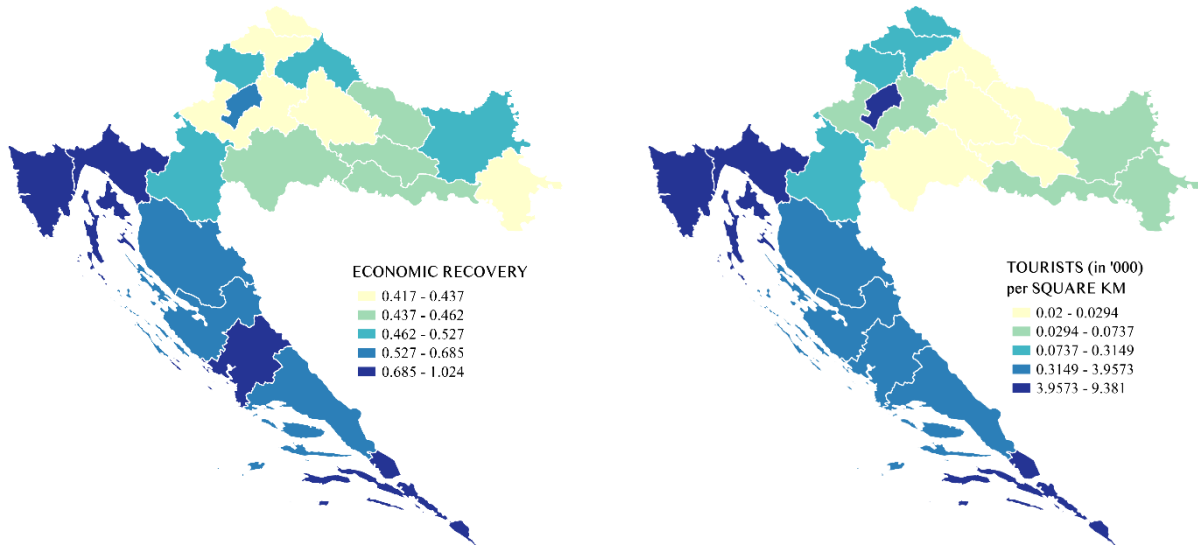


Figure 1: Maps of Regional Economic Recovery and Tourist Density (Total)
(Source: author's compilation using the data of the GISCO and EU Tourism Dashboard)

The primary independent variable of interest in this research is tourism demand. Tourism economics often employs various proxies to quantify tourism demand, such as tourist arrivals, nights spent in accommodations, duration of stay, and related expenditures or receipts, as well as travel exports and imports, typically standardizing absolute values on a per capita basis (Lim, 1997; Pivčević et al., 2016; Rosselló Nadal and Santana Gallego, 2022; Šimundić, 2017). In response to the limitations of spatial and temporal data resolutions, which hinder detailed tourism characterization, Batista e Silva et al. (2018) developed refined indicators of tourism demand. One such metric, tourism density, measures the number of tourist arrivals or overnight stays per spatial reporting unit, such as per square kilometre, thereby enhancing the geographical specificity of regional tourism demand statistics. Hence, this indicator is used as a proxy variable for this research. Understanding the importance of tourism demand origin in regional economic resilience (Boto-García and Mayor, 2022; Muštra et al., 2023b) the analysis includes calculations for the number (in '000) of total, domestic, and international tourists per square kilometre. The data is sourced from the EU Tourism Dashboard (European Commission, 2024) and the Croatian Bureau of Statistics (2023). The maps showing regional economic recovery and tourism density are displayed in Figure 1. For the purpose of creating maps, shapefiles from Eurostat's GISCO (2024) are sourced, and QGIS software is employed. In addition to tourism demand as the primary independent variable, the research model incorporates other factors influencing regional economic resilience, as recognized in the literature. These control variables include the level of regional development (Muštra et al., 2020, 2017), the quality of institutions (Ezcurra and Rios, 2019), and sectoral diversity (Giannakis et al., 2024).

The level of regional development is represented by the share of GDP per capita PPS relative to the EU average set at 100 and sourced from ARDECO (2023). The quality of institutions is measured using the European Quality of Government Index at the NUTS 2 level, as suggested by Charron et al. (2019), due to the lack of data at the NUTS 3 level. Sectoral diversity is quantified using the Herfindahl–Hirschman Index (HHI), which captures the distribution of economic activity across different sectors within a region. A lower HHI value indicates greater diversity and less risk concentration. This analysis utilizes data from six NACE Rev. 2 sectors provided by the ARDECO database (2023). According to Martin and Sunley (2015), the economic resilience of a region is linked to its past growth attributes. Therefore, the explanatory variables are based on pre-COVID-19 data, particularly from 2019. The table below provides descriptive statistics for all variables, including their full names and corresponding labels.

Variable	Label	Obs	Mean	Std. dev.	Min	Max
Economic Recovery	<i>Recovery</i>	21	0.5629529	0.1665768	0.41686	1.024167
Tourist Density, Total	<i>TOUR_t</i>	21	1.558699	2.459812	0.0200286	9.380961
Tourist Density, International	<i>TOUR_i</i>	21	1.4158	2.335176	0.0064071	9.048651
Tourist Density, Domestic	<i>TOUR_d</i>	21	0.1428992	0.1765424	0.0106991	0.7059485
Regional Development	<i>GDP</i>	21	54.57143	20.34348	35	123
Quality of Institutions	<i>EQI</i>	21	-1.092333	0.0400928	-1.12	-1.037
Sectoral Diversity	<i>HHI</i>	21	0.2220477	0.028462	0.1879083	0.2753162

Table 1: Descriptive statistics
(Source: author's calculations)

When investigating regional economic resilience, it must be noted that it is shaped not only by internal dynamics but also by external factors, including the region's interactions with other economies through various channels such as international businesses, knowledge exchange, foreign investment, and trade. These regional factors can positively or negatively affect the resilience of regional economies, thus spatial dependencies should be considered (Sutton and Sutton, 2024). Thus, there is a need for spatial analysis that allows for a comprehensive understanding of phenomena by integrating geographic elements, unveiling hidden patterns, and analysing spatial relationships and interactions between variables in distinct locations (Kopczewska, 2020). Traditional regression models assume observation independence, necessitating spatial econometrics to address spatial dependence and adapt regression estimation and interpretation for spatially correlated data (Le Gallo, 2021). Rüttenauer (2022) explains that various spatial models, such as the spatial autoregressive (SAR), spatial error (SEM), spatial lag of X (SLX), spatial autoregressive combined (SAC), spatial Durbin (SDM), spatial Durbin error (SDEM), and general nesting spatial (GNS) models, differ in how they address spatial dependence by incorporating the spatial weight matrix, which can be in the dependent variable, explanatory variables, or error terms. Following a *general-to-specific* approach (Elhorst, 2010) and LeSage's (2014) theoretical premise on local spillover effects in regional science, this research employs the SDEM.

The model can be written as follows:

$$Recovery = \beta_0 + X\beta + WX\theta + u, \quad u = \lambda Wu + e \quad (2)$$

where *Recovery* represents the (21×1) vector of the dependent variable, regional economic recovery, for the 21 Croatian NUTS 3 regions. *X* is the (21×4) matrix of observations on the explanatory variables, including *GDP*, *EQI*, *HHI*, and *TOUR*. β is the (4×1) vector of coefficients to be estimated, and θ is a (4×1) vector of unknown parameters to be estimated.

W is the non-negative (21×21) matrix, $WX\theta$ represents the exogenous interaction effect among the explanatory variables, and Wu is the interaction effect among the error terms of the different units. e is the (21×1) vector of error terms.

Finally, considering the relatively small sample of 21 regions and following the sparsity principle (Sutton and Sutton, 2024), a weight matrix of one-nearest neighbours ($knn = 1$) is applied to estimate results (Table 2). The first baseline model with control variables is provided, and then, in separate variants, total tourism demand, international tourism demand, and domestic tourism demand are introduced. Estimates are conducted using *Stata 18.5* software.

Variable / Model	(1a)	(2a)	(3a)	(4a)
GDP	0.00566*** (0.00151)	0.00179 (0.00120)	0.00180 (0.00113)	0.00805*** (0.00131)
EQI	1.986*** (0.361)	1.479*** (0.299)	1.518*** (0.288)	1.256** (0.544)
HHI	1.749*** (0.620)	1.170** (0.507)	1.169** (0.495)	1.601*** (0.565)
TOUR_t		0.0298*** (0.00742)		
TOUR_i			0.0311*** (0.00725)	
TOUR_d				-0.0908 (0.137)
Cons	2.112*** (0.411)	1.817*** (0.323)	1.860*** (0.312)	1.228** (0.586)
W*GDP	0.0494** (0.0235)	0.0248 (0.0221)	0.0280 (0.0196)	-0.120* (0.0720)
W*EQI	-16.90*** (4.059)	-9.806*** (3.621)	-9.652*** (3.500)	-20.37*** (3.716)
W*HHI	-105.3*** (20.62)	-61.11*** (19.01)	-60.81*** (18.53)	-92.47*** (21.10)
W*TOUR_t		0.192 (0.321)		
W*TOUR_i			0.163 (0.318)	
W*TOUR_d				20.39*** (7.797)
λ	-5.740*** (1.858)	-4.875** (2.485)	-4.699* (2.590)	-2.832 (3.791)
N	21	21	21	21
LogLik	36.603027	43.026723	43.500903	40.84738
Wald test	387.19***	688.15***	712.47***	492.79***
Wald test ($\lambda = \theta = 0$)	70.42***	23.22***	21.98***	76.03***
Pseudo R²	0.8803	0.9574	0.9604	0.9536
AIC	-55.20605	-64.05345	-65.00181	-59.69476
Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$				

Table 2: SDEM Estimates, $W = 1$ -nearest neighbour
(Source: author's calculations)

The number of nearest neighbours used in the weight matrix can influence model estimates and quality, although the effect may be minor when weight matrix is fine-tuned by a few nearest neighbours (Kubara and Kopczewska, 2024). To ensure the robustness of the results, Table 3 presents results using a weight matrix with two-nearest neighbours ($knn = 2$).

Variable / Model	(1b)	(2b)	(3b)	(4b)
GDP	0.00454*** (0.000407)	0.00138*** (0.000528)	0.00142*** (0.000497)	0.00620*** (0.00116)
EQI	1.956*** (0.193)	1.525*** (0.132)	1.586*** (0.123)	0.965* (0.503)
HHI	2.665*** (0.370)	1.070*** (0.317)	1.012*** (0.314)	1.563*** (0.552)
TOUR_t		0.0309*** (0.00483)		
TOUR_i			0.0323*** (0.00485)	
TOUR_d				0.114 (0.146)
Cons	1.961*** (0.227)	1.916*** (0.144)	1.991*** (0.139)	1.044** (0.532)
W*GDP	0.0645*** (0.00579)	0.0192 (0.0125)	0.0192* (0.0109)	-0.0751* (0.0443)
W*EQI	-13.88*** (1.656)	-5.353*** (1.579)	-5.090*** (1.557)	-12.18*** (2.619)
W*HHI	-92.68*** (9.361)	-35.93*** (10.09)	-34.11*** (9.942)	-61.96*** (14.38)
W*TOUR_t		0.152 (0.168)		
W*TOUR_i			0.136 (0.163)	
W*TOUR_d				14.99*** (5.091)
λ	-24.76*** (1.535)	-27.08*** (2.284)	-27.51*** (2.307)	-4.675* (2.409)
N	21	21	21	21
LogLik	42.869603	56.257808	56.775995	39.759831
Wald test	1717.21***	6338.33***	6747.64***	525.98***
Wald test ($\lambda = \theta = 0$)	484.55***	309.68***	313.71***	72.83***
Pseudo R²	0.8987	0.9479	0.9493	0.9440
AIC	-67.73921	-90.51562	-91.55199	-57.51966
Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$				

Table 3: SDEM Estimates, $W = 2$ -nearest neighbour
(Source: author's calculations)

As a final robustness check, Table 4 presents results using a weight matrix with three-nearest neighbours ($knn = 3$).

Variable / Model	(1c)	(2c)	(3c)	(4c)
GDP	0.00446*** (0.000608)	0.00116 (0.000708)	0.000714 (0.000512)	0.00587*** (0.00125)
EQI	1.753*** (0.309)	1.235*** (0.306)	1.273*** (0.190)	2.041*** (0.600)
HHI	2.010*** (0.452)	0.932*** (0.353)	0.749*** (0.281)	2.008*** (0.506)
TOUR_t		0.0332*** (0.00629)		
TOUR_i			0.0386*** (0.00520)	
TOUR_d				-0.183 (0.153)
Cons	1.902*** (0.338)	1.651*** (0.341)	1.734*** (0.222)	2.148*** (0.607)
W*GDP	0.0421*** (0.00678)	0.0114 (0.0197)	0.00268 (0.0125)	0.0240 (0.0554)
W*EQI	-7.828*** (1.695)	-2.750* (1.439)	-1.971* (1.081)	-8.799*** (1.723)
W*HHI	-56.69*** (9.093)	-21.17** (9.302)	-13.99** (6.878)	-56.79*** (12.02)
W*TOUR_t		0.140 (0.296)		
W*TOUR_i			0.214 (0.222)	
W*TOUR_d				1.601 (5.995)
λ	-15.62*** (2.944)	-17.87*** (2.087)	-32.61*** (2.607)	-16.45*** (2.631)
N	21	21	21	21
LogLik	38.797991	47.404302	53.773525	39.743011
Wald test	903.06***	2509.73***	6962.09***	1057.43***
Wald test ($\lambda = \theta = 0$)	107.09***	97.95***	229.02***	124.62***
Pseudo R²	0.9051	0.9450	0.9460	0.9039
AIC	-59.59598	-72.8086	-85.54705	-57.48602
Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$				

Table 4: SDEM Estimates, $W = 3$ -nearest neighbour
(Source: author's calculations)

Prior to estimating results, OLS estimates were conducted to check for multicollinearity among explanatory variables by testing the variance inflation factor (VIF). The mean VIFs were 1.53 for the baseline model, 2.67 for the total tourism demand model, 2.50 for the international tourism demand model, and 4.11 for the domestic tourism demand model. Since none of the VIFs exceeded the threshold of 10, as suggested by Gujarati and Porter (2009), multicollinearity is not a concern. The significance of the Wald test confirms the validity of all models, and the SDEM model specification is supported by a statistically significant Wald test for spatial terms ($\lambda = \theta = 0$), without exception in model specification.

Moreover, the significance of the spatial error parameter, λ , in most of model specifications, underscores the spatial dependence observed among the error terms. Further assessment metrics for spatial regression models include the log-likelihood criterion (LogLik), pseudo R^2 , and Akaike Information Criterion (AIC), as recommended by Kopczewska (2020). The results consistently show that tourism has a positive and statistically significant direct impact on the economic recovery of Croatian NUTS 3 regions. This aligns with Romão's (2020) conclusion that high tourism demand positively impacts growth and accelerates recovery. De Siano and Canale (2024) also demonstrated the beneficial potential of tourism activities in enhancing a region's capacity to recover from a negative exogenous economic shock. Similarly, Dogru and Bulut (2018) assert that tourism development can aid tourist destinations in recovering from economic crises. Furthermore, these results corroborate Pascariu et al.'s (2021) findings that tourism can enhance resilience at the regional level, acting as a fail-safe mechanism for economic recovery post-major shock. In Croatia's context, these preliminary results suggest that the short-term economic recovery process after the COVID-19 shock can be attributed to international tourism demand, which shows a statistically significant positive impact, unlike domestic tourism. These findings are consistent with the tourism economics literature, which highlights the crucial role of international tourism in fostering positive economic development trajectories (Albaladejo and Martínez-García, 2015; Alcalá-Ordóñez et al., 2023; Du et al., 2016). Nevertheless, the importance of domestic tourism should not be overlooked. While the results did not demonstrate a statistically significant direct impact of domestic tourism on regional economic recovery, positive and statistically significant spillover effects from domestic tourism have been identified. This supports the notion of positive spillover effects of domestic tourism from neighbouring areas (Alvarez-Diaz et al., 2020; Di Matteo et al., 2019), highlighting its significant economic benefits for regions (Haddad et al., 2013). However, these spillover effects are only noticeable for up to two nearest neighbours. When a third nearest neighbour is included in the analysis, the effects vanish, supporting LeSage's (2014) assertion on the dominance of local spillover effects in regional science. With regard to the control variables, the analysis shows a statistically significant positive impact of regional economic development on resilience during the recovery phase in Croatian NUTS 3 regions, similar to the conclusions of research conducted on the full sample of European Union NUTS 3 regions by Giannakis and Brueggemann (2020). The EQI index demonstrates a positive connection with regional recovery, confirming that higher institutional quality is linked to increased regional resilience, as highlighted by Rios and Gianmoena (2020). Moreover, the positive association of the HHI with economic recovery aligns with Artelaris et al.'s (2024) assertion that economic specialization aids regional recovery. The findings of this study suggest several key policy implications for enhancing economic recovery in Croatian NUTS 3 regions through tourism. The significance of this is underscored by Srhoj et al. (2022), who caution that inappropriate tourism policies can have detrimental macroeconomic consequences. Firstly, strategies aimed at attracting and facilitating international tourists should be prioritized by policymakers, given that international tourism has a direct impact on regional economic recovery. However, the significance of domestic tourism, which the literature widely recognizes as crucial during the resistance phase of resilience (Boto-García and Mayor, 2022; Duro et al., 2022), though not the focus of this research, should not be overlooked. The results of this research indicate that domestic tourism is also important for recovery, especially due to its positive spillover effects on neighbouring regions. This underscores the necessity of regional cooperation and integrated tourism policies. Therefore, a balanced approach that leverages both international and domestic tourism, with an emphasis on regional spillover benefits, is vital for fostering a resilient economic recovery post-COVID-19.

4. CONCLUSION

This research aimed to fill the gap in understanding the role of international and domestic tourism in regional economic resilience, specifically during the short-term recovery phase amid the COVID-19 shock, across 21 Croatian NUTS 3 regions, using a quantitative spatial econometrics approach. The application of the spatial Durbin error model (SDEM) indicated a significant, direct and positive impact of international tourism on regional economic resilience, validating its importance as a catalyst for growth and recovery. While domestic tourism did not show a direct significant effect, its positive spillover effects emphasize the advantages of regional interconnectedness. This study enhances the literature by quantitatively establishing, through spatial econometric analysis, the link between international and domestic tourism and regional economic resilience during the recovery phase in Croatia. These findings provide essential insights for policymakers, advocating for a balanced approach that leverages both international and domestic tourism, with a focus on regional spillover benefits, to foster resilient economic recovery and sustainable tourism activities. This strategy could promote a more regionally balanced tourism sector between the Adriatic and continental regions, thus reducing regional disparities. However, this research has certain limitations. The study relies on data from Croatian NUTS 3 regions, potentially limiting the generalizability of the findings to other regions or countries. Therefore, it is suggested that future research extends the analysis to encompass the entire sample of European Union NUTS 3 regions or replicates the study in regions of other countries. Additionally, the data spans a specific period (short-term recovery as a shift in 2022 compared to 2020), capturing the immediate aftermath of the COVID-19 pandemic but may not reflect longer-term trends in economic recovery and resilience. Future research should consider a longer time frame to capture the complete trajectory of economic recovery and resilience post-pandemic, providing a more comprehensive understanding of the long-term effects of tourism on regional economic recovery processes. Hence, once a longer dataset becomes available, conducting research employing panel data analysis could be advisable. While the SDEM specification is beneficial in capturing local spillover effects, other spatial regression models, such as the spatial error model or the spatial lag of X, or those considering global spillover effects like spatial autoregressive models, could be estimated. Additionally, future research could consider different tourism demand indicators, such as tourism intensity or length of stay, or employ different control variables.

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FACTORS INFLUENCING THE COMPETITIVENESS OF HOLIDAY RENTALS IN TOURISM DESTINATIONS: ANALYSING GUESTS' ATTITUDES

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ABSTRACT

Holiday rentals represent a widely used accommodation option that offers guests unique experiences and economic benefits. The aim of this study is to investigate the relationship between the competitiveness of holiday rentals and the overall competitiveness of tourism destinations. It also examines the influence of the fulfilment of guest motives when choosing both accommodation and destination and its impact on competitiveness. The research was conducted through interviews with guests who have used holiday rentals in various locations in Primorsko-Goranska County. The results of this study have practical implications for the design and management of holiday accommodation as well as for the strategy of the tourism destination in general. On a theoretical level, this paper contributes to the enrichment of scientific literature and research dealing with the dynamics and impact of this type of accommodation.

Keywords: *holiday rentals, competitiveness, tourism destination, guests' motives*

1. INTRODUCTION

Holiday rentals have become a prevalent choice compared to traditional lodging options like hotels, presenting distinctive experiences and financial advantages. This form of accommodation, commonly known also as homestays and short-term rentals typically entails direct engagement with hosts, enabling visitors to partake in the local culture and way of life. Not only are holiday rentals cost-efficient, but they also offer chances for guests to engage with local communities, thereby fostering cultural preservation, entrepreneurial initiatives, and sustainable progress. The complexity of factors influencing tourists' selection of holiday rentals, despite their escalating popularity and manifold advantages, remains not entirely comprehended. Prior studies have outlined diverse incentives such as the quest for cultural integration, personalized care, security, affordability, and the cozy ambiance provided by such accommodations. Furthermore, the caliber and provisions of amenities, have been recognized as pivotal factors enhancing guests' contentment. Nevertheless, the specific characteristics that elevate the competitiveness of holiday rentals and their influence on the overall competitiveness of a destination are inadequately explored. The study aims to explore the correlation between the competitiveness of holiday rentals and competitiveness of the destination. Through scrutinizing the factors impacting guests' satisfaction and their rationale for selecting holiday rentals, this research endeavors to furnish a holistic comprehension of how this type of accommodation contribute to the appeal and prosperity of tourism destinations. The study strives to yield valuable insights for stakeholders in the tourism sector, equipping them to elevate the standards of holiday rentals and harness their capacity to amplify destination competitiveness. The theoretical implications of this study relate to understanding how specific attributes of holiday accommodation and destinations influence guest satisfaction and competitiveness. The study provides a comprehensive analysis that can serve as a basis for future research on guest motivation and competitiveness of different types of accommodation and destinations and practical applications in the hospitality and tourism industry.

2. LITERATURE REVIEW

Holiday rental is a type of accommodation that includes providing accommodation services in houses, apartments or rooms, mostly including contact with the accommodation providers i.e. hosts. Holiday rentals provide cost-effective options and opportunities for guests to live like locals (Nordiyana, Asmma i Tika, 2024) and have shown potential for preserving local culture, providing entrepreneurial opportunities, and promoting sustainable development. This type of accommodation can help channel resources from urban to rural areas and boost local economies while preserving traditional customs and practices (Chatterjee 2024). They also provide guests with unique and personalized experiences, often in local neighborhoods, enhancing their travel experiences and fostering a sense of community immersion for which factors influencing tourists' choice of homestays include a homely atmosphere, personalized service, safety, cultural immersion, and affordability (Patwal, Rana i Pathak 2023). One of the main motivations for choosing a holiday rental is to experience an authentic local culture (Wang 2007, 790). The same is confirmed by Lynch and Tucker (2003), who state that the choice of specific types of accommodation, represents a "relationship with the local population". The same socio-cultural dimension of guests communicating with each other, acquiring knowledge and experiencing the lifestyle of the family and the culture of the host is confirmed by Ibrahim and Razzaq (2010, 19) who add environmental protection as one of the motives. This confirms that the factors influencing the choice of this type of accommodation go beyond the need for accommodation, food and drink, but rather the desire to participate in national cultures (E. Agyeiwaaha 2013, 408). Guests can be motivated by internal (push) and external (pull) factors when deciding in favour of a homestay. For example, Hsu and Lin (2011) identify nine important motivating factors: content, service quality, attractiveness of the destination, social requirements and facilities, prices, cleanliness and comfort, specific appearance, leisure and relaxation, and transport. Lower prices, comfort and convenience as well as the feeling of being at home (Wang 2007, 793) i.e. "a home away from home" (McIntosh, Lynch i Sweeney 2011, 510), are also frequently mentioned. In addition to socio-cultural motives, some studies show that tourists who choose a homestay are influenced by factors such as enjoying the country life and scenery, an alternative to a hotel or an escape from the noise, meeting the local people and enjoying the local heritage (Ingram 2002, 4). Other motives are: familiar atmosphere, the relationship between guest and host and good value for money (Gunasekaran i Anandkumarb 2012, 1131), which is particularly interesting when it comes to pricing, as tourists are sensitive to price changes. Holiday rentals, have revolutionized the hospitality industry, offering guests a wide range of options at competitive prices (Jover i Cocola-Gant 2022; Asuhaimi et al. 2021). For example, Guttentag et al. point to interaction (2017), home benefits, novelty, sharing economy ethos, and local authenticity. Guests also as a main motives value a homely setting, personalized service, safety and security, desire to experience local culture and budget-friendly factors. Homestays are viewed as a form of experiential tourism that allows tourists to learn about the local community, culture, and way of life kao i feeling of being welcomed whilst from the financial perspective affordability is also important for choosing homestays over other accommodation options (Patwal et al. 2023). With regard to motivation, the component concerning the interaction and relationship between the guest and the host is also emphasised (Belarmino, i dr. 2019). Researches also show that one of the main motives for choosing holiday rentals is precisely the possibility of preparing meals independently, which is why the quality and equipment of the kitchen is considered one of the most important quality elements and the factors that best define the image of this type of accommodation: Cleanliness, kitchen facilities and outdoor space (Moreno-Gil i Martín-Santana 2015, 389), although maintaining cleanliness according to standards is a particular challenge in the holiday accommodation business (Ahmad, Jabeen i KhanManagement 2014, 37).

A high standard of accommodation in terms of hygiene, safety and adequate facilities is very important and can lead to both good and bad guest experiences (Akbar, i dr. 2004, 10). The above findings suggest that in destinations with a predominant number of holiday rentals, these attributes consequently determine the image of the destination. In addition, guests greatly appreciate the professionalism and expertise of the staff (Vengrienè 2006 in Jasinskasa, Streimikieneb and Svagzdienea 2016, 561). Since the number of tourist arrivals depends on the quality of tourist services (Albaladejo i Martínez-García 2013, 520), it is concluded that the tourist attractiveness of a country may depend on characteristics such as environmental quality, cultural attractiveness, image of the destination, etc. however, the measure of tourism attractiveness in some countries, the quality of tourism services therein, is increasingly recognised as a key determinant of a destination's success, and research shows a significant and positive correlation between the quality of accommodation facilities and economic growth (Albaladejo, González-Martínez i Martínez-García 2014, 146). When it comes to the competitiveness of a destination, it is crucial for performance in the tourism market (Enright i Newton 2005). Furthermore, competition in the tourism market is so fierce that only the best destinations are likely to succeed in the future (Buhalis 2000, 104). Dwyer and Kim (2003, 369) state that to achieve a competitive advantage in tourism it is necessary to ensure that the overall attractiveness and tourist experience in a destination is better than in other destinations available to potential visitors, and that existing and potential visits to a destination are inextricably linked to the overall competitiveness of the destination, however this is defined or measured. A destination is competitive if it is able to attract and satisfy potential tourists, and that competitiveness is determined by a whole range of factors other than tourism factors that influence tourism service providers (Enright i Newton 2005, 340). Following such thinking, Magaš (2003, 52) explains the competitiveness of a destination through the following principles: tourist orientation, process orientation, teamwork orientation, quality orientation, but also as harmony between guests, offer owners and members of the local community. In order to measure the competitiveness of a destination, it is essential to mention the comparative advantages of the destination (climate, landscape, environmental protection, etc.) and the derived offer (infrastructural and suprastructural elements) in addition to the above-mentioned competitive advantages. Accordingly, the competitive advantage of a destination can be defined as the ability of destination management to develop and optimally combine artificial and natural elements of the tourism offer at all levels (Magaš 2003, 52). Ritchie and Crouch (2003, 20) extend the definition of comparative advantage and argue that competitiveness is the result of a combination of comparative advantages that can be inherited (natural resources) or created (infrastructure) and processes that add economic value to them. On the basis of the theoretical findings presented, three basic hypotheses are put forward as a starting point for further research:

- H1: The competitiveness of accommodation in holiday rentals is significantly and positively related to the competitiveness of the destination.
- H2: The degree of fulfilment of guests' motives for choosing holiday rentals is significantly and positively related to the competitiveness of holiday rentals.
- H3: The degree of fulfilment of guests' motives for choosing a tourism destination is significantly and positively related to the competitiveness of the destination

3. METHODOLOGY

The research section of the paper relies on a study conducted with a structured questionnaire, investigating the perspectives of holiday rental accommodation providers in Primorsko-Goranska County. The claims are categorized into four different sections, creating the following four concepts: competitiveness of holiday rentals, competitiveness of tourism destination, motives for choosing holiday rentals, motives for choosing the destination.

The competitiveness of holiday rentals consists of 23 statements, some of which come from an earlier survey by the Institute of Tourism (Nacionalni program unapređenja obiteljskog smještaja 2013, 28). The second part refers to the measurement of destination competitiveness and contains 25 statements adopted and adapted from the research of Gomezelj Omerzel and Mihalič (2008, 298). The competitiveness of both concepts was assessed in comparison to the competitors on a five-point scale, with 1 - well below average and 5 - well above average. The third unit determines the motives for choosing holiday rentals and contains 14 statements taken from previous research (E. Agyeiwaaha 2013, 407) and adapted to the research area. The fourth unit relates to the identification of guests' motives for choosing a tourism destination. The influence of the individual motives was rated on a scale from 1 - no influence to 5 - influence.

4. RESULTS

The data analysis is based on a sample of 316 guests who stayed in holiday rentals in the Republic of Croatia in the area of Primorsko-Goranska County, which is divided into eight sub-regions, with the respondents distributed as follows: Island of Krk (41.1%), Crikvenica-Vinodol Riviera (21.5%), the Opatija Riviera 12%, while the rest of the guests reside on the islands of Cres, Lošinj and Rab, in the city of Rijeka and its surroundings (Ring) and Gorski Kotar. The sample is dominated by women (57.3%) compared to men (42.7%), whereby the dominance of foreign guests (83.2%) is striking, while the rest are domestic guests. Table 1 shows the results of analysing the respondents' assessments of the competitiveness of the accommodation facility. A correlation analysis was employed to evaluate the primary hypotheses. To establish the fundamental prerequisites for conducting the correlation analysis, a descriptive analysis of the observed variables was performed. The results of the descriptive analysis are presented as follows.

Table following on the next page

Competitiveness of the accommodation (characteristics)	Mean	Standard deviation	Asymetry coefficient
Architecture in line with the cultural and historical heritage of the destination	3,64	,874	,141
The size of the accommodation	3,94	,894	-,311
Cleanliness of the furnishings	4,28	,821	-,812
Furnishing of the building in line with market trends or in keeping with the traditional heritage	3,87	1,419	7,714
Large household appliances (dishwasher, washing machine, tumble dryer, etc.)	3,49	1,145	-,374
Small household appliances (coffee maker, toaster, blender, hair dryer, etc.)	3,68	1,070	-,407
Air conditioning	3,76	1,220	-,771
Acceptance of pets	3,02	1,468	-,075
Facilities for people with disabilities	2,34	1,290	,551
Additional services provided by the landlord for the guest (transport to the airport, guided tour of the town, fishing, etc.)	3,27	1,237	-,172
Free internet access	3,94	1,128	-,850
Size, layout and security of the garden	3,91	1,088	-,827
Swimming pool	2,10	1,531	,962
Secure car park	3,98	1,069	-,825
A safe place to store bicycles, boats, diving equipment, etc.	3,53	1,281	-,557
Barbecue in the garden	3,58	1,356	-,641
Facilities for children (swings, slides, sandpits)	2,95	1,351	-,063
Large covered terrace or balcony	3,79	1,186	-,802
Garden for use by guests	3,56	1,299	-,590
Proximity to local amenities	3,78	,965	-,391
Proximity to the sea or the main tourist attractions	3,92	1,019	-,602
Friendliness and general culture of the hosts	4,17	,994	-,882
Standardised quality (same quality in facilities of the same category)	3,85	,939	-,231

Table 1: Descriptive analysis of the competitiveness of accommodation from the guests' perspective

(Source: Author's research)

Respondents rated the characteristics of the facility in which they were accommodated in a range from 2.10 to 4.28, i.e. in a range from slightly below average to slightly above average. The highest average score was given to the cleanliness of the facility (4.28), and the size of the accommodation facility (3.94), the size, design and security of the garden (3.91), free internet access (3.94) were also rated very highly. the secure car park (3.98) and the friendliness and general culture of the hosts (4.17%) were also rated very highly. The swimming pool received the lowest average score (2.10), suggesting that this element of the accommodation offer for holiday rentals is not widely represented. Facilities for people with disabilities (2.34), facilities for children (2.95) and the acceptance of pets (3.02) were also rated poorly, showing a lack of specialised facilities and a lack of understanding of the special needs of guests. The standard deviation values show a low dispersion of the data from the arithmetic mean, while the asymmetry coefficient indicates a symmetrical distribution of the data.

Competitiveness of tourism destination (characteristics)	Mean	Standard deviation	Asymetry coefficient
Climatic conditions	4,03	,860	-,447
Natural beauty	4,32	2,329	14,571
Cultural and historical heritage	3,81	,885	-,089
Local architecture	3,69	,897	-,038
Local gastronomy	3,89	,887	-,324
The friendliness of the local people	3,99	,884	-,503
Safety of the destination	4,19	,838	-,702
Range of food and beverage services	3,82	,967	-,394
Range of commercial services	3,42	,981	-,124
Sporting events and content	3,17	,974	,150
Cultural events and content	3,25	1,006	,111
Religious content and events	3,03	1,017	-,009
Entertainment programmes and content	3,26	1,005	-,117
Adrenaline programmes and content	3,03	1,139	,113
Tidiness and cleanliness of the resort	3,82	,905	-,418
Facilities at beaches and swimming pools	3,57	1,020	-,398
Transport infrastructure (road layout, car parks, etc.)	3,53	,924	-,266
Municipal services (waste disposal, drinking water supply, electricity, etc.)	3,68	,923	-,403
Facilities for guests with pets	3,12	1,190	-,195
Facilities for people with disabilities	2,76	1,197	,031
Coverage of the village with free internet	3,36	1,102	-,251
Involvement of guests in local events (interactive approach)	3,20	1,006	-,001
Extended working hours for catering establishments	3,41	1,000	-,080
Availability of information about local events	3,55	,943	,011
Daily events in public places and squares in the city	3,29	,967	,073

Table 2: Descriptive analysis of the competitiveness of tourism destination from the guest's perspective

(Source: Author's research)

The characteristics of the destination were rated with average values between 2.76 and 4.32, which means that the guests in the sample rated the characteristics of the destination as average or slightly above average. The highest scores were given to the following characteristics: safety of the destination (4.19), natural beauty (4.32), climatic conditions (4.03), tidiness and cleanliness (3.82) and friendliness of the local population (3.99). The variables relating to the range of food and drink on offer in terms of restaurants and indigenous gastronomy were also rated highly. As with the facility itself, at the destination level, facilities for people with disabilities (2.76) and facilities for people travelling with pets (3.12) were rated lowest, as were the range of sports (3.17) and religious facilities (3.03) and adrenaline parks (3.03). Other variables generally have average or slightly above-average values. The values of the standard deviation show a low dispersion of the data from the arithmetic mean, and the symmetrical distribution of the observed values is striking.

Motives for choosing the accommodation in holiday rentals	Mean	Standard deviation	Asymetry coefficient
Interaction with the local population	3,38	1,160	-,550
Local experience	3,58	1,095	-,618
Rest and relaxation (passive recreation) without a fixed schedule, e.g. in a hotel	4,06	1,028	-1,081
Active holidays (outdoor sports)	3,51	1,108	-,573
An escape from city life	3,90	1,130	-,989
The feeling of being at home	3,99	1,016	-1,060
Getting to know the life and customs of the locals	3,53	1,000	-,463
Good value for money	4,04	,965	-,707
Lower prices than other forms of accommodation	3,80	1,951	10,576
It is safer than other types of accommodation	3,77	1,006	-,685
Personalised attention to the guest	3,79	1,011	-,646
It is more comfortable and more suitable than other forms of accommodation (by human standards)	3,93	,913	-,693
Accommodation in the holiday rentals promotes environmental protection	3,57	,942	-,269
Accommodation in holiday rentals reduces the generation of large amounts of waste	3,47	,954	-,196

*Table 3: Descriptive analysis of motives for choosing the accommodation in holiday rentals
(Source: Author's research)*

The respondents rated the motives for their choice of accommodation with average values of 3.38 to 4.06. The results show that interaction with the local population has little or no influence, while rest and relaxation (passive holidays) without fixed dates partially influences the choice of accommodation in the holiday rentals. The variables are also rated very highly: Value for money, escape from city life and the feeling of being at home. The standard deviation values show a low dispersion of the data from the arithmetic mean, while the asymmetry coefficient indicates a symmetrical distribution of the data.

Motives for choosing the tourism destination	Mean	Standard deviation	Asymetry coefficient
Rest and relaxation	4,51	,783	-1,811
Offering various contents at the destination (entertainment, sports, food, culture)	3,93	,991	-,889
Natural beauty	4,34	,773	-,991
Culture and customs of the local population	3,68	1,043	-,589
Prices of services (food and drink, entertainment, sport, transport...)	3,91	,955	-,635

*Table 4: Descriptive analysis of the motives for choosing a tourism destination
(Source: Author's research)*

The respondents rated the motives for the choice of destination with average values of 3.68 to 4.51. The above results indicate that the observed motives for the choice partially influence or affect the choice of destination. The standard deviation values show a low dispersion of the data from the arithmetic mean. The main hypotheses are tested by applying a correlation analysis. A descriptive analysis of the observed variables was carried out to determine whether the basic assumptions for the correlation analysis were fulfilled.

Based on the results obtained, it was determined that all observed variables fulfil the condition of normality. Based on the obtained results, it was confirmed that all observed variables satisfy the normality condition. Therefore, Pearson's correlation coefficient was used to determine the correlation between the observed variables. Each construct, being measured by multiple variables, was represented by a linear composite, which is the mean score of the individual statements comprising each concept. The hypothesis and corresponding results are presented below.

- H1: The competitiveness of accommodation in holiday rentals is significantly and positively related to the competitiveness of the destination.

The correlation analysis examined the degree and nature of the relationship between the competitiveness of holiday rentals and the competitiveness of the destination. A descriptive analysis of the observed variables was conducted to determine whether the basic assumptions for the correlation analysis were met.

Variables	Mean	Standard deviation	Asymetry Coefficient	Kurtosis Coefficient
Competitiveness of accommodation - Composite	3,58	,627	-,204	-,590
Competitiveness of the destination - Composite	3,53	,601	,101	-,149

*Table 5: Descriptive analysis of the variables competitiveness of the accommodation and competitiveness of the destination
(Source: Author's research)*

The results show that guests rate the general competitiveness of the accommodation and the general competitiveness of the tourism destination with an average rating of "slightly above average", while the deviations of the individual data from the average value are small. At the same time, it is found that both asymmetry coefficients lie within the acceptable limits for a normal distribution (i.e. they lie in the interval from -1 to 1). From this it is concluded that the variables fulfil the condition of normality and the correlation analysis is based on the calculation of the Pearson correlation coefficient.

Variables	Competitiveness of the accommodation - Composite	Competitiveness of the destination - Composite
Competitiveness of the accommodation - Composite	1	,548
Competitiveness of the destination - Composite	,548	1
Significance	,000	,000

Note: The correlation is significant at the level of $p=0.01$.

*Table 6: Correlation analysis between competitiveness of the accommodation and competitiveness of the destination
Source: Author's research*

The correlation coefficient indicates a medium-strong, positive and statistically significant correlation between the competitiveness of the accommodation services in the holiday rentals and the competitiveness of the tourism destination ($r = 0.548$; $p < 0.01$).

The higher the competitiveness of the accommodation, the higher the competitiveness of the destination (and vice versa). Based on the obtained results, hypothesis H1 is accepted at a significance level of $p = 0.01$.

- H2: The degree of fulfilment of guests' motives for choosing holiday rentals is significantly and positively related to the competitiveness of holiday rentals.

The correlation analysis also examined the degree and nature of the relationship between the motives for choosing accommodation in holiday rentals and the competitiveness of the accommodation.

Variables	Mean	Standard deviation	Asymetry Coefficient	Kurtosis Coefficient
Motives for choosing the accommodation - composite	3,74	,624	-,556	1,107
Competitiveness of the accommodation - Composite	3,58	,627	-,204	-,590

Table 7: Descriptive analysis of the variables motives for choosing accommodation and competitiveness of accommodation

Source: Author's research

The results show that guests' motives partially influence their choice of accommodation in the holiday rentals, while they rate the competitiveness of the accommodation slightly above average. The deviations of the individual data from the average value are small. At the same time, it should be noted that both asymmetry coefficients lie within the acceptable limits for a normal distribution (i.e. they lie in the interval from -1 to 1). From this, it is concluded that the variables fulfil the condition of normality and the correlation analysis will be based on the calculation of the Pearson correlation coefficient.

The results of the correlation analysis are shown in the following table.

Variables	Motives for choosing the accommodation - composite	Competitiveness of the accommodation - Composite
Motives for choosing the accommodation - composite	1	,312
Competitiveness of the accommodation - Composite	,312	1
Significance	,000	,000

Note: The correlation is significant at the level of $p=0.01$.

Table 8: Correlation analysis between motives for choosing the accommodation competitiveness of the accommodation

Source: Author's research

The correlation coefficient shows a weak, positive and statistically significant relationship between the guests' motives for choosing accommodation and the competitiveness of the accommodation facility ($r = 0.312$; $p < 0.01$). The higher the guests' level of satisfaction with their motives for choosing accommodation in a holiday rentals, the better they rate the competitiveness of the accommodation. Based on the obtained results, hypothesis H2 is accepted at a significance level of $p = 0.01$.

- H3: The degree of fulfilment of guests' motives for choosing a tourism destination is significantly and positively related to the competitiveness of the destination

Hypothesis H3 tests the degree and type of correlation between guests' motives for choosing a destination and the competitiveness of the destination.

Variables	Mean	Standard deviation	Asymetry Coefficient	Kurtosis Coefficient
Motives for choosing the destination - composite	4,07	,635	-,824	1,373
Competitiveness of the destination - Composite	3,53	,601	,101	-,149

Table 9: Descriptive analysis of the variables motives for choosing the destination and competitiveness of the destination

Source: Author's research

The results show that guests' motives partially influence their choice of destination, while they rate the competitiveness of the destination slightly above average. The deviations of the individual data from the average value are small. At the same time, it should be noted that both coefficients of asymmetry lie within the acceptable limits for a normal distribution (i.e. they lie in the interval from -1 to 1). From this it is concluded that the variables fulfil the condition of normality and the correlation analysis will be based on the calculation of the Pearson correlation coefficient.

Variables	Motives for choosing the destination - composite	Competitiveness of the destination - Composite
Motives for choosing the destination - composite	1	,447
Competitiveness of the destination - Composite	,447	1
Significancy	,000	,000

Note: The correlation is significant at the level of $p=0.01$.

Table 10: Correlation analysis between the motives for choosing the destination and the competitiveness of the destination

Source: Author's research

The correlation coefficient shows a moderately strong, positive and statistically significant relationship between the guests' motives for choosing a destination and the destination's competitiveness ($r = 0.447$; $p < 0.01$). The higher the level of satisfying the guests' motives for choosing a destination, the better the destination's competitiveness. Based on the obtained results, hypothesis H3 is accepted at a significance level of $p = 0.01$.

5. CONCLUSION

The study provides important insights into how different elements of holiday rentals and destinations influence guest satisfaction and overall competitiveness. The study confirms that well-maintained and appealing holiday accommodation has a positive impact on destination competitiveness, which is confirmed by a positive correlation between guest satisfaction, their motives for choosing holiday rentals and the competitiveness of that accommodation. Key influencing factors include value for money, the feeling of being at home and opportunities for rest and relaxation. In addition, the extent to which guests' motives for choosing a destination are met correlates significantly and positively with the destination's competitiveness, with key motives including rest and relaxation, natural beauty and cultural experiences. The study has practical implications for destination managers and policy makers.

They should focus on improving the quality of holiday accommodation and ensuring that such accommodation offers unique, culturally immersive and comfortable experiences to improve guest satisfaction and increase the overall competitiveness of the destination. The findings highlight that maintaining high standards of cleanliness, safety and adequate facilities in holiday accommodation is critical. These features have a significant impact on guest perceptions and represent important finding as it leads to repeat visits and positive word of mouth. In accordance with all facts previously mentioned, it is concluded that the competitiveness of holiday rentals should be built in accordance with the specific requirements of guests, and in this sense, a systematic approach is required, which includes the observation of trends, but also the study of guests' attitudes and opinions, as the impact of the design of the offer has a direct impact on their competitiveness as well as the competitiveness of the destination.

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