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Navigating Global Disruptions: Migration, Education, and Labor Markets in a Post-Pandemic World

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In recent years, global challenges have demanded that academic research adopt multidisciplinary approaches to address increasingly complex societal issues. This issue of our journal brings together articles that explore the intersections of migration, education, labor markets, and the socioeconomic shifts caused by the COVID-19 pandemic. Together, these studies provide critical insights into how global crises reshape local and international experiences of mobility, education, employment, and economies.

The collection of articles offers fresh perspectives on intra-African migration, internationalization within higher education, job retention schemes, and the mobility of early-career scientists in the Mediterranean region. They reflect on the responses to challenges brought about by COVID-19 and assess the socioeconomic impact of these changes. Through these insights, the authors contribute to ongoing discussions about policy-making and future research in an evolving global landscape.

The first article, authored by Pierre Oyono Mvogo, titled 'Morocco's Contribution to the Consolidation of Intra-African Migration: An Analysis through the Prism of Gabonese and Cameroonian Student Migration Flows in the City of Fez,' addresses the underexplored issue of intra-African migration. While much literature focuses on African migration to Europe, Mvogo shifts the focus to Morocco, which has emerged as a hub for student migration from Gabon and Cameroon. The article emphasizes the role of student migration in fostering economic, political, and cultural integration within Africa. By examining the migration of students to the city of Fez, the study illustrates Morocco's importance in consolidating African unity and development.

Mvogo's findings offer a nuanced understanding of migration as a driver of regional collaboration, economic growth, and political integration in Africa.

[6] In the article 'The Internationalization at Home: Intercultural Engagement of Students in Extracurricular Activities; MED2IaH Case Study,' Nada Trunk Širca (Slovenia), Karim Moustaghfir (Morocco), Dorsaf Ben Malek (Tunisia) and Anica Novak Trunk (Slovenia) address the concept of 'internationalization at home' in higher education. As physical student mobility became severely restricted during the COVID-19 pandemic, the focus has shifted to how students can engage with diverse cultures in their own domestic educational settings. Their work explores how extracurricular activities create opportunities for intercultural engagement and dialogue among students, which may play a crucial role in post-pandemic education. With international student exchanges largely disrupted, this study argues that meaningful intercultural experiences can still be fostered through intentional, localized programming. This model of internationalization may redefine how universities approach cross-cultural learning in the future, particularly in a world still adapting to the constraints and opportunities brought about by COVID-19.

In Lili Takacz's (Hungary) article, 'The Use of Analytic Hierarchy Process for Measuring National Interests: Demonstrating the Impact of Multicriteria Decision-Making Models on Foreign Policy Formulation,' the focus is on decision-making tools for prioritizing national interests in complex geopolitical environments. The study introduces the Analytic Hierarchy Process (AHP) as a way to evaluate and measure conflicting national objectives. Takacz shows how AHP can assist policymakers in navigating competing priorities in a structured manner. By applying the model to current geopolitical scenarios, the article provides insights into how governments can balance short-term and long-term national interests effectively. This method not only advances the theoretical understanding of decision-making in international relations but also offers a practical tool for policymakers facing a rapidly evolving global landscape.

The article 'Early-Career Scientists' Mobility in the Mediterranean during COVID-19: Transforming Crises into Opportunities for Blue Economy' by Jihene Nouairi, Alice Affatati, Giorgia Rivoira, Sergio Rejado Albaina and Mounir Ghribi (Italy) examines the impact of the pandemic on academic mobility, particularly for early-career scientists

in the Mediterranean region. With travel restrictions, halted research projects, and fewer networking opportunities, early-career researchers faced considerable challenges. However, the article also points to the opportunities that arose from the crisis. By embracing digital tools and remote collaboration, early-career scientists adapted to new forms [7] of engagement and cooperation. The authors argue that this shift toward virtual collaboration and digital research tools is likely to have long-term benefits, democratizing access to international academic networks. This study highlights how adversity can spur innovation and foster new ways of academic collaboration.

Anton Rop (Slovenia) examines the impact of job retention schemes in the article 'The Effects of Job Retention Schemes on Employment Preservation during the COVID-19 Epidemic.' Governments worldwide introduced these schemes to prevent mass unemployment during the pandemic, but the effectiveness of these measures remains a topic of debate. Rop's analysis of various job retention schemes reveals that while they were effective in keeping workers employed in the short term, there were unintended consequences, such as wage stagnation and limited job mobility. The article emphasizes the need for governments to consider the long-term effects of such schemes, particularly in terms of economic recovery and workforce flexibility. Rop calls for a balanced approach that not only preserves jobs during crises but also fosters a dynamic labor market in the long run.

In their article, 'The Positive Impact of the COVID-19 Pandemic on the Slovenian Economy,' Pierre Rosta and Alexandra Rostan (USA) challenge conventional narratives that depict the pandemic solely as a negative economic force. The authors explore how Slovenia managed to turn the crisis into an opportunity for economic growth, particularly in the healthcare, information technology, and manufacturing sectors. The article attributes Slovenia's resilience to pre-existing policies, swift governmental interventions, and the adaptability of key industries. The pandemic accelerated digital transformation and innovation, which has positioned Slovenia for long-term economic growth. This case study offers valuable lessons for other countries seeking to build economic resilience in the face of future global disruptions.

To conclude, this issue brings together diverse perspectives on how migration, education, and labor markets have been affected by global crises, particularly the COVID-19 pandemic. The articles underscore the importance of adaptability, innovation, and resilience in respond-

ing to the challenges posed by these disruptions. By examining these key areas through a global lens, the contributions in this issue offer valuable insights for scholars, policymakers, and practitioners. As the world continues to grapple with the long-term effects of the pandemic,
[8] these studies will play a crucial role in shaping future research and policy aimed at fostering socioeconomic recovery and sustainable development.

IJEMS | SCIENTIFIC ARTICLE

Morocco's Contribution to the Consolidation of Intra-African Migration: An Analysis through the Prism of Gabonese and Cameroonian Student Migration Flows in the City of Fez

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This article brings further light on the enhancement of intra-African migration, which hardly makes the subject of in-depth research, besides irregular migration to Europe. This study highlights Morocco's involvement in the consolidation of migratory processes of African students from the perspective of African Cameroonian and Gabonese students in the city of Fez. Semi-structured interviews revealed mixed opinions regarding their integration into the host country, both in the university environment and in their living place. The study finds that Fez is an ideal place to study even as one student community (Gabonese) benefits from all the facilities to the detriment of the other (Cameroonian), in relation to the agreements pre-established by their governments, which will lead to an imbalance in the integration relationship, and which gave rise to a comparison between the two student communities. This analysis led to questions about the involvement of the home states but also about the reactions of the host country to this policy of the Kingdom to attract more of the students to study in Fez. This study aligns with contemporary studies on international migration, constitutes a perspective for the expansion of legal migration channels and an invitation for the African Union to promote 'intra-African' migration.

Key Words: Intra-African migration, Morocco, Gabonese students, Cameroonian students, Fez

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INTRODUCTION

Morocco's return to the African Union (AU) in 2017 has redefined the face of African multilateralism. For long, the Kingdom remained in the background in the formulation of African policies, but it is now going to
[10] reappropriate African social life and participate naturally in its transformation and socio-economic development. As a result, Moroccan-African cooperation improved the Kingdom's political position on the continent (Barre 1996) and Morocco is now a major actor in African migration policy. Despite its low score in the African regional migration index on free movement,[1] Morocco participates massively in strengthening migration within the African continent. It is through the impulsement of His Majesty King Mohammed VI that the kingdom is assuming the responsibility of African leader on migration issues.[2] As Mr. Nasser Bourita said during the 35th ordinary session of the AU summit, three Africans out of four moves within African borders, to neighbouring countries, whereas only one African envisage going to Europe, where most of the debate on African migration takes place.[3] This confirms the density of intra-African migration (Tametong and Oyono 2022, 35).

Since 2000, the Moroccan government's policy for African students has welcomed about 15,000 students, including 7,000 scholarship holders, which aims to make Morocco an African regional hub for university studies (Dkhissi et al. 2012, 84). Morocco is considered welcoming and has welcomes thousands of African students (Crétois 2020; Mahamadou Laouali and Meyer 2012), most of whom come from sub-Saharan Africa (Nzamba 2015). As Mr Chakib Mounsif said in his remarks: 'Today, much more than before, Morocco is increasingly a preferred destination for students from sub-Saharan Africa.'[4] The re-

[1] See https://www.integrate-africa.org/fr/classements/dimensions/libre-circulation-des-personnes/.

[2] Upon its reintegration into the African Union in 2017, Morocco was designated as the spokesperson for migration issues in Africa, and the kingdom will officially present the African migration agenda at the 30th African Union summit in 2018.

[3] The Minister of Foreign Affairs, African Cooperation and Moroccans Living Abroad, Mr. Nasser Bourita, represented the Sovereign of Morocco at the 35th Ordinary Session of the Summit of the Pan-African Organization and recalled the predominance of intra-African migration.

[4] Interview with Mr Chakib Mounsif, advisor to the President of the Euromed University of Fez, in charge of communication and partnership with Africa, 13 February 2023.

port for the 2019–2020 academic year from the Moroccan Ministry of Higher Education, Scientific Research and Innovation and the Moroccan Agency for International Cooperation (AMCI) estimates that there are 14,500 foreign students in Moroccan public higher education universities, including 12,500 students from 47 African countries.[5] It [11]
is difficult nowadays for this agency to provide the exact number of African students enrolled in private universities. Nevertheless, for the academic year 2020–2021, the Kingdom was not able to welcome new sub-Saharan students, due to the Covid-19 pandemic. Created in 1986, AMCI encourages African mobility through studies in Morocco. Within this proportion of students, there is a very large number coming from Central Africa. Minister Younes Sekkouri visited this region on 17 and 18 November 2022,[6] with a priority given to Gabon and Cameroon, he declared: 'Review the excellent relations between the Moroccan people and these two countries. There exists a close academic cooperation between Morocco and Gabon[7] but also between Morocco and Cameroon.'[8] This is the reason why we are analysing the migratory flows of students to Morocco from these two countries belonging to the same geographical area. In the past, foreign students only attended Moroccan public universities on the basis of agreements and scholarship programmes, but Gabonese and Cameroonian students can now enrol in private universities. Moreover, beyond the academic framework, Morocco is currently the leading African investor in the Economic and Monetary Community of Central African States (CEMAC) (Fihri 2014).

As a result of this perceptible cooperation, the migration of Africans in general from south of the Sahara to Morocco remains marked by prejudices and preconceptions. In its foreign policy, for African countries, Morocco contributes significantly to the expansion of intra-African

[5] AMCI awards a number of Moroccan scholarships to international higher education students. In the 2019/2020 academic year, more than 12,000 international students have received scholarships from the Kingdom of Morocco through AMCI, and 85% of AMCI scholarship students are African.

[6] The Minister Younes Sekkouri in charge of economic inclusion, small business, employment and skills of Morocco toured Africa on 17, 18, and 19 November 2022 to deliver messages from the King of Morocco to the leaders of specific Central African countries such as Gabon, Cameroon and the DRC.

[7] Trade relations between Morocco and Gabon are governed by a trade agreement signed in Rabat on 6 November 1974.

[8] Morocco-Cameroon Trade Agreement signed in Marrakech on 15 April 1987.

academic migration. This is characterised by a regional and continental movement of 'African students' to Africa, further strengthening and maintaining intra-African migration. African student immigration to Morocco brings a positive wind to the intra-African migration
[12] (Abourabi 2022; US Department of State 2022) The United Nations defines a long-term migrant as a person who leaves their country of origin to settle in another for a period of at least one year (Tarran 2017, 12). It is through this definition that it is important to characterise students coming from Gabon and Cameroon to Morocco, but also the analysis of this article is done through the term migratory flow which characterises the movement of people between the place of origin (Gabon and Cameroon) and the place of destination (Morocco-Fez) (De Hass and Frankema 2022, 13).

There are about 3000 Gabonese students in Morocco, representing the largest community of students in Sub-Saharan Africa. Meanwhile, the president of the Association of Cameroonian Students in Morocco (CASAM)[9] reports that there are approximately 300 Cameroonian students with scholarships, and 150 students in private universities in Morocco. To allow Cameroonian students to migrate, Morocco through the Ministry of Higher Education of Cameroon, has for years been launching a call for applications for scholarships. Gabon, for its part, has developed a strategy between the Gabonese National Scholarship Agency (ANBG) and smart Africa consulting for the supervision of scholarship students in Morocco. For the year 2022–2023, 50 Cameroonian students benefited from this intra-African academic cooperation; while for the neighbouring country there were 150 new scholarship holders. This inequality of figures also allowed to insist on the comparison of intra-African academic migration conventions that Morocco develops with each of these two neighbouring countries taken individually, which each have a different cooperation approach with the Cherifian kingdom.

Very often concentrated and accustomed to the main Moroccan cities of Casablanca and Rabat, there are nowadays a large number of Gabonese and Cameroonian students in the spiritual and cultural city of Fez, regardless of whether they are scholarship holders or not. The choice of this city is therefore strategic, as were some researchers

[9] Interview with the president of Cameroonian students' association in Morocco, December 2022.

who studied the migration flows of sub-Saharan migrants in this area in the past (Ennaji et al. 2021, 2). In 2021, nearly 400 Gabonese students were counted in Fez according to the census sheet of the secretary of the Gabonese Union of Morocco (UGM)[10] and nearly 35 Cameroonian students, according to the representative of Cameroonian students in Fez.[11] [13]

Although the scientific literature is not sufficiently referenced on the issue of African student immigration to Morocco (Berriane 2012, 2), it is considered a non-negligible part in the study of intra-African migration. It is not a question of aggregating irregular and regular migrants in Fez as in previous migration studies (Ennaji et al. 2021). This analysis provides a new perspective on student immigration in Morocco.

The aim is to renew the study of migration by focusing on neglected subjects, such as student migration, while formulating new and original questions in relation to existing studies on African student migration. In addition, the objective is to highlight the major role of Morocco in the promotion of intra-continental migration.

THEORETICAL APPROACH

It seems appropriate to adopt an endogenous African reflection on migration, with reference to the theory of the *démarginalisation,*[12] which is linked to the ned to reflect African ideas (Pondi 2011) while mobilising the issue of intercultural difference (Hampden-Turner and Trompenaars 1997; Lewis 2006) which will allow us to understand the social phenomena that link Cameroonian and Gabonese students in Morocco (Morrissette, Guignon, and Demazière 2011, 4). This will lead to the overcoming of national cultural specificities in order to integrate intercultural competence in the context of 'expatriation' (Wiseman and Koester 1993). This sociologically inspired study highlights the so-called universal values and the way in which the main actor (Morocco) and the protagonists benefiting from the policy (the Gabonese and Cameroo-

[10] Interview with the secretary of the Gabonese union, Fez section, in December 2022.

[11] Interview with the president of the Cameroonian student's section in Fez in December 2022.

[12] *La démarginalisation* is a theory of international relations developed by Jean-Emmanuel Pondi in a book entitled *Repenser le développement à partir de l'Afrique* (2001); he notes the marginalization of African ideas, to ultimately find African solutions to African problems.

nian students) behave with regard to the contrasting nature of the society (macrosocial level) and the interactions between the different nationalities (microsocial level) (Frame 2019). Very often, immigrant easily resists integration operated by the host society (Reitz 2002). The
[14] first step consists of highlighting the cultural differences and to see to what extent they can be managed. It is therefore a normative approach to interculturality, which will help to identify the affective, behavioural and cognitive qualities (Ang and Earley 2003) that will help students to become more 'effective' in international communication and management. At the same time, it will challenge the governance model of study migration, both at national and regional levels through the African Union. The starting point of this study is the observation that, most researchers focus mostly on irregular migration to Europe (de Haas and Frankema 2022, 4) and the attempts to reconstruct the long-term models of African intra-continental migration remain inadequate (p. 8), neglecting the positive aspect of South-South African migration (Guillmoto and Sandron 2003; UNCTAD 2018). Previously, a large proportion of students from sub-Saharan Africa had a tendency to pursue their studies on the old continent, but this seems to have changed. Morocco's excellent academic performance in Africa attracts many students from sub-Saharan Africa. This study takes into account both political and sociological considerations.

METHODOLOGY

To achieve these results, we proceeded with a methodological triangulation, through an ethnographic approach that combined observatory sessions and forty open-ended questionnaires, addressed to both Cameroonian and Gabonese students. Thirty-three interviews were conducted with the Gabonese students as opposed to only eleven for Cameroonian students who were very reluctant and difficult to approach. Similarly, a series of 10 semi-structured interviews were administered; 5 to Gabonese students, 3 from private universities in Fez and 2 from the public university of Fez. We proceeded in the same way for Cameroonian students. In order to guarantee the anonymity of the interviewees, we preferred to use the gender variable in the form of a pie chart to represent the protagonists. These different interviews were conducted face-to-face in month of December 2022 and an online questionnaire was administered between December 2022 and January 2023. The overall aim is to mobilise a comparative method to analyse the dif-

TABLE 1 Gender of Interviewed Cameroonian and Gabonese Students

Country	Male	Female	Total
Cameroon	9	2	11
Gabon	23	10	33

[15]

TABLE 2 Categorisation of Interviewed Cameroonian and Gabonese Students

Category	Cameroon	Gabon
Home country scholars	2	21
Home and host country scholars	4	1
Host country scholars	3	1
Non-scholarship holders	2	10
Total	11	33

ferent socio-political considerations and views of the actors involved in the study.

We also categorised the students interviewed according to whether they were scholarship holders or not, and used the life story approach with one Cameroonian and one Gabonese student.

It should be noted that students who had spent less than six months in Fez were not included in the questionnaire, even though they were asked for their opinion on their situation as new students. Finally, we conducted semi-structured interviews with the person in charge of development, communication and partnership in Africa at the Euromed University of Fez, the secretary general of the Gabonese Union of Morocco, Fez section, the national president of students and trainees in Morocco, and the representative of Cameroonian students, Fez section. These interviews took place from December 2022 to February 2023, in person and online. Despite a sometimes-difficult cultural adaptation, Gabonese and Cameroonian students in Morocco and a very pronounced presence of sub-Saharan Africans who have set foot on Moroccan soil in an uncontrolled manner, including few from Gabon, but several Cameroonians. The Kingdom, through its African policy, continues to play its role in intra-African academic cooperation and wishes to position itself as the main actor of the African ERASMUS.[13]

[13] Erasmus (European Action Scheme for the Mobility of University Students) is a programme for the exchange of students and teachers between European universities, colleges and institutions worldwide. The programme is part of the European Higher Education Region. Implementing a similar programme in Africa remains difficult.

Unlike Gabonese students who benefit from a bilateral agreement[14] on free movement between Morocco and Gabon, Cameroonian students are obliged to obtain a visa before their arrival in Morocco. It is therefore through the presence of students from these two neighbouring Central African countries that we analyse Morocco's contribution to [16] the process of accentuating and effectively implementing intra-African migration. This study highlight on the implication of Morocco's attractiveness as a hub for intra-African neo-migration (1), and will be based on the dichotomy of migration paths between Gabonese and Cameroonian students in Morocco (2). This comparison will lead to the impact of intra-African migration from Morocco, perceived by Gabonese and Cameroonian students in the city of Fez (3), which will underline the need for the establishment of an extended intra-African student network in Africa, based on Morocco's academic exchanges with the countries of the continent (4).

Morocco's involvement in the rethinking of intra-African migration

The gap between migrating for studies in other parts of the world and African migration remains deep, and this gap must be bridged and caught up by increasingly conducting studies on intra-African migration (de Haas and Frankema 2022, 4). It is in this perspective that this study is placed in the continuity of interpretative approaches to intra-African migration, by analysing Morocco's participation in the realisation of African migration, under the prism of the migration of students from Gabon and Cameroon, and mainly to the city of Fez. Morocco has become in few years a reference for students from Francophone Africa, it has gradually switched from being a country of emigration to a country of destination (IOM 2017, 1; Alioua, Ferrié, and Reifeld 2017). The students are attracted to the fields like engineering, medicine, and more recently, artificial intelligence. The partnerships that some Moroccan schools have established with French and American schools, as well as the excellent rankings of Moroccan universities in Africa in terms of academic performance, further contribute to their interest in Morocco.[15] As King Mohammed VI emphasised in 2015, 'Morocco will

[14] Agreement on the abolition of visas for nationals of both countries (Gabon-Morocco) signed in September 2013 in Rabat.

[15] Euromed university of Fez attracts students from sub-saharan Africa with one of the training courses in digital engineering and artificial intelligence.

always be a welcoming place for its guests who come there legally.' It is within this framework of legality that our study is simply positioned, relating to the regulatory migration of the category of 'students migrants' as Johara Berriane call them, migrants among others (Berianne 2009). [17]

In order to be in line with international and regional migratory agreements, Morocco has put in place and strengthened existing legal frameworks on migration to facilitate the hosting of students from abroad, including Gabonese and Cameroonian students. It should be recalled that Morocco has long prioritised the aspect of bilateral relations in its foreign policy, especially for the period 1999–2015 (Harastani Madani 2020, 16). This aspect of cooperation was marked by the signing of a free movement agreement with Gabon, but not with Cameroon. Although the Kingdom of Morocco is not a signatory to African conventions on migration, such as the Protocol on the Free Movement of Persons, the Right of Residence and the Right of Establishment, and is to date the only African country that is not a party to the African Charter on Human and Peoples' Rights, it does make a significant contribution to maintaining and enhancing intra-African migration. The country continues to develop a set of internal regulations to direct and diversify the internal composition of migration, which constitutes its migration policy (de Haas and Vezzoli 2011; Czaika and de Hass 2013). It also relies on Law No. 02-03 (on the entry and stay of foreigners, irregular emigration and immigration) (BORM No. 5162, 11/11/2003), as well as the 2013 migration policy, which regularised a good number of irregular migrants, among whom were former students. According to the Ministry of Higher Education, Scientific Research and Innovation, the presence of foreign students in Morocco is guaranteed by the Kingdom's Constitution, the Royal High Guidelines, the Framework Law No. 51.17 relative to the system of education, teaching, training and scientific research, the Government Programme 2016–2021 as well as the Ministry's Action Plan for the years 2017–2022. In terms of access to public education at the university level, migrants with a residence permit have the same status as Moroccan citizens (IOM 2019). Today, the mobility of African students is increasing in Morocco (Marichalar, Piron, and Tétard 2022), Gabonese and Cameroonian students are boosting the number of foreign students in Morocco every year. In Morocco, the increase in mobility of students is particularly strong for those coming from Gabon (Marichalar, Piron, and Tétard 2022, 14).

So far, they have not been granted any official scientific literature, although their presence in Morocco is not insignificant. The city of Fez is currently the third largest university city in the Kingdom with nearly 15 higher education institutions offering approximately 230
[18] study programmes. This diversity of programmes attracts Cameroonian and Gabonese students, especially in the private sector, as the public university Sidi Mohamed Ben Abdellah only accepts students with scholarships, and the number of places is very often mentioned. Morocco, unlike other countries of the continent, integrates African students as a non-negligible variant in the accentuation and promotion of intra-African migration of the continent. This is a way of adding positivity to the speech on African migration that remains tainted by Eurocentric perceptions (Mvogo 2022). In this spirit and to further attract Cameroonian and Gabonese students to study in Morocco and especially in the city of Fez, private higher educational institutions are travelling to these central African countries, and to present their schools, but also the main programs and the numerous advantages of studying in the cultural city of Fez. For example, the Euromed University of Fez and the private university of Fez, never miss an opportunity to make themselves known, whether in Gabon or Cameroon, during study salons organised by France (SEF). 'I got to know the Euromed University of Fez after the announcement of the Baccalaureate results, during a study salon in Libreville in 2021,' says a young Gabonese student, now in his second year of political science in the named institution. In addition, the Kingdom of Morocco enjoys a certain political and economic stability, and the city of Fez in particular is known for its cultural attractiveness and its calm to study in all serenity. 'A friend with whom i was in contact praised the city of Fez both for its sustainable environment for studies and that before the fact that it is difficult to be distracted' says another young Gabonese student. Fez has the merit of being a university city that contributes to the blossoming of both Gabonese and Cameroonian students, but also of other sub-Saharan African student communities. It is therefore a more or less advanced contribution to the intensification of intra-African migration from these two categories of student nationalities to Fez that Morocco has included in the objectives to be achieved by the African Union, confirming the need to take advantage of intra-African migration (Union africaine 2017). Fez participates in the diversification of the presence of students in Morocco and allows for a mosaic of students from sub-Saharan Africa

where we find Gabonese, Cameroonians, Senegalese, but also Malians (Niandou 2016). Even though it is true that Morocco, through the diversification and spread of foreign students from Black Africa on its territory, participates to the growth of South-South migration, there is sometimes a difference in the modes of arrival, treatment and integration in the host city for these students from Central Africa. The following paragraphs provide an insight into the sociological characteristics of Gabonese and Cameroonian student-migrants. [19]

DICHOTOMOUS MIGRATORY PATHWAY BETWEEN GABONESE AND CAMEROONIAN STUDENTS

The city of Fez has become in some few years a coveted space for students coming from Gabon, as well as those coming from Cameroon. Their presence can explained by the new changes in the Moroccan higher education and the diversification of programs offered, as well as the numerous advantages of studying in Morocco (Niandou 2015). But what is striking is that unlike Cameroonian students, who are few in number in the private universities of Fez, Gabonese students form a very large community within these private universities. The Euromed University of Fez has about 200 Gabonese students, which constitutes the largest community of sub-Saharan African students in the school, followed by Senegalese and Ivorians. In the same school in 2018, there was only one Cameroonian, this figure has changed significantly in 2021 with the arrival of four new PhD students, and in 2023 there are about 9 Cameroonian students at the Euromed University of Fez. The other Cameroonian students are concentrated in the main public university of the city, Sidi Mohamed ben abdellah. How this disparity in figures be understood, when Morocco is resolutely committed to welcoming foreign students, mainly those from the same continent.

The Intra-Africanity of Academic Links between Gabon and Morocco

The continuous increase in the number of Gabonese students in Morocco in general and in Fez in particular is due first of all to the historical and secular links that exist between the two nations, as well as from the special and privileged cooperation existing between Gabon and Morocco. These Gabonese students benefit from the free movement agreement signed between the two countries, which provide a free entry into the Moroccan territory for a period of 90 days before taking the decision to settle in Morocco (Nguema 2015). This facili-

tates their immigration to the Kingdom, unlike Cameroonian students, who fall under the Moroccan category of facilitating entry, stay and establishment (Nguema 2015). Moreover, the concretisation of these friendly relations will be operationalized with the increase of Moroccan
[20] scholarships offered to Gabonese students from 130 in 2016 to 150 since 2020. This makes Morocco the first destination for Gabonese students ('Le Maroc est la première destination des étudiants gabonais' 2020). In addition, the higher education institutes of the city of Fez travel to recruit Gabonese students, and present all the diversity of existing programs, and the advantages of settling in Fez. There is therefore a partnership between ANBG, Smart Africa, and the universities of Fez, which facilitates their arrival in Morocco. This is why these Gabonese students of Fez, of Euromed University, of the private university of Fez or SUP 'Management of Fez benefit from a certain flexibility in terms of administrative procedures and registration.

The Proportion of Intra-African Migration of Cameroonian Students in Fez

It should be noted that, Cameroonian students in Fez are part of the representative minority of sub-Saharan African student communities settled in this city. Indeed, Morocco and Cameroon do not have an agreement on the freedom of movement for their citizens, despite the excellent diplomatic relations existing between the two countries since 1965. Even from a multilateral point of view, the two countries are not signatories to the African protocol on free movement, signed by Gabon but not ratified. As a result, Cameroonian students, unlike Gabonese students, sometimes face long procedures, which goes beyond their expected date of arrival in Morocco, while others arrive months after the start of the academic year. For Cameroonian students interviewed in Fez, those in the public universities, who receive scholarships from both the Cameroonian government and AMCI, benefit from some of the same administrative and registration facilities as their Gabonese classmates. In previous years, for student from private university, he was asked by the embassy to provide the homologation recognising of his school by the Kingdom of Morocco.[16] This delayed his arrival in Morocco, and several other students were in the same situation.

[16] Interview with a former Cameroonian student of the Euromed University of Fez, January 2023.

PERCEPTION OF THE GABONESE AND CAMEROONIAN STUDENT PRESENCE IN THE CITY OF FEZ

It is worth mentioning, after the involvement of the state actors in the smooth running and conduct of intra-African migration, particularly [21]
that which concerns academic migration, the effects on the main recipients of this student migration policy. It is necessary to recipients impression of Gabonese and Cameroonian students in Fez and to question the system of reactions of both the country of origin and the host country in which these international students are immersed, in order to bring out the meanings that foreign students attribute to their surrounding environment.

Socio-Cultural Interactions of Gabonese and Cameroonian Students in the City of Fez: The Point of View of the Beneficiaries of the Intra-African Migration Policy

Far from their land of origin, these Central African students sometimes suffer from what can be described as homesickness. However, what we found through the interviews is the continuity of cultural exchanges between these students both in Fez and in their country of origin. Most of them still feel linked to their homeland through the presence of associations regrouping their community of origin. This is why Morocco remains open to sharing and discovering other cultures, to facilitate the integration of these Cameroonian and Gabonese students, but also for all other international student communities. 'At the beginning, I was a bit lost, I didn't find myself at all, but as time went by, I managed to get used to it and above all I discovered a new culture,' says a Gabonese student. Cameroonian students in Fez meet at least once a month to share memories of their country through their main association (CASAM) and organise a so-called integration day when new students arrive in the city, as does the Gabonese student community. 63.6% of the Gabonese students interviewed reassured us that their current universities participate a lot in the propagation and promotion of their culture by 'organising meetings with other students, where we often have rather rich conversations during which each one promotes his mother country,'[17] but also by 'exchanges, of ethnic performances

[17] Interview with a former Gabonese Supmanagment student, January 2023.

TABLE 3 Response of Cameroonian and Gabonese Students in Fez on the Involvement of Their Universities in Their Socio-Cultural Development

Country	Yes	No
Cameroon (n = 11)	45.5	54.5
Gabon (n = 33)	72.7	27.3

NOTES In percent.

[22]

during certain activities.'[18] On the Cameroonian side, opinions on the propagation of their culture were mixed, as 54.5% of Cameroonian students interviewed said that their current universities support them in promoting their culture, compared to 45.5% who said the opposite.

These students give different meanings to the social environment around them. However, the living quarters of these students are very often located not far from the universities they attend. For those in the universities of the new city,[19] including the public university, they have chosen to live in the Atlas district, for those who sometimes do not want to live in the university residences. It was found that most of the students interviewed prefer to live with their compatriots. A minority have national students as roommates. Even if everything is done so that 'the student does not feel out of place,' as Mr Monsif reminded us, it is still true that they encounter difficulties in their social development. But these difficulties often come from the environment in which the student lives, or even just the difficulty of adapting to the climate, because both the Cameroonian and the Gabonese students are familiar with an equatorial climate, as this Gabonese student explained: 'We have difficulty adapting to seasonal variations, as Africans from below the Sahara region.' Although 36%[20] of the Moroccan population is currently French-speaking, most of the students interviewed reported difficulties in understanding the territory's main language. Even though there are centres in the university dedicated to learn the local language, the space of study does not allow students to attend these courses regularly. Intra-African migration from the academic perspective of Gabonese and Cameroonian students must in-

[18] Interview with a former Cameroonian student of the Euromed University of Fez, January 2023.

[19] The new city is the name given to the new constructions of the city of Fez, very different from the old city.

[20] See https://www.francophonie.org/maroc-974.

TABLE 4 Response of Cameroonian and Gabonese Students in Fez on the Involvement of Their Country of Origin in Solving Their Difficulties

Country	Yes	No	Sometimes	Sometimes
Cameroon (n = 11)	9.1	72.7	9.1	9.1
Gabon (n = 33)	18.2	48.5	27.3	5.4

NOTES In percent.

[23]

clude the authorities of the countries of origin of these students. However, when asked about the implication of the home countries' officials in the resolution of the difficulties encountered in the host country, on both sides it has appeared from both sides that given that Morocco makes great effort for an effective integration of foreign students, the countries of origin facilitate the arrival of Cameroonian and Gabonese scholars in Morocco. Both categories of students do not really feel the implication of their countries of origin. As demonstrated in table 4, when asked whether Gabonese and Cameroonian students in the city of Fez feel that their country of origin is involved in solving their difficulties, especially regarding administrative matters, the two categories of students are not quite favorable to this question.

This is typical, considering that students are apparently not accountable to their home countries, but students on scholarship in their country of origin face difficulties, especially with regard to the payment of their scholarships. An observation made in November 2022, revealed that Gabonese students in Morocco in general and those in the city of Fez in particular have complained about the delay in the payment of their scholarships, creating a petition to claim their right.[21] Some of the students interviewed spoke of their feeling of abandonment by their home countries. A similar situation concerning Cameroonian students in Morocco happened in 2020. When interviewed in 2017, the head of the diplomatic corps in Morocco, the Cameroonian ambassador to the Kingdom of Morocco, said: 'We are trying to solve their problems within the limits of our means' ('Etudes au Maroc' 2017) The month of January 2023 marked another significant cultural links between Morocco and Cameroon. The king of a Cameroonian community called 'Bamoun' was invited to the international conference of the academy

[21] See https://www.thepetitionsite.com/en-gb/379/905/507/obtenir-le-paiement-imm%C3%A9diat-des-bourses-qui-nont-pas-%C3%A9t%C3%A9-pay%C3%A9es-depuis-4-mois-pour-tous/?taf_id=71809188&cid=fb_na.

of the Kingdom of Morocco,[22] scheduled to take place in Rabat, he was keen to visit the spiritual city of the Kingdom and was welcomed by the Cameroonian student community of Fez, proudly showing a part of the Cameroonian culture to the citizens of Fez who were present, and to
[24] some of their Moroccan classmates who assisted. But the relationship with the city of Fez is completely different in the diplomatic context. The Gabonese ambassador of Gabon to the Kingdom of Morocco visited the Euro-Mediterranean University of Fez in January 2021, and was very proud of the quality of education that Gabonese students receive. This university has recently been reflecting the 'intra-African' cooperation between Morocco and Gabon. These consolidating elements of intra-African migration allow us to understand the link between studies and culture, especially in an effect of disparity that will bring the community of origin and the host community closer together. Since moving can cause a clash of civilisations (Huntington 1996). In this case, what does the host community do?

The Moroccan Response System for the Effective Integration of Gabonese and Cameroonian Students in the City of Fez

In recent years, migration pathways have shifted to people's strategies to achieve their ambitions in a context of disparity or variance (de Haas and Frankema 2022, 12). Most newly arrived students in Fez project themselves in this perspective. They have to rely on the commitment of the local authorities to facilitate their arrival, their establishment and their integration, so that they can eventually have professional goals in Morocco. The proportion of students interviewed who had completed their studies expressed the fact that it was difficult to find a job in the city of Fez and that they wished to move to other Moroccan cities. With regard to this, the advisor to the president of the Euromed University of Fez mentioned that 'progressively, mechanisms are being put in place for the socio-professional and socio-economic development of international students,' which is currently marked by the creation of start-ups and companies by former foreign students in Morocco. The motivations for departures not clearly stated, it sometimes happens that these in-

[22] The Royal Academy of Morocco organised an international colloquium from 18 to 20 January 2023 under the theme: 'The invention of writing and the state of the narrative in African languages' and the Sultan King of Bamoun, SM Nabil Mbombo Njoya of Cameroon, was the guest of honour at this prestigious event.

TABLE 5 Response of Cameroonian and Gabonese Students in Fez on Their Professional Goals in Morocco

Country	Yes	No	Maybe
Cameroon (n = 11)	9.1	36.4	54.5
Gabon (n = 33)	15.2	45.5	39.4

NOTES In percent.

[25]

ternational students have doubts about their post-study period in Morocco. The purpose of intra-African migration should be beneficial to both the host country and the home countries. But in the context of an African country, can we talk about brain drain? Not really, because it is considered a win-win act, by staying in Morocco, they participate in the economic development and the socio-economic development of their family from a distance. Moreover, they develop SME economic activities in their countries of origin. As far as these scholars from the two Central African countries covered by this study decide to live in Morocco for their social and professional well-being. This is probably due to the positive working environment. When asked whether these students had professional goals in Morocco, here are the responses gathered from the Cameroonian and the Gabonese side (table 5).

By looking more closely at the facilitation of the arrival of Gabonese students in Fez, a lot of work is conducted from the country of origin, particularly through the participation of public higher schools in the study salons. Out of three Moroccan schools present in these study salons, two are from the city of Fez, among which the Euromed University of Fez. According to Mr. Chakib Mounsif, the Gabonese students of this university form the largest community of foreign students, divided between the first and second cycles. And these students benefit from their government's policy of sponsorship of their studies, and the partnership established between the two entities, namely ANBG and the Euromed University of Fez, which allows students to benefit from both free accommodations within the university, as well as preferential rates. And he underlined that 'the majority of Gabonese students met during these study salons opt for the UEMF (Euro-Mediterranean University of Fez) as their first choice.' It is a very different migratory pathway for Cameroonian students. Most of them are enrolled in the main public university of Fez, as they benefit from the scholarship agreement between the AMCI and the Cameroonian government, and the city of Fez is imposed on them by the territorial distribution provided

TABLE 6 Elements That Encouraged Cameroonian and Gabonese Students to Study in the City of Fez

Element	Cameroon		Gabon	
	n	%	*n*	%
[26] Smart Africa	–	–	3	9.1
Internet	1	9.1	2	6.1
Study education fair	0	0.0	6	18.2
Home country scholarship program	3	28.3	8	24.2
Home country government	3	28.3	4	12.1
Friends	2	18.2	5	15.2
Family	2	18.2	5	15.2

for scholarship holders on their arrival in Morocco, as the table 6 shows.

Cameroonian students who come to study in Morocco prefer big cities like Casablanca and Rabat, while most of those who are in Fez are there because of their governments of origin. The Euromed University of Fez has only eleven Cameroonian students currently enrolled in undergraduate, graduate and postgraduate programs. The four PhD students encountered benefit from the Moroccan Scholarships for African Youth (MSFAY) academic program launched in 2021 by the King of Morocco to truly expand Moroccan intra-African academic diplomacy. However, the advisor to the president of UEMF reported that he has received nearly 4000 applications from Cameroonian baccalaureate students for the 2022–2023 academic year, but they did not complete the registration process because they thought they could benefit from the scholarships. In reality, there is not yet a cooperation agreement between Cameroon and the UEMF, knowing that this country has a lot of potential and that the diversity of programs offered by this school could be to the advantage of these future Cameroonian students in Fez. The socio-cultural development of Gabonese and Cameroonian students is strongly encouraged in their respective universities as mentioned above. As an illustration, the creation of clubs within the university institutes such as the Afro dance club of the UEMF managed by a Gabonese student who 'finds a way to promote and teach others the dance steps and music of her country.'[23] Moreover, this university is the very symbol of interculturalism with the presence of around forty nationalities coming from all over the world, as this Gabonese student so clearly stated, 'I in my class, I meet students from different origins,

[23] Interview with a Gabonese student at the Euromed University in Fez, January 2023.

which means that by being in Morocco, I communicate with other continents.'[24]

The university in Fez is also at the heart of the integration of the Gabonese students, and for two years consecutively, the UEMF has held an integration day for the Gabonese student community. It is therefore [27] clearly the Moroccan soft power (Iraqi 2019), which could also give a whole new look to African migration on the continent and inspire the necessity to establish a global student migration policy for all African countries.

TOWARDS THE ESTABLISHMENT OF AN EXTENDED 'INTRA-AFRICADEMIC' NETWORK FROM MOROCCO

Following the example of Morocco, and its specific city of Fez, which welcomes Gabonese and Cameroonian students, but also a number of other African students, other countries should more or less copy this model of migratory cooperation. The kingdom does not restrain from conveying a welcoming image towards other African countries, through the implementation of African cooperation policies such as the one concerning the academic aspect (Abourabi 2022, 18). This tends to legitimate the presence of these foreign students on the Moroccan territory (Abourabi 2022). In fact, there is no regulatory text on students' migration in the world and in Africa. It is possible in some countries that these students are not included in the category of migrants (Tarran 2017).

Nevertheless, this is an area of regular African migration that has received little attention but has positive effects for the home and the host countries. The specific case of Gabonese and Cameroonian students living in the city of Fez has made it possible to identify the need to copy models of South-South cooperation, to integrate them into the process of African regional integration, or to reshape this cooperation, this time taking into account sociological considerations. The model of cooperation based on studies that unites Morocco with Cameroon and Gabon through AMCI and any other participating body such as the ANGB, should be able to inspire the African Union to rely more on the promotion of study-based migration policies. This will facilitate part of the free movement of people in Africa. In addition, it could be a corridor for intra-African trade.

The city of Fez could inspire more than one African city to adopt

[24] Interview with a Gabonese student from the Euromed University in Fez, January 2023.

the same approaches to attract students from Africa. There is in fact a need to diversify the establishment of foreign students in a country, and this is the case in Morocco. Most of the students interviewed had never heard of this city before their arrival, and they also noted
[28] that after their arrival the positive advantages of studying in Fez, the ideal setting for their studies, and the university infrastructure, which is similar to that of the major occidental universities, were evident. Sub-Saharan African students living in other cities in Morocco said that students in Fez are very studious. Even if in comparison to Gabonese students in Fez, the penetration ratio of Cameroonian students in the same city remains low, one should not neglect the contribution they have to the participation of student activities in Fez. But much remains to be done as in the past when there was a significant number of Cameroonian students in Fez, as indicated by Mr. Mounsif, also former president of the High School of Commerce (HEC) of Cameroon, which had to close. The positive factors linked to the installation of Gabonese and Cameroonian students in Fez must be part of the African co-development initiative. The students trained are a potential workforce for the future. Very often the country of origin relies on the expertise that the student would have acquired for the development of the country. But very often Morocco offers opportunities for these students at the end of their studies, this is why some of the students in the survey above gave a mixed response for their professional settlements, as they sometimes have positive testimonies from former students who have successfully settled in Morocco. Although it sometimes happens that some of them find themselves in irregular situations at the end of their studies, not being able to renew their visa. The African Union should certainly, like Morocco, establish a framework for the promotion of 'intra-African' migration, which would allow these young Africans to share the experiences of other countries and to become aware of the immense potential that can be found in another city other than the capital of the country they are studying in, in order to pursue their international studies, in an African context.

CONCLUSION

Morocco, through the presence of Gabonese and Cameroonian students in the city of Fez, contributes to the intensification of intra-African migration. This study is a contribution to fill an important gap

in the study of international migration, particularly that related to the African continent. Moreover, it has highlight on the biased perceptions of cooperation between North Africa and sub-Saharan Africa. Migration for Studies plays an important role in consolidating this relationship, and Morocco relies more on its political stability to attract more [29]
students from Africa, particularly those from Gabon and Cameroon. The city of Fez, with its spiritual and cultural side, no longer attracts only tourists, but also students. The different sociological experiences of the Gabonese and Cameroonian students have made it possible to highlight the pathways of their journey, from departure, to arrival, through settling and integration. The universities of the city of Fez also play a significant role in the social and academic development of these students, as well as the community associations. This view of African migration should stimulate an initiative of the continental organisation to expand and promote 'intra-African' migration. Already the creation of legal migration for studies, by facilitating visa procedures, because there is reason to note the disparity between a Gabonese and Cameroonian student. Cooperation in academic exchanges should not only concern the movement of students from sub-Saharan Africa to Morocco, but in both directions. Currently, Morocco in its African foreign policy encourages African nationals to settle in Morocco as part of a 'win-win' cooperation, such as the Fez smart factory (FSF) initiative, hosted at the UEMF, which encourages young foreigners, especially Africans, to create innovative businesses. Just as it encourages its nationals to go and invest and get to know sub-Saharan Africa. Despite the difficulties encountered by these students, most of them are satisfied with the study programs in the various universities of the city of Fez. Could Cameroon not be inspired by Gabon's academic policy of supporting its students by offering them scholarships in private universities in Morocco? And also while waiting for the effective implementation of the protocol on free movement in Africa, to sign a bilateral agreement to facilitate the entry of Cameroonian students in Morocco, and finally, the possibility of establishing a triangular cooperation between the three countries in the academic field.

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Internationalisation at Home: Intercultural Engagement of Students in Extracurricular Activities; MED2IaH Case Study

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This study explores the role of extracurricular activities in enhancing students' intercultural abilities, using the MED2IaH Erasmus+ CBHE project as a case study. Conducted between 2020 and 2023 across 12 higher education institutions in non-EU Southern Mediterranean countries, the project aimed to integrate international and intercultural aspects into local education. The concept of 'Internationalisation at Home' (IaH) is highlighted, emphasizing the inclusion of global learning opportunities within the curriculum and campus life for all students. The study finds that specific extracurricular activities, such as digital storytelling, intercultural events, and the FRIENDS Tea-Houses, significantly contribute to IaH by fostering intercultural engagement and understanding. The research concludes that these initiatives effectively promote intercultural competencies, enhance communication and teamwork skills, and provide valuable insights into managing cultural collaborations, thereby supporting the internationalisation goals of higher education institutions.

Key Words: intercultural activities, diverse-university atmosphere, internationalisation within a domestic setting

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INTRODUCTION

The idea of internationalisation has spread beyond geographical boundaries in today's connected society and is now present in educational institutions worldwide. The main focus is to encourage the development
[34] ment of intercultural competence and foster understanding between domestic and international student groups. The concept of 'Internationalisation at Home,' which seeks to provide inclusive and culturally diverse university environments that facilitate cross-cultural learning opportunities for all students, has arisen as a result of this transformation.

This paper examines the impact of intercultural participation in extracurricular activities on the development of students' intercultural competencies. Further on, we provide a concise overview of the distinctions between curricular, co-curricular, and extracurricular activities. Curricular activities are essential components of a student's formal education, comprising the necessary educational experiences. Co-curricular activities enhance the curriculum by offering practical experiences that are relevant to it, focusing mainly on learning skills and literacy skills. Extracurricular activities refer to volunteer pursuits that take place beyond the formal curriculum, focusing mainly on developing the intangible elements of a student's everyday life (Dermol et al. 2023; Mishra and Aithal 2023).

The initial section of the paper explores the theoretical foundation of internationalisation at home and the notion of intercultural competence. Expanding upon the theoretical basis, the methodology section introduces our case study and describes the strategy used to analyse the positive impact of extracurricular activities on internationalisation at home and on intercultural interaction. The case study focuses on the Erasmus+ project MED2IaH (Mediterranean Countries Towards Internationalisation at Home), which was executed at 12 higher education institutions (HEIS) in non-EU Southern Mediterranean countries from 2020 to 2023.

The empirical section of the article showcases results that illustrate the concrete impact of MED2IaH's extracurricular programmes in fostering internationalisation at home and improving the intercultural skills of the students involved. The essay examines the various advantages of these programmes in promoting cross-cultural awareness, communication skills, and cultural sensitivity among students, using both qualitative and quantitative analysis.

INTERNATIONALISATION AT HOME AND STUDENTS' INTERCULTURAL COMPETENCIES

Internationalisation at Home (IaH)

The focus of internationalisation in higher education has changed over the past few decades from only encouraging outbound mobility to including Internationalisation at Home (IaH). Regardless of a student's mobility status, the global education landscape has come to realise the significance of helping them develop international and intercultural abilities. Higher education institutions (HEIS), originally motivated by the goal of staff and student mobility abroad, have shifted their focus to IaH because of its inclusiveness and wider scope. This shift acknowledges that international exposure should not be limited to those able to participate in study abroad programs (Sercu 2023). [35]

In Europe, the idea of IaH was first presented as an alternative to traditional mobility programs in the late 1990s. The concept was defined by Crowther et al. (2001) as 'any internationally related activity except outbound student and staff mobility,' and later refined by Beelen and Jones (2015) as 'the purposeful integration of international and intercultural dimensions into the formal and informal curriculum for all students within domestic learning environments.' This evolution marks a significant expansion in the scope and intentions of IaH initiatives.

IaH initiatives considerably increased in recent years, which is also reported in the EAIE Barometer: 56% of universities in Europe have included IaH in their policies, while 64% of European universities claim that they undertook activities for IaH (EAIE 2015). Additionally, findings in the last few years show that IaH is clearly identified by HEIS as an important area of internationalisation (EAIE 2018). However, at the same time, findings from EAIE 2018 show that, although internationalisation at home was highly on the priority of HEIS, undertaken activities related to internationalisation at home were fewer (46% in 2015 vs 21% in 2018).

The main goal of IaH is to give local students essential opportunities to gain international experiences crucial for their future employability (Slotte and Stadius 2019). Therefore, IaH strives to equip local students with the same success factors as those in more privileged regions. To achieve this, IaH incorporates international elements into curricula, campus life, and faculty, promotes intercultural dialogue, and fosters a global mindset within universities (Leask 2009).

Ben Malek (2023) highlights that adopting IaH provides HEIS with additional tools and methods of internationalisation to promote a modern, equitable, and inclusive global society. This approach allows students and staff to gain international experience without leaving
[36] their home universities. Consequently, IaH ensures that all students receive global perspectives within their study programs, regardless of their physical mobility. It also engages all staff members, not just academics and international officers, supported by informal (co-)curriculum activities across the institution (International Association of Universities 2007). IaH effectively utilises classroom cultural diversity for inclusive learning, teaching, and assessment practices. Additionally, it fosters intercultural encounters within the local community by encouraging purposeful engagement with international students (Beelen 2011; Leask 2009).

To maximise its benefits, IaH should be integrated into the university's strategic plan rather than treated as an additional activity. This integration requires intentional efforts from policymakers, management, and staff to embed the international dimension into the institution's overall policy. According to Ben Malek (2023), this process should be deliberate and translated into actions across various levels (management, academic, administrative staff, students) and areas (education, research, society). IaH should serve as a tool to enhance the quality of teaching and learning, addressing the needs of every society. Consequently, every university should develop a strategy for internationalisation at home, rooted in intercultural sensitivity and communication, valuing diverse cultures for their contribution to global citizenship (Elkin, Farnsworth, and Templar 2008). It is a comprehensive process involving all institutional stakeholders, ensuring inclusiveness as a foundation for any successful IaH strategy and guaranteeing the sustainability of its outcomes.

Previous research (Bocanegra-Valle 2015; Planken 2005; Shaw 2006) emphasises the need to focus more on the expansion of internationalisation in higher education. For instance, in Bologna, there is a recent trend to review academic needs and update syllabi (Bocanegra-Valle 2016). Aguilar (2018) notes that popular practices to internationalise education in Europe and globally include English-medium instruction (EMI) and developing intercultural communicative competence (ICC). Internationalisation in higher education has already transformed classrooms into 'small international spaces,' where local students can de-

velop intercultural skills (Aguilar 2018). Aguilar argues that professionals need to be interculturally and linguistically competent due to the increasingly globalised world. Therefore, developing these crucial skills is widely accepted within courses designed to prepare professionals for a globalised environment (Aguilar 2018). [37]

Teekens (2003) observes that university classrooms have evolved into spaces for exchange between local and international students and staff, creating fertile grounds for internationalisation. However, Lantz-Deaton (2017) argues that developing ICC should not be left solely to the efforts of local and mobile students in international academic programmes. Universities should also contribute by providing intercultural curricula, extra-curricular activities, research, scholarly collaboration, and other external relations (Knight 200 in Aguilar 2018, 28). Several studies (Aguilar 2016; 2018; Bocanegra-Valle 2015; Planken 2005; Shaw 2006) recommend that educators, decision-makers, and textbook designers base their teaching practices on ICC theories and models to integrate ICC as a learning outcome.

In this vein, there is a range of tools that is useful in achieving different levels of internationalisation at home. The tools include, for example, international literature, case studies, guest lecturers, short-term study visits, virtual mobility, incoming student mobility, etc. (Beelen and Leask 2011).

Nevertheless, IaH has several drawbacks despite its benefits. IaH's efficacy and acceptance are hampered by misconceptions, like confusing it with English language training or seeing it as a less desirable alternative to mobility programs. Furthermore, the lack of readiness by academics to implement IaH frequently hinders its integration into teaching and learning methods (Beelen and Leask 2011).

Students' Intercultural Competencies

Cultivating students' intercultural competence has shifted from an added-value side effect to an all-persuasive motive in a market-driven and globalised educational sector. The first issue to consider is how to create intercultural learning opportunities that benefit all students. This is important because all graduates, whether they seek a career in the communities they originate from or move away, must be equipped to function in a globalised world as a professional and global citizen (Hermans 2017; Trunk et al. 2022).

According to Leask (2009), IaH is considered an opportunity to help

develop intercultural competencies for all students, not only for those participating in mobility or for incoming international students. While many students hope to study abroad to develop intercultural skills, not everyone can. Fortunately, educational institutions are realising how
[38] critical it is to develop intercultural abilities in students by utilising various techniques that bring global experiences to the students' doorstep. Internationalisation of curricula, foreign guest lecturers, international face-to-face and virtual classes, and intercultural collaborative learning are some ways through which internationalisation can be achieved at home.

Intercultural competencies encompass a spectrum of knowledge, skills, and attitudes that enable individuals to engage successfully with people from different cultural backgrounds. Scholars like Erdei and Kodácsy (2020) emphasise the importance of contextual knowledge about various cultures, which is integral to effective communication and collaboration. Deardorff (2006; 2009) defines intercultural competence as the capability to act both effectively and appropriately in intercultural situations, underpinned by specific intercultural knowledge and attitudes. Leeds-Hurwitz (2017) pointed out the importance of acknowledging and celebrating cultural variety. Furthermore, employers prioritise intercultural abilities over specific academic majors, demonstrating that the capacity to handle cross-cultural relationships is not only a good academic skill but also a vital employability aspect (Hart Research Associates 2015).

ICC expands Hymes' concept of 'communicative competence' by adding an intercultural dimension. According to Byram, Gribkova, and Strakey (2002), ICC aims to develop learners into intercultural speakers or mediators who can navigate complexity, embrace multiple identities, and avoid the stereotyping that comes from viewing someone through a single identity (p. 9).

The necessity for ICC arises from the 'accelerated interconnectedness' (Dewey 2007) among cultures and the essential need for communication between them (Patil 2014). Achieving ICC involves students acquiring the necessary knowledge, skills, and attitudes to communicate effectively across cultures (Parmenter 2003).

The importance of fostering ICC alongside linguistic competence stems from learners' need to develop intercultural skills for cross-cultural communication, where they might face linguistic and cultural barriers. This development aims to make them both interculturally and

linguistically competent. Ben Malek (2016) emphasises that educators must transition from traditional approaches to an intercultural perspective to cultivate both linguistic and intercultural competences in learners (Kiet Ho 2009).

Despite the recognized value of ICC, there are still a lot of obsta- [39]
cles to overcome before it can be fully integrated and utilised in educational frameworks. One of the questions related to ICC is how to assess whether students possess these critical competencies. In addition, assessments are needed to determine whether the abilities and skills underlying ICC improve during the student's university tenure. According to Fantini (1999), the lack of a single agreed-upon definition for ICC highlights not only the complexity of teaching and learning ICC but also the need to approach the concept from a multidisciplinary perspective. ICC should be understood in relation to the specific discipline, field, or context in which it is applied. Consequently, the assessment of ICC must adapt to these varying factors. The learning objectives of the target learners play a crucial role in evaluating ICC. To achieve this, ESP teachers can employ assessment methods such as journals and student portfolios. These methods allow for data triangulation, enhancing both validity and reliability (Yu 2012). Focus groups, cultural autobiographies, and reflective essays are also examples of qualitative assessments; culturally sensitivity ratings and pre- and post-tests are examples of quantitative measurements (Luo and Chan 2022; Griffith et al. 2016). These tools support educators and administrators in evaluating the success and effectiveness of intercultural education initiatives.

RESEARCH METHODOLOGY: CASE STUDY

Presentation of the Case Study (MED2IaH Project)

Within the contribution framework, we set out the research approach of the case study, which applies to the Erasmus+ MED2IaH project.

The Erasmus+ project Mediterranean Countries Towards Internationalisation at Home (MED2IaH) was held in the period from 2020 to 2023, in cooperation with four Higher Education Institutions (HEIS) and one NGO from Programme Countries from Europe (two from Slovenia, one from France, one from Spain, and one from Italy) and twelve Partner HEIS from Mediterranean Partner Countries (three from Morocco, three from Tunisia, two from Egypt, two from Jordan, and two from Lebanon).

The main objectives of the project included: to outline international-

isation landscapes of non-EU Southern Mediterranean partner countries universities (PCUS); to identify the levels of integration of international and intercultural dimensions into their formal and informal curriculum; to improve their capabilities for internationalisation
[40] through staff training, and to translate general awareness of the IaH concept into streamlined institutional strategies and Action Plans, while also transforming partner countries HEIS' International Relations Offices (IROS) into vibrant multicultural focal points to build students' intercultural knowledge and sensitivity to cultural diversity.

Our research focuses on extracurricular activities aimed at establishing an intercultural university environment and promoting internationalisation at home. These have been achieved at 12 HE institutions from non-EU Southern Mediterranean countries through different extracurricular activities and events organised on or outside the campuses.

Brief presentation of activities:

- *FRIENDS TeaHouses: Meeting the Cultures*. FRIENDS TeaHouses, i.e. university intercultural environments, were established at each PCU and were intended to be a space where local and international students could meet, gather, create, share, interact and learn from each other. It was also a space that supported various educational, cultural, and social programs. FRIENDS TeaHouses' main aim was to strengthen the internationalisation capabilities of universities from non-EU Southern Mediterranean countries, and particularly to enhance the international experiences of both local and international students and staff by engaging them in several activities of FRIENDS TeaHouses initiatives. In the project MED2IaH, each partner provided a social place for FRIENDS TeaHouses in the frame of university infrastructure, presumably near the International Relations office. Each PCU also prepared a code of conduct for each established FRIENDS TeaHouse. Digital storytelling activities, small intercultural activities, and intercultural festivals, which are presented further on, were also considered to be part of the university intercultural environment of PCUS.
- *Production of Intercultural Digital Stories*. The process of digital storytelling was carried out over 12 months. Digital storytelling activities were carried out at each PCU, resulting in a total of 94

digital stories being created. The primary topics addressed in the digital stories were the significance of honouring intercultural disparities, rejecting cultural stereotypes, depicting the intercultural encounter while journeying to a foreign nation, and showcasing the cultural abundance of one's native land. Every digital [41] story was meticulously assessed at each PCU using standardised criteria. The winners of the top three digital stories from each PCU were chosen and then invited to participate in the Student Boot Camp in Slovenia.

- *Student Boot Camp: International Summer School.* The Student Boot Camp (SBC) took place in Piran, Slovenia, in the summer 2022. The camp brought together students from partner universities in the Southern Mediterranean region who produced the most exceptional digital narratives on interculturalism. It was attended by students from all 12 PCUS; students from 9 PCUS attended the activity in person, while students from other 3 PCUS joined remotely, due to obstacles in obtaining a visa. Throughout the two-week programme, students participated in a series of seven modules that focused on interculturalism, innovation, creativity, leadership, art, and event management. In addition, they assisted in the development of strategic documents pertaining to the internationalisation of their respective universities. The Boot Camp gathered a total of 34 students and 20 lecturers.
- *Implementation of Small Intercultural Activities and the Multicultural Festivals.* Universities arranged intercultural activities (small intercultural activities and large intercultural festivals) to augment students' multicultural consciousness via extracurricular events. The majority of activities were held at FRIENDS Tea-Houses, which were established as part of the MED2IaH project to facilitate the promotion of internationalisation within local communities. Between June 2021 and June 2023, a total of 60 small intercultural activities took place at 11 institutions, with each university organising a minimum of two activities. The activities encompassed linguistic tea exchanges, cultural difference explorations, digital storytelling, Arab day, virtual exchanges, African week, English conversation cafés, musical events, theatrical performances, movie days, Japanese days, and cultural diversity seminars. Between June 2022 and June 2023, institu-

tions organised a multicultural festival that included exhibitions, activities for both national and international students, and debates on intercultural topics. In total, 11 multicultural festivals were carried out at 11 PCUS.

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Research Design: Data Collection Method

The research design is a qualitative case study of MED2IaH. Within this study, we primarily analysed the following activities: FRIENDS Tea-Houses, Student Boot Camp, small intercultural activities, and multicultural festivals.

The research questions of our study are: (1) how did extracurricular activities implemented within the MED2IaH project contribute to internationalisation at home? (2) how did these activities enrich the development of intercultural competencies of all students?

The development of interculturally competent students should be the anticipated outcome of internationalisation efforts in higher education institutions. Therefore, besides curricular activities, internationalisation can be promoted via extra-curricular and co-curricular activities.

Extra-curricular activities are an effective way to help students develop intercultural competencies and to promote internationalisation at home. Extra-curricular activities offer chances for global awareness, leadership development, cross-cultural communication, cultural exposure, and personal growth – all of which are crucial elements of a well-rounded and globally competent education.

We used the following methods to collect data:

- A survey with closed and open questions for the Student Boot Camp (SBC): The research was not sampled. Although all participants were invited to participate in the survey, only 41 out of 54 participants responded to it. With the survey we wanted to receive answers from Boot Camp participants on the following topics: the innovative learning and teaching approaches at SBC compared to studies at their home universities; the impact of SBC on the development and enhancement of competencies, skills, and knowledge observed at SBC, and the impact of SBC activities on internationalisation at home.
- Documentation analyses: Reports about the implementation of small activities and intercultural festivals. All institutions re-

ported their small activities (in total, 60 small activities and 11 large intercultural festivals were reported). With the reports we mainly expected to receive answers from the organisers of intercultural activities on the kind of impact these activities had on students and their institutions. [43]

- Documentation analyses: Institutional reports about FRIENDS TeaHouses functioning. Institutional coordinators of FRIENDS TeaHouses reported their views on the functioning of FRIENDS TeaHouses and how intercultural activities can promote IaH and encourage the development and enhancement of students' intercultural competencies.

For data processing, we used the following methods:

- For the survey, we processed quantitative data with descriptive statistics, while qualitative data were processed with text analysis, specifically creating categories.
- For documentation analysis, we applied text analysis to the reports received from coordinators on the implementation of intercultural activities and FRIENDS TeaHouses functioning.

ChatGPT was employed as an analytical instrument to scrutinise the contents of sections 'Analyses of the Survey with Closed and Open Questions on Student Boot Camp' and 'Documentation Analyses: Institutional Reports about FRIENDS TeaHouses' Functioning,' which entailed the analysis of surveys and documents in the research study. In the the first the ChatGPT was utilised to analyse surveys and classify qualitative data obtained from survey responses. This facilitated the identification of important categories and valuable insights derived from the participants' input. The latter section involved the utilisation of ChatGPT to examine documentation pertaining to the operations of FRIENDS TeaHouses. This entailed examining reports submitted by university coordinators and extracting noteworthy themes and findings.

A limitation of this research is that some participating PCUS did not offer information about the operations of Friends TeaHouses and their intercultural programmes and festivals. Submitting only a portion of the data may result in incomplete findings. Students who participated in the SBC online found it challenging to evaluate the impact of the SBC as efficiently as those who attended in person in Slovenia. This discrepancy in participation mode may result in varied perceptions

and experiences, potentially leading to biased or inconsistent findings. Another constraint is the subjective character of certain data gathering techniques, such as surveys and reports, which depend on self-reported data that can be impacted by human biases or interpretations.

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Analyses of the Survey with Closed and Open Questions on Student Boot Camp

Below, we present analyses of the feedback survey that participants in SBC were invited to fill in.

Of the 54 participants, 41 completed the questionnaire. Among the respondents, there were 28 students and 13 teachers. 26% of all the respondents were male, and the rest (74%) were female. The majority of respondents were from HEIS in Lebanon (12), followed by Tunisia (8), Jordan (5), Egypt (4), Morocco (3), Slovenia (2), and Spain (1). Six respondents did not declare the name of the HEI they were from. According to the collected data, the questionnaire was completed by participants from 11 out of 12 HEIS from Mediterranean Partner Countries. The majority of respondents (28) attended activities in Slovenia over a two-week period. A portion of the participants (7) travelled to Slovenia for a limited duration and participated in activities that were conducted both in-person and online. Another group (6) faced visa-related challenges and could only engage in the activities remotely.

In the open questionnaire, we asked the participants about the most valuable lessons learned during the SBC. We gathered the lessons learned into the following themes:

- Innovative teaching and learning enhancement;
- Impact of SBC on the development and enhancement on competencies, skills, and knowledge;
- Impact of SBC on IaH.

Innovative Teaching and Learning Enhancement

The SBC offered a profound opportunity for participants to engage in innovative teaching methods and improve their learning abilities. Participants praised the individualised and nurturing learning and teaching method, which cultivated a favourable classroom environment and promoted open dialogue and innovation. The professors' proficient and dynamic involvement inspired students and enhanced the enjoyment

and effectiveness of learning. SBC's utilisation of innovative techniques and widespread integration of technology starkly diverged from conventional approaches in higher education. The SBC programme offered interactive sessions and workshops that fostered dynamic engagement and encouraged active involvement. Students valued the pragmatic approach, which urged them to think creatively and to adjust to diverse cultural contexts, greatly expanding their outlooks and abilities. Grajcevci and Shala (2016) highlight the significance of individualised instruction and the integration of technology in education, asserting that these factors are essential for educational transformation and continuous learning. Their observations align with the SBC experience, illustrating how customised learning tactics and the incorporation of technology can foster more captivating and efficient educational settings. Todaro (1995) argues that non-formal education is more suited to meeting students' needs and to fostering a profound comprehension of oneself and the world. Non-formal education typically places the student at the forefront, providing a flexible and customisable approach that caters to their own needs and interests. It also quickly adapts to the changing demands of individuals and society. [45]

Within this topic, we can highlight the different roles of teachers in formal and informal curricula, as perceived by the study participants. These differences mainly relate to:

- Teachers' approach in terms of personalisation and support (Category 1)
- Teaching methods and teachers' professional engagement (Category 2)

To support this, we present some interesting responses regarding Category 1:

- 'I am very satisfied with my experience with the SBC teachers. They continuously check on us if we are happy with our learning experience, have any questions, or if there is anything that we need to discuss.'
- 'Honestly, they treated us as friends, which is important to create a good vibe inside the classroom for better communication and results. The way of explaining, their trust, and enthusiasm for us was great enough to invent many things and break the barrier of fear and hesitation. Their orders were a relaxed way to finish our tasks. It was based on a friendly approach.'

- 'Teachers at SBC supported me more than my teachers in my university, they gave me support, respecting my differing opinions and point of view.'

[46] We also present some responses regarding Category 2, Teaching methods and teachers' professional engagement:

- 'I found teachers very professional; they were very excited to teach us.'
- 'In the SBC classes were more interactive and had more focus on the students.'
- 'The SBC atmosphere encouraged me to create good ideas and involve myself in projects that could help future students. The Boot Camp is based on practical parts and workshops, and I needed to think out of the box. Besides, the mode of study was distinguished to break any barriers of traditional education.'
- 'I learned new digital, technical, hard and soft skills that helped me develop my skills and knowledge.'

Impact of SBC on the Development and Enhancement on Competencies, Skills, and Knowledge

The most valuable skill obtained was intercultural communication. This skill enabled participants to proficiently engage with others from many cultural backgrounds. Through immersing themselves in the lives and professional environments of people from many cultural backgrounds, they successfully dismantled preconceived notions, fostered tolerance, and gained a genuine understanding and admiration for the distinctions across cultures. The SBC environment fostered increased transparency, flexibility, and reverence. These experiences cultivated self-awareness and the capacity to excel in multicultural environments, instructing participants to appreciate variety and gain a deeper understanding of others. Theories on intercultural communication and competence, such as Bennett's (1993) Developmental Model of Intercultural Sensitivity and Deardorff's (2008) Process Model of Intercultural Competence, argue that being exposed to and actively engaging with diverse cultures promotes higher levels of intercultural sensitivity and competence. These theoretical frameworks emphasise the significance of experiences such as SBC in fostering the capacity to traverse and value cultural disparities, ultimately leading to personal and professional advancement in a globalised society.

The collaborative atmosphere and joint endeavour at SBC were seen as significant catalysts for personal and professional growth. Despite encountering cultural misconceptions and variations in communication approaches, the collaboration among participants was deemed successful. Participants acquired the skills to proficiently communicate [47] ideas and collaborate towards common goals, despite encountering initial obstacles.

Their learning experience was enriched by exposure to a range of social and cultural contexts, which stimulated more creativity and openness to diverse perspectives. The skills and information obtained from SBC, such as managerial expertise, excellent communication, strong leadership abilities, and cultural adaptability, equipped students with the self-assurance to actively participate in many settings. These interactions are expected to have a lasting impact, improving their future career prospects and personal connections by fostering a global perspective and an appreciation for cultural diversity.

Within this topic, we can highlight how SBC helped participants in improving and enhancing several competencies and skills, and contributed to their personal and professional growth, as perceived by the participants of the SBC activity.

The competencies, skills and knowledge that students mainly improved during SBS refer to:

- Intercultural competencies (Category 1)
- Communication skills (Category 2)
- Teamwork, collaboration (Category 3)
- Personal and professional development (Category 4)

Further on we present some responses regarding Category 1, Intercultural competencies:

- 'Intercultural skills, the importance of diversity, communication skills, etc., all of which are essential in the 21st century.'
- 'Understanding others' cultures.'
- 'The SBC taught me not to stereotype cultures.'
- 'Understanding differences, being a flexible person.'
- 'I now know more about my value towards others, for instance, honesty, loyalty, generosity, passion, and punctuality.'
- 'This was the first time I worked in an intercultural group. At first, it was hard: we had many differences, either culturally or person-

ally. We ended up becoming very good friends and cooperated successfully.'

- 'It made me more tolerant, patient and not afraid to ask questions about other cultures.'

[48] Further on we present some responses regarding Category 2, Communication skills:

- 'I improved my communication skills in general and active listening skills.'
- 'I am more comfortable speaking English with other students and with teachers.'
- 'For me, the most important competence that I learned was intercultural communication. I learned how to communicate with anyone, no matter where they are.'

Further on we present some responses regarding Category 3, Teamwork, collaboration, openness:

- 'Working in a group was very successful. However, our weakness was communication. Some had a harsh and direct way of communicating, while others preferred an indirect one.'
- 'The overall cooperation in the group was good. The cultural misunderstanding that happens is the only weakness that I faced, which was not a barrier to communication and interaction.'
- 'The strengths are that we used to share ideas to achieve the best work, the weaknesses is that some students wanted only their ideas to be displayed.'
- 'Working with people from different environments and cultures makes us more creative and helps us to be more open to different ideas.'

Lastly, we present some responses regarding Category 4, Personal and professional development:

- 'I learned all of the good things, such as management, communication, leadership and the culture.'
- 'I improved my organisational and management skills, such as organising and managing activities of TeaHouses. I improved my communication and presentation skills. I have become more organised and more self-disciplined.'
- 'I have acquired new skills that allow me to communicate cross-culturally and internationally.'

- 'The knowledge I learned will definitely help me in my future career.'

Impact of SBC Activities on Internationalisation at Home

The SBC experience significantly influenced participants' comprehension and execution of internationalisation within their own country. [49] Students acquired excellent skills in event organisation and cultural initiative, which they intended to utilise at their universities by arranging cultural activities and implementing smart internationalisation initiatives. They acquired knowledge on how to improve student involvement and empowerment, by sharing their SBC experiences to inspire and engage their classmates. The SBC also expanded their cultural consciousness and worldwide outlook, highlighting the significance of accepting diversity and openness in their respective nations. In addition, the participants were acquainted with sustainability efforts and activities that foster social unity, while also acquiring knowledge of innovative teaching techniques and collaborative prospects to assist international students. These experiences and talents are anticipated to have a positive impact on both their universities and countries, promoting greater inclusivity.

Some students joined activities online, and their main point stressed via survey was that they liked the SBC and its way of delivery, but they did not have such an intercultural experience as the students who participated in activities in Slovenia.

The SBC significantly enhanced student competencies through interactive learning modules, fostering communication, teamwork, and leadership skills. Through a focus on intercultural comprehension and the provision of hands-on experiences, SBC successfully equipped students for global involvement. Furthermore, SBC actively supported the internationalisation objectives of individual universities by involving students in creating strategic documents on home internationalisation and encouraging cultural variety inside their home universities.

In the same vein, research on short-term mobility programmes emphasises the significant benefits of studying abroad, such as gaining exposure to diverse people, cultures, ideas, attitudes, and learning and working methods. Additionally, studying abroad can greatly contribute to enhancing IaH by promoting global competencies and intercultural understanding among students who may not have the chance to study abroad (Jones 2013).

This topic explores how SBC experiences have enhanced student involvement at their home universities and the potential impact of these experiences on the internationalisation process at their home institutions.

[50] The impact on IaH, based on feedbacks by respondents, mainly relates to:

- Enhancing Student Engagement and Empowerment (Category 1)
- Cultural Initiatives, Cultural Awareness and Global Perspective (Category 2)
- Sustainability Initiatives and Social Cohesion (Category 3)

Below are some typical responses on the three types of impact on IaH. Enhancing Student Engagement and Empowerment (Category 1):

- 'I received valuable knowledge and skills, which will help me to engage in FRIENDS TeaHouses activities at my home university actively.'
- 'I share my experience with my other colleagues who did not go to Boot Camp.'

Cultural initiatives, Cultural Awareness and Global Perspective (Category 2):

- 'I learned how to deal with students with different backgrounds and cultures.'
- 'Being an open country that accepts differences is very important.'
- 'I learned about cultural activities that could be done in the university.'

Sustainability Initiatives and Social Cohesion (Category 3):

- 'New perspective on teaching, possible collaboration opportunities.'
- 'Good practices on how to interact with international students and how to offer them help.'

The examination of the SBC survey responses highlights the significance of the programme in improving inventive pedagogical approaches, in fostering cross-cultural skills, and in promoting internationalisation within the local context. The SBC offered an opportunity for participants to gain crucial skills, expand their horizons, and actively contribute to the internationalisation initiatives at their respective institutions. The programme's efficacy in cultivating intercultural

engagement and establishing a global attitude among students underscores its importance in equipping them for an interconnected world.

Documentation Analyses: Reports about the Implementation of Small Activities and Intercultural Festivals [51]

Feedback on the delivery of intercultural activities were gathered through an online survey filled in by university coordinators. Reports were submitted by 11 out of 12 PCUS.

Reports show that most of the small activities had a duration of 1 day, and some of them were held in a few weeks or few months. In total 60 small activities were organised at 11 PCUS. Each university organised, on average, 5–6 intercultural activities, with a minimum of 2 small activities. The majority of the small activities were attended by 20–30 participants.

Multicultural festivals were considered as larger activities, attended by 200–300 participants per institution. In total 11 multicultural festivals were organised at each PCU in the frame of MED2IaH project.

According to the observations of coordinators, all the intercultural activities greatly contributed to IaH and to the intercultural competencies of students. Each university is also eager to organise such activities in the future.

On the question of impact of intercultural activities on students, the main feedback was:

- 'Students learned about the culture in a fun and effective way.'
- 'Raised awareness about different cultures.'
- 'Students developed attitudes: openness and curiosity towards diversity; tolerance of ambiguity.'
- 'Skills: empathy; dealing with conflicts.'
- 'Students developed attitudes: openness and curiosity towards diversity; tolerance of ambiguity.'
- 'Knowledge of cultural differences in communication.'
- 'Strengthening link between international and home students.'

Concerning the impact of activities on home institutions, the main feedback was:

- 'Activities contributed to capacity building at the level of institutions.'
- 'Activities contributed to ttrengthening links between international and home students.'

- 'Activities contributed to developing IaH.'

The examination of the documentation reveals that the implemented activities have enhanced cultural comprehension and empathy, as well as increased institutional capacity and student involvement. The re-
[52] sults align with the research objective of creating an educational setting that is inclusive and culturally varied, emphasising the importance and efficacy of extracurricular intercultural initiative.

Documentation Analyses: Institutional Reports about FRIENDS TeaHouses' Functioning

PCU (institutional coordinators of FRIENDS TeaHouses) were asked to reflect on the impact of intercultural activities in FRIENDS TeaHouses on IaH, as well as on how they perceive the operation of FRIENDS TeaHouses at their universities in the future, and how intercultural activities can impact the development of students' intercultural competencies. Feedback reports were filled in by 9 out of 12 PCUS.

We divided feedback into the following themes:

- Impact of intercultural activities in FRIENDS TeaHouses on IaH;
- Perception of future FRIENDS TeaHouses operation for IaH;
- Impact of the intercultural activities in FRIENDS TeaHouses on the development of intercultural competencies of students.

Impact of Intercultural Activities in FRIENDS TeaHouses on IaH

Vibrant intercultural environments provide an opportunity to develop global competences and to internalise cultural values at home (Dermol et. al. 2021; Earley and Ang 2003). The FRIENDS TeaHouses serve as crucial facilitators in fostering intercultural awareness and competency among professors and students through the organisation of a wide range of activities that both celebrate difference and promote flexibility and empathy. Language learning sessions and the encouragement of multilingualism are crucial elements that improve students' linguistic aptitude. The informal curriculum, enriched by interactions with persons from other cultures, extends beyond mere learning of knowledge to include genuine discourse and active engagement. Participating in activities such as multicultural staff and student training sessions is essential for cultivating intercultural awareness and proficiency. These activities also foster relationships between educators and learners from around the world through the use of online resources.

This topic explores FRIENDS TeaHouses as important drivers of IaH, and as promoters of interculturalism. Below are some typical responses:

- 'Possibility of getting global competencies, and achieving cultural benefits without crossing borders.'
- 'International aspect within informal curricula, though not only knowing about other cultures but also through communicating with members of other cultures.'
- 'Experience of multicultural staff and students training.'
- 'Celebrating diversity and calling for inclusiveness through the wide number of activities set through FRIENDS Tea-Houses.'
- 'Support and enhance broader internationalisation efforts within the universities.'

The documentation study of FRIENDS TeaHouses emphasises their crucial function in bolstering universities' internationalisation goals, cultivating inclusive and intercultural atmospheres, and preparing students for a globally interconnected society.

Perception of Future FRIENDS TeaHouses' Operation for IaH

FRIENDS TeaHouses have a crucial role in promoting and boosting universities' internationalisation efforts, especially in connection to a comprehensive internationalisation at home. They can play a crucial role in fostering a worldwide perspective among the academic community and facilitating the broader internationalisation strategy of educational institutions. Particular focus should be on constantly assessing and gathering feedback from participants to track the successful execution of activities in FRIENDS TeaHouses and their effect on IaH (Luo and Chan 2022; Griffith et al. 2016). FRIENDS TeaHouses should function as primary gathering places for both local and international students, who are tasked with coordinating and executing intercultural activities. Furthermore, FRIENDS TeaHouses should serve as training centres for intercultural communication, promoting the involvement of international students and encouraging their interaction with local students.

This topic explores the future role of FRIENDS TeaHouses in promoting IaH through intercultural activities and engagement. Typical responses include:

- 'Forming a nucleus of local and international students who are

mainly responsible for preparing and conducting intercultural activities within FRIENDS TeaHouses.'

- 'Celebrating regular monthly and yearly intercultural events within FRIENDS TeaHouses.'

[54]

- 'By offering diverse intercultural programs.'
- 'FRIENDS TeaHouses as an environment for training students and staff in intercultural communication.'
- 'Evaluating activities regularly and gathering feedback from participants and students is also important.'

Impact of Intercultural Activities in FRIENDS TeaHouses on the Development of Intercultural Competencies of Students

Intercultural competence is the ability to communicate effectively and appropriately in intercultural situations, drawing on one's intercultural knowledge, skills, and attitudes (Deardorff 2006). Intercultural activities in FRIENDS TeaHouses help develop intercultural competencies through practical engagement and reflection. Participating in these non-formal activities allows students to reflect on their cultural identity and biases, leading to a deeper understanding of different values, beliefs, and customs. This process enhances students' awareness of diverse cultures, thereby fostering a more inclusive and globally proficient academic environment.

This topic explores how engagement in non-formal activities of FRIENDS TeaHouses had an impact on the development and enhancement of students' intercultural competences. Some of the feedbacks include:

- 'An opportunity for students to reflect on their own cultural identity and biases.'
- 'Activities offered students the opportunity to gain a deeper understanding of different values, beliefs, and practices.'
- 'Students had the opportunity to meet with international students, which helped them become aware of other cultures.'
- 'FRIENDS TeaHouse is a platform for students from different communities to interact, learn, and understand each other's culture, promote tolerance, mutual respect, and understanding between students, and appreciate the diversity.'

DISCUSSION

The findings of this study underscore the significant impact of extracurricular activities on internationalisation at home (IaH) and the development of intercultural competencies among students. The MED2IaH project, through various initiatives such as FRIENDS TeaHouses, Student Boot Camp, and multicultural festivals, has demonstrated the potential of such activities to enhance intercultural engagement and awareness in higher education settings (Nikolić and Dermol 2022). [55]

Main Research Findings

The analysis revealed several key outcomes:

- *Enhanced Intercultural Competencies.* The students who participated in the extracurricular activities exhibited a marked improvement in their intercultural skills. This was evident from the qualitative feedback and survey responses, where participants noted a greater ability to navigate and appreciate cultural differences. Similar to MED2IaH, various studies on the Erasmus+ programmes have shown that students participating in Erasmus+ mobility projects exhibit significant improvements in intercultural competencies. For instance, a study by Teichler and Janson (2007) found that Erasmus students developed greater intercultural understanding, adaptability, and openness, which were attributed to their exposure to diverse cultures during their exchanges.
- *Positive Impact on Internationalisation at Home.* The initiatives promoted by the MED2IaH project have significantly contributed to IaH by creating inclusive environments that encourage cross-cultural interactions among students. The FRIENDS TeaHouses, in particular, played a pivotal role by serving as hubs for intercultural dialogue and activities. In this vein, ISL programs, which combine community service with intercultural learning, have also demonstrated enhanced intercultural competencies among participants. Research by Tonkin and Quiroga (2004) on ISL programs highlighted that students who engaged in these programs showed increased cultural empathy, improved intercultural communication skills, and a better understanding of global interdependence. Another relevant project is the Global Perspectives Project, which integrated intercultural learning modules

into the curriculum and extracurricular activities. Research conducted by Deardorff (2006) on this project revealed that students who engaged in these modules displayed enhanced intercultural communication skills and a better understanding of global issues. The project's combination of classroom learning and extracurricular engagement was key to these outcomes.

[56]

- *Effective Use of Innovative Teaching Methods*. The Student Boot Camp (SBC) provided a platform for innovative teaching and learning methods, which were highly appreciated by participants. These methods not only enhanced learning experiences but also fostered a more engaging and interactive educational environment. This goes in line with the outcomes of programmes that provide cultural immersion experiences, such as cultural exchange camps and international volunteer opportunities, which have consistently reported positive outcomes in intercultural competency development. A study by Jackson (2008) on a cultural immersion program in Hong Kong found that participants experienced significant growth in their intercultural sensitivity and ability to engage with people from diverse cultural backgrounds.

Equally efficient is the use of virtual collaborative learning through providing online modules for students from different cultural backgrounds during the SBC. It contributed to the enhancement of their cultural awareness and intercultural competencies. COIL projects, which involve online collaborations between students from different countries, have also shown similar results. A study by Rubin (2017) indicated that students participating in COIL activities developed intercultural competencies comparable to those gained through physical mobility. The virtual interactions and collaborative tasks helped students navigate cultural differences and improve their intercultural communication skills.

Implications

The findings have several important implications for HEIS:

- *Integration of IaH into institutional strategies*. HEIS should consider incorporating IaH more comprehensively into their strategies. This involves creating opportunities for intercultural engagement that go beyond traditional mobility programs, making

international and intercultural experiences accessible to all students.

- *Support for extracurricular programs*. The success of the MED2IaH project highlights the importance of supporting extracurricular activities that foster intercultural competencies. Institutions should allocate resources and provide institutional support to such programs to maximise their impact.
- *Promotion of inclusive environments*. Creating inclusive environments where all students, regardless of their background, can participate in intercultural activities is crucial. This promotes a sense of belonging and enhances the overall educational experience.

Future Research Avenues

To build on the findings of this study, future research could explore the following areas:

- *Longitudinal Studies*. Conducting longitudinal studies to track the long-term impact of IaH initiatives on students' intercultural competencies and career outcomes would provide valuable insights into the sustained benefits of these programs.
- *Comparative Studies*. Comparative studies across different regions and institutions could help identify best practices and the most effective strategies for implementing IaH. This would enable a better understanding of how contextual factors could lead to the success of such initiatives.
- *Broader Impact Assessment*. Expanding the scope of impact assessments to include not only students but also faculty and local communities would provide a more comprehensive understanding of the benefits of IaH. This would help in designing more holistic programs that engage all stakeholders.

In conclusion, the MED2IaH project has demonstrated that extracurricular activities can significantly enhance intercultural competencies and support IaH. By integrating these findings into institutional strategies, HEIS can create more inclusive and globally aware educational environments. Future research should continue to explore and expand upon these foundations to further the effectiveness and reach of IaH initiatives.

CONCLUSION

The surge in internationalisation initiatives within educational institutions marks a significant shift towards fostering intercultural engagement among students. Universities are increasingly recognising the sig-
[58] nificance of promoting internationalisation within their campuses to enhance the intercultural competencies of all students, including those who do not take part in exchange programmes.

The MED2IaH project exemplifies the establishment of a diverse university atmosphere through innovative initiatives such as the FRIENDS TeaHouses gathering space and a diverse array of extracurricular activities. The different range of programmes, which include small intercultural activities, multicultural festivals and digital storytelling, have garnered positive feedback from both organisers and participants, highlighting their crucial role in fostering internationalisation within the local community.

The key findings suggest that these activities have improved students' understanding of different cultures, their ability to empathise with others, and their communication skills, therefore equipping them for active participation in the global community. The FRIENDS TeaHouses play a crucial role in facilitating cultural interaction and education, effectively connecting domestic and international students and promoting a strong feeling of community.

Engaging in extracurricular activities enables students to improve their intercultural skills. By engaging in social interactions with classmates from various cultural origins, students develop tolerance, respect, and appreciation for differences. Also, they acquire knowledge about various values, perspectives, and traditions, fostering attitudes of curiosity and empathy towards cultural differences.

Incorporating extra-curricular activities is a non-formal means of promoting intercultural engagement on campus, while supporting larger university-wide internationalisation initiatives. It emphasises how crucial it is to develop intercultural abilities in students as a decisive part of their educational path, equipping them to prosper in a world that is becoming more and more interconnected.

Overall, the MED2IaH project serves as a prime example of how extracurricular intercultural activities can successfully promote internationalisation within a domestic setting. The project increases students' global competence and strengthens the institutions' skills to provide a culturally rich and inclusive academic community by integrating in-

ternational and intercultural components into the university experience.

This case study emphasises the significance of consistent endeavours and strategic foresight in fostering intercultural engagement and internationalisation within HEIS. The success of the MED2IaH project serves as a valuable model for other institutions seeking to promote similar results, highlighting the importance of adopting comprehensive and inclusive strategies for IaH.

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IJEMS | SCIENTIFIC ARTICLE

The Use of Analytic Hierarchy Process for Measuring National Interests: Demonstrating the Case Study of the Changing Relevance of Libya for Italian Foreign Policy between 2011–2021

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The study employs the Analytic Hierarchy Process (AHP) to quantitatively assess the Italian national interests over a 10-year period (2011–2021) within the context of five states along the southern Mediterranean coast. By adopting a longitudinal approach, this research investigates the dynamics and relative significance of each state, thereby shedding light on potential shifts in Italy's foreign policy. The study introduces a comprehensive methodology for visualizing and analyzing national interests, offering valuable insights into the evolving geopolitical landscape of the Mediterranean region. The findings highlight the changing patterns and relative importance of these interests over the examined period, uncovering subtle shifts in Italy's strategic outlook. By offering a detailed examination of the Mediterranean region, this study presents a detailed understanding of the complex interplay between Italian national interests and the geopolitical dynamics of neighboring states. The visualization of this data provides an overview of the evolving relationships and power dynamics, facilitating informed decision-making and policy formulation.

Key Words: national interest, Italy, Mediterranean, foreign policy, Analytic Hierarchy Process

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INTRODUCTION

This paper investigates the strategic significance of advocacy and power projection in the Euro-Mediterranean region as drivers of Italian national interests and the subsequent enhancement of the country's international influence. While the measurement and prioritization of national interests have long been explored in foreign policy research,

there is a lack of widely disseminated methodologies providing quantitative outcomes crucial for informing strategic decision-making. The Analytic Hierarchy Process (AHP) is a method that incorporates both qualitative and quantitative factors, making it suitable for analyzing
[64] national interests and assisting decision-makers in setting priorities and allocating resources.

This paper utilizes the AHP methodology to examine Italian national interests in the Euro-Mediterranean region, with a specific focus on Libya. Within the study's framework, an assessment is made of the evolving significance of Libya in Italian foreign policy within the Mediterranean context, encompassing five nations along the southern shores of the Mediterranean (Morocco, Tunisia, Algeria, Libya, and Egypt). The objective is to identify the areas of Italian interests in this region and to evaluate the progression of these interests over time. The outcomes of this analysis will enhance the comprehension of international policy choices and contribute to a more effective formulation of the Italian foreign policy in the Euro-Mediterranean region.

THEORETICAL BACKGROUND

The concept of national interest has emerged alongside the formation of nation-states, a development closely linked to the Peace of Westphalia. According to Carl Schmitt, states engage in conflicts not primarily driven by abstract values but by their own interests. Values, in Schmitt's view, are pursued by states only when they align with their respective interests (Gaiser 2005, 17).

Defining national interest can be as challenging as attempting to define the abstract concept of 'good' in philosophy. Its complexity stems from various factors, primarily due to the close association between national interest and the dynamics of the nation-state-international system. Different schools of international relations (IR) offer diverse interpretations of national interest. In liberal theories, it is argued that national interests should be oriented towards fostering peace and harmony among states (Burchill 2005, 125). According to liberalism, the state is not monolithic, as in realist theories, because it involves a myriad of different actors and different interests (Morgan 2007, 25–26). However, Morgenthau's realism, which emphasizes the primacy of power and security in international relations, provides a contrasting perspective. In Morgenthau's view, states prioritize their own survival and the maximization of power in an anarchic international system.

This perspective highlights the competitive and conflictual nature of international politics, where national interest is fundamentally rooted in the pursuit of power and security (Morgenthau 1978).

The realist school of thought emphasizes that the dynamics of international politics are fundamentally shaped by the competition between national interests. Realists define national interest in terms of the preservation of a state's territorial and political integrity. Survival becomes the paramount national interest, with all other interests considered subordinate to it. Realists argue that without ensuring the state's existence and security, no other interests can be effectively pursued or guaranteed. Thus, the preservation of the state's survival forms the core foundation of the realist understanding of national interest (Dunne and Schmidt 2005, 164). [65]

The realist approach does not take into account the changing nature of interests independent of power factors. In this perspective, foreign policy, based on the state's capabilities, is seen as a continuous process aimed at ensuring survival, with interests considered constant (Robert and Sørensen 2003, 82). However, the determination of national interest goes beyond considerations of power and geography; it is also influenced by political traditions, ideals, internal forces, decision-makers, and historical experiences within the state. This perspective aligns with the neoclassical realist school of thought, which adopts a dual approach. According to this approach, the concept of national interest comprises two components: the (essential) elements inherent in the state's capabilities and the (changing) elements shaped by contextual factors. To effectively allocate resources, it becomes crucial to differentiate between the essential and changing elements of national interest. The necessary elements often encompass variable elements, the pursuit of which is deemed essential for national survival (Hoffmann 1995, 5). These interests are not mutually exclusive, they compete for attention and resources, and their intensity depends on the situation.

According to Glasier, a state's political, economic, military and cultural goals, which are necessary to preserve the integrity of the state, can be considered national interests (Jean 2008, 69–70).

As demonstrated, the definition of national interest encompasses various perspectives due to its inherent complexity. However, a common thread among these definitions revolves around the preservation of the nation-state. In the 21st century, the concept of national interest has evolved beyond its traditional, rigid interpretation of territorial in-

tegrity and political independence, taking into account the characteristics of political, social, and economic structures. Nevertheless, regardless of the specific definitions, the acquisition of an international position and the pursuit of state objectives remain key elements shared by
[66] different conceptions of national interest, ultimately aiming to achieve political and economic advantages.

Considering these aspects, I employ the concept of national interest as follows: I perceive national interest as persistent goals applicable across various sectors that the state strives to safeguard. In cases where these interests are compromised or endangered, the state uses available coercive means to protect them. These interests are not exclusive to any particular domain and may vary in their intensity.

SECTORS OF SECURITY

The conclusion of the Cold War unveiled previously overlooked dimensions of security that had been overshadowed by a predominant focus on the military aspects of a bipolar confrontation. This limited emphasis on security threats beyond the traditional military realm began to shift in the 1990s. During this period, a sectoral perspective on security emerged, championed by scholars like Barry Buzan, associated with the Copenhagen School. This perspective highlights the societal, economic, political, and environmental dimensions of security alongside military factors. By broadening the understanding of security, this approach recognizes the interconnectedness and interdependencies of various sectors in shaping the overall security landscape (Buzan and Wæver 2003).

Buzan's classification divides security threats in five distinct sectors: military, political, economic, societal, and environmental. While conceptually separate, these sectors are not independent entities but instead interact intricately, resembling the interwoven structure of a spider's web. Similar to the approach outlined in the Helsinki Final Act, Buzan's conceptualization of security adopts a comprehensive understanding that extends beyond a narrow emphasis on the military domain. It recognizes the need to consider multiple dimensions and sectors of security holistically. As a result, highlighting the interdependence between these dimensions and sectors becomes crucial for a comprehensive analysis of contemporary security challenges (Buzan, Wæver, and de Wilde 1998).

- *National interests in the military sector of security:* safeguarding sovereignty and territorial integrity, protecting the state's citi-

zens, enhancing deterrence capabilities, and fostering cooperative and neighborly international relations. These interests are vital for ensuring the autonomy and integrity of the nation, prioritizing the safety and well-being of its people, establishing a credible deterrent against external aggression, and cultivating collaborative partnerships with other countries. By pursuing these objectives, states strive to maintain a secure environment that upholds their national interests and contributes to regional and global stability. [67]

- *National interests of the economic sector:* ensuring economic prosperity and stability.
- *National interest of the political sector:* establishing a stable rule of law, guaranteeing the full respect of the law, creating a solid basis for the rule of law, protecting the constitutional order, pursuing an effective domestic and foreign policy, maintaining internal stability and the functioning of state institutions.
- *The national interests of the societal sector:* socio-political stability, maintaining the regulability of social processes, guaranteeing self-identity, ensuring the sustainability of language, culture, national traditions, values, religious and national identity, harmonising the rights and duties of the individual, society and the state, enforcing social justice, and generally protecting values that the members of society commonly share.
- *National interests of the environmental sector:* ensuring and preserving the environmental elements necessary to ensure social well-being (e.g. access to drinking water) (Gazdag 2007, 3–6).

Building upon Buzan's security theory and the aforementioned literature on national interests, I have identified Italy's interests in Libya through a comprehensive analysis:

- *Military sector:* protecting Italian citizens in Libya, preventing the infiltration of jihadist terrorism into Italy.
- *Economic sector:* ensuring stability of trade relations, guaranteeing energy security and contributing to diversification of supply.
- *Societal sector:* curbing illegal migration to Italy, reducing social tensions within Italy.
- *Political sector:* maintaining internal order and stability in Libya and a functioning institutional system.
- *Environmental sector:* preventing the spread of epidemics to Italy.

These defined interests reflect Italy's strategic priorities in Libya, encompassing a range of sectors that are critical to its national security, economic prosperity, social cohesion, political stability, and public health. By understanding and addressing these interests, Italy aims to
[68] protect its own welfare while contributing to the overall stability and well-being of the region.

METHODOLOGY: ANALYTIC HIERARCHY PROCESS

To facilitate decision-making, policymakers rely on models to allocate resources effectively. Qualitative methods like the Delphi technique and the Cross Impact Analysis have been used for decades. The Delphi method involves gathering expert input through questionnaires and iterative feedback rounds, while the Cross Impact Analysis examines interdependencies between variables. While these methods provide valuable insights, there was a growing need for quantitative approaches to enhance precision and data-driven decision-making. As a consequence, hybrid models combining qualitative and quantitative elements were developed for a more robust policy analysis (Norman-Helmer 1951). In a changed international environment by the end of the Cold War, the definition of national interests has become more complex and complicated (Jean and Napolitano 2005). Compared to the methods mentioned above, the Analytic Hierarchy Process (AHP) allows for decision making based both on qualitative and quantitative criteria.

The Analytic Hierarchy Process (AHP) is a methodology developed by Thomas Saaty in the 1980s for addressing multi-criteria decision problems. AHP was specifically designed to achieve a synthesis of subjective and objective elements by integrating both quantitative and qualitative methods. Its primary objective is to provide a structured framework for decision-makers to prioritize and evaluate alternatives based on a hierarchy of criteria. By incorporating the preferences of decision-makers and considering their relative importance, AHP enables a comprehensive and balanced analysis, enhancing the effectiveness and accuracy of decision-making processes. Saaty's development of AHP introduced a comprehensive, logical, and structured system for better comprehending decision problems. AHP achieves this by breaking down the problem into its components and organizing them hierarchically. This methodology proves particularly effective for addressing problems involving decision elements that are challenging to quantify and that require comparison. By employing a systematic approach

and considering both qualitative and quantitative factors, AHP provides decision-makers with valuable insights and facilitates informed decision-making processes (Duleba 2006, 1). Since the model was developed, it has become one of the most widely used multi-criteria decision methods among decision makers and researchers alike. Applications relevant to this study include the selection of the best alternative, the allocation and optimisation of resources, and the modelling of conflict resolution options (Vaidya and Kumar 2006). [69]

In the AHP model, the decision problem is represented through a multi-level tree structure. The top level depicts the goal, while the subsequent levels consist of criteria, sub-criteria, and alternatives. This hierarchical representation helps to organize and visualize the various components of the decision-making process, thus facilitating a systematic analysis and evaluation of alternatives.

The AHP model provides support for decision-making in situations involving competing objectives, making it suitable for evaluating national interests. Comprehensive assessment and measurement of all decision aspects, encompassing both quantitative and qualitative factors, is necessary when choosing between competing objectives. National interests, being inherently challenging to define, require a methodology capable of addressing non-quantifiable elements. Unlike the Delphi and the Cross Impact Analysis approaches, the AHP model enables the consideration of both measurable and less measurable factors by employing relative weights to establish a numerical relationship between elements within the hierarchy.

In AHP models, the decision process involves the following steps:

- Establishing the relative weights of the criteria.
- Evaluating alternatives based on the specified criteria.
- Weighting and aggregating the evaluations.

In the AHP model, pairwise comparison involves systematically comparing each criterion or alternative against every other criterion or alternative in order to determine their relative importance or preference. These comparisons are then used to derive priority weights, allowing decision-makers to quantify and prioritize the elements within the hierarchy.

In terms of national interests, the AHP method enables the establishment of a hierarchy among themes, sectors, and areas, facilitating decisions for resource allocation. Building upon the work of

Bozzo, Simon-Belli, and Batacchi (2005), who quantified Italy's national interests using the AHP methodology, this study aims to analyze the evolving significance of Libya in Italian foreign policy within the Mediterranean region. The analysis encompasses five countries (Morocco, Tunisia, Algeria, Libya, and Egypt) situated along the southern shores of the Mediterranean. Employing the same methodology, a longitudinal study will be conducted using data from 2011, 2016, and 2021 to assess potential changes in these states' relative importance to Italy. To maintain methodological consistency, the weighting scheme developed by Bozzo, Simon-Belli, and Batacchi (2005) for criteria and sub-criteria will be adopted.

[70]

Within the framework of the Analytic Hierarchy Process, this study examines Italy's interests in the Southern Mediterranean from three perspectives: socio-cultural, economic, and politico-military. These perspectives encompass the economic, political, and military sectors outlined in Buzan's concept of security. Since no hierarchical relationship exists among these different sectors, equal weight will be assigned to these three major aspects in the analysis. This approach avoids significant distortions in the results that could arise from weighting broad categories differently. Moreover, assigning equal weight to these aspects allows for a more accurate representation of the relative importance of each area. In essence, it facilitates a clearer understanding of whether Italy's connections to a particular country are primarily economic, cultural, or military in nature.

The following criteria and sub-criteria are used in the analysis (their weight – relative importance – is indicated with the percentage):

1 Societal-cultural aspects

- *Communication networks:* extent and intensity of communication and information flows between Italy and the other country – relative importance 28%.
- *Italians living abroad:* number of Italian citizens living in the country (this aspect is important because since 2006 Italians living abroad can vote, have a certain number of representatives in the legislature and are dealt with separately within the government) – relative importance 28%.
- *Migration:* including both legal and illegal migration, as both types of migration require the Italian government to develop policies and allocate resources. Due to changing societal

attitudes towards migration, illegal migration has a higher weighting (90–10%) – relative importance 21%.

- *Influence on Italy:* cultural influence of another country on Italy – relative importance 11%.
- *Influence by Italy:* cultural influence of Italy on the other country – relative importance 11%. [71]

2 Economic aspects

- *Raw materials:* this includes raw materials (oil, natural gas) necessary to guarantee energy security, taking into account Italy's dependence on strategic resources – relative importance 50%.
- *Finished products:* Italian exports of finished products – relative importance 25%.
- *Investment:* Italian foreign direct investment (FDI) destinations – relative importance 25%.

3 Politico-military aspects

- *Strategic-military relevance:* this sub-category includes several factors: degree and intensity of threats originating from the respective country (e.g. presence of terrorist groups in the area, proliferation of weapons of mass destruction, etc.), strategic-military weight in a narrow sense, existence of a (strategic) partnership, etc. – relative importance 50%.
- *Historico-political relevance:* existence and depth of historical links, diplomatic relations – relative importance 25%.
- *Governmental relevance:* the importance that a government gives in its foreign policy to a given region – relative importance 25%.

In conducting the AHP analysis, I followed the aforementioned steps as outlined below:

1 *Determination of the relative weights of the criteria:* For this analysis, I utilized the weights from the Bozzo, Simon-Belli, and Batacchi (2005) study, as mentioned earlier.

2 *Evaluation of alternatives according to the given criteria:* This step involved collecting and determining source values. While some values were easily quantifiable, such as those pertaining to economic sub-criteria, others were more challenging to quantify. To address this, I sought to identify as many quantifiable sub-cat-

egories as possible and aggregated them to obtain sub-category values. For non-quantifiable factors, the relative strength of countries was determined by referencing the scale used to establish the weights. An example of this mixed calculation approach
[72] is the sub-criterion of strategic-military relevance, which incorporated several sub-categories. The country's current terrorism index (Global Terrorism Index) provided a quantifiable measure, while the strength and equipment of its military were assessed on a scale of 1–9 based on the Military Balance rankings. Additionally, a scale was utilized to evaluate the depth of strategic partnerships. A similar mixed calculation method, involving scales and absolute values, was applied to determine historico-political relevance. Factors such as the establishment of diplomatic relations, periodic interruptions in diplomatic relations, the number of Italian diplomatic missions in the country, and the number of active international treaties between the two countries were taken into account. Colonialism was also considered within this sub-category. In defining the values, an effort was made to incorporate as many quantifiable elements as possible to minimize subjectivity.

3 *Summary of the weighting and assessments:* Following the extraction and sorting of source values, the data series were normalized. The normalized values were then weighted, and the percentage distribution of the weighted normalized values was calculated.

By following these steps, I aimed to systematically assess and quantify the different aspects of Italy's national interests within the Analytic Hierarchy Process methodology.

By implementing the aforementioned AHP methodology, I have established a suitable approach for measuring the changing significance of national interests over time. It is important to note that I tried to minimize the impact of human decision-making and the potential for errors. However, it should also be considered that subjective and human factors still play a role in the decision-making process. The study's findings are presented as percentages, reflecting the relative importance of the assessed factors. Furthermore, the inclusion of diverse assessment criteria enables to balance the differences in size regarding the countries under examination. As a result, the employed method-

ology serves as an appropriate, but not exclusive, means of measuring and evaluating national interests.

The availability and reliability of data pose potential limitations in the application of the AHP methodology for measuring national interests. While Italian state-provided data are typically reliable, data availability and reliability in other countries may be more limited, emphasizing the importance of using data from consistent sources within each category/subcategory to prevent distortion. [73]

IDENTIFYING ITALY'S NATIONAL INTERESTS IN THE MEDITERRANEAN USING AHP METHODOLOGY

In 2005, Bozzo, Simon-Belli, and Batacchi employed the AHP model to define Italy's national interests and their geographic significance. Despite being conducted in 2005, the analysis continues to yield pertinent outcomes, assuming the validity of Glasier's notion of the enduring nature of national interests. The study encompassed various geographical units, including the Middle East, the North Atlantic region, the fifteen-member European Union, the Balkans, Russia, North Africa, the new EU member states (referring to those joining after the initial fifteen), Latin America, China, Turkey, the Horn of Africa, and the ex-Soviet territories. Socio-cultural, economic, and politico-military criteria were considered, each further subdivided into sub-criteria. The socio-cultural domain naturally exhibited a European and Atlantic regional emphasis, while the economic and politico-military sectors revealed the prominence of the Middle East and North African regions. The analysis revealed a comparable pattern regarding politico-military indicators. The strategic-military subcategory exhibited a relative importance of national interests pertaining to the Middle East and North Africa, accounting for 50%. The historical and political significance subcategories each obtained a score of 25%, resulting in a cumulative total of 38.9% for the three subcategories (Bozzo, Simon-Belli, and Batacchi 2005, 83).

The findings of the analysis support the significance of the Mediterranean region. Considering all the indicators and the geographical areas examined, Bozzo, Simon-Belli, and Batacchi's (2005) research concluded that Italian foreign policy should primarily concentrate on four regions: the North Atlantic, the MENA region, the 'Europe of the Fifteen,' and the Balkans. Notably, two of these regions, MENA and the Balkans, are situated within the broader Mediterranean context.

TABLE 1 Italy's National Interests in the Southern Mediterranean 2011–2021, from a Politico-Military Perspective

Country	2011	2016	2021
Algeria	14.40	16.00	13.80
Egypt	27.50	27.50	25.80
Libya	31.70	26.90	32.40
Tunisia	15.60	15.80	16.10
Morocco	10.80	13.80	11.90

NOTES In percent.

To ascertain the specific geographical focus of Italian national interests within the narrower confines of the Mediterranean, I conducted an evaluation using the AHP methodology outlined earlier. By examining five coastal countries in the Mediterranean – Morocco, Libya, Algeria, Egypt, and Tunisia – I sought to determine the location of Italian national interests. While acknowledging the assumption of relative constancy of national interests, I employed the AHP method in a longitudinal study to account for possible shifts in emphasis. In addition to the years 2011 and 2021, which mark the endpoints of the study period, I also incorporated data from 2016 as an intermediate year. Furthermore, it was essential to include data from 2010, the last complete year preceding the Arab Spring, for comprehensive analysis.

The data from 2011 revealed substantial shifts in the economic and socio-cultural domains, primarily influenced by the events of the Arab Spring. Although these aspects have not fully returned to their pre-Arab Spring levels, the inclusion of 2010 data compensates for the exceptional circumstances of 2011. The application of the AHP method is suitable for analyzing national interests because it allows for the consideration of potential changes through the use of weights. It is important to recognize that certain (sub)aspects, such as historico-political relevance, tend to remain relatively stable, while others (such as economic factors and migration dynamics) have undergone significant transformations.

Based on the AHP-based analysis of the economic, socio-cultural, and politico-military dimensions discussed earlier, the following results were obtained.

The politico-military aspects of Italian national interests have not experienced as pronounced shifts as the economic ones. Notably, Libya and Egypt have stood out in this regard. The distribution of interests

related to Egypt remained consistent between 2011 and 2016, while Libya's relative importance slightly declined initially but surpassed its 2011 level by 2021. Over the study period, the five countries exhibited divergent trajectories in terms of political, economic, social, and security development, with varying degrees of sustainability in achieving [75] stability after the Arab Spring. The resurgence of Libya's relative importance can be attributed primarily to the increased relevance of its current government (as reflected in increased rates of government communication on Libya) and the inflow of modern weaponry from foreign sources due to the internationalization of the conflict.

One of the main reasons for Libya's decline in relevance in the military and political aspects after 2011 was the poor equipment and weakened strength of the Libyan army, which was assessed under the strategic-military relevance sub-criterion. This sub-criterion held the highest importance in determining relevance. In contrast, the Global Terrorism Index, which measures the threat and spread of terrorism in a given country, increased for all countries. In 2011, Libya had the lowest terrorism risk among the five surveyed countries, but by 2016, it had risen to the top of the list, and by 2021, it was the second most at-risk country among the five, trailing behind Egypt. Libya's significance stands out in the sub-criteria of historico-political relevance, where significant changes were not expected. However, Libya does not score highly in other factors within this sub-criterion. For instance, compared to Italy's 21 international treaties signed with Libya up to 2011, Egypt had signed 102 treaties. Between 2011 and 2021, Italy signed new international treaties with all countries, but the pace of treaty signing with Libya was slower compared to other countries due to various reasons, such as the absence of a monopoly in power for several years. While the number of treaties signed with Tunisia increased from 77 to 103 between 2011 and 2021, the number with Libya only increased from 21 to 25.

The methodology employed allowed me to assess the significance of the contracts that were established, taking into account both the presence of a strategic partnership and its contents. Among the five North African countries bordering the Mediterranean, Italy has entered into such treaties only with Egypt and Libya, although their contents differ. The treaty with Egypt primarily focuses on social and cultural issues, while the one with Libya places greater emphasis on military and security measures in the classical sense, making it more significant in

TABLE 2 Italy's National Interests in the Southern Mediterranean 2011–2021, from an Economic Perspective

Country	2010	2011	2016	2021
Algeria	41.80	48.60	52.80	39.50
Egypt	15.50	23.80	15.50	22.50
Libya	29.50	9.70	13.50	19.30
Tunisia	7.80	12.40	11.60	10.70
Morocco	5.30	5.50	6.50	8.00

NOTES In percent.

the scale used for evaluation. Within the sub-criterion of current government relevance, which also falls under this criterion, Libya's importance in terms of government communication was prominent in 2011. Although it maintained its leading position in 2016, the gap narrowed significantly. However, by 2021, the gap had widened once again in favour of Libya.

The fluctuating importance of Libya and Egypt underscores the fluid nature of geopolitical dynamics in the region, which necessitates continuous recalibration in the priorities of the Italian foreign policy. Despite Libya's decline in certain factors, such as military strength, its increased significance in government communication reflects an understanding of soft power dynamics and the strategic value of diplomatic engagement. Furthermore, the slower pace of treaty signing with Libya highlights potential challenges in forging robust bilateral relations, signaling the need for strategic patience and adaptive diplomacy in navigating complex geopolitical landscapes.

In terms of the economic aspects, a comprehensive examination of three major factors was conducted using the previous weightings. Within the economic sector, Libya holds paramount importance for Italy due to its significant trade in energy resources, placing it alongside Algeria as a standout among the studied Mediterranean countries prior to the Arab Spring. However, the 2011 data reveal a substantial decline in Libya's relevance, primarily attributed to the collapse of its oil and gas exports, as well as the decline in Italian exports and foreign direct investment (FDI) towards Libya. In contrast, none of the other four countries experienced such a significant decrease compared to the 2010 levels, and some even displayed slight increases (e.g., Algeria exhibited an increase across all three indicators, including FDI towards Egypt). From an economic perspective, Algeria's prominence further inten-

sified in 2016, demonstrating divergent trends in national interests concerning the other countries. While Tunisia and Egypt experienced a growth in importance during the years following the Arab Spring, they had largely reverted to their 2010 levels by 2016. Conversely, Libya started a recovery after its collapse in 2011, albeit with all indicators [77] remaining well below their pre-Arab Spring levels. Notably, Algeria's increased significance throughout this period is not solely attributable to the expansion of Italian economic interests within the country, but rather due to the decline in values observed in the other countries, particularly Libya. A significant observation is that by 2021 Algeria's relative importance compared to the other examined countries had diminished, while the relative importance of the other countries (Egypt, Morocco, Libya) had increased, with the exception of Tunisia. These shifts can be attributed to several factors, such as the surpassing of Italian exports to Algeria over those to Egypt and a notable increase in the share of energy imports sourced from Libya (rising from 12.5% to 22.84%).

The primary factor contributing to the decline of Italian national interests in Libya following 2011, specifically the decrease in energy imports, is presented in table 3. It depicts the comparative decline of Libyan exports in relation to Algerian exports, followed by a subsequent recovery.

The decline in Italian national interests in Libya following 2011, particularly in energy imports, reflects the vulnerability of economic ties to geopolitical instability, highlighting the need for strategies of diversified energy sourcing and of diplomatic engagement to mitigate risks. Additionally, the observed shifts in relative importance among Mediterranean countries underscore the dynamic nature of regional economic landscapes, requiring agile policymaking to capitalize on emerging opportunities and to navigate evolving challenges.

The percentages shown in table 3 represent the proportion of Italian oil and gas imports sourced from each respective country. While my analysis focused on measuring Italian foreign direct investment (FDI) using the AHP methodology, it should be mentioned that, in the case of Libya, the Libyan Investment Fund made significant investments in strategically important Italian companies, including Unicredit Bank and Fiat (Lombardi 2011).

The socio-cultural aspects encompass a multifaceted sub-category, wherein the relative importance of Libya has slightly decreased.

TABLE 3 Italian Energy Imports from the Southern Mediterranean 2011–2021

Country	2010	2011	2016	2021
Algeria	37.90	34.00	31.20	33.45
Egypt	3.20	3.70	2.40	1.84
Libya	35.65	9.90	12.50	22.84
Tunisia	0.30	0.60	0.70	0.10
Morocco	0.00	0.00	0.00	0.00
Total	77.05	48.20	46.80	58.23

NOTES In percent.

TABLE 4 Italy's National Interests in the Southern Mediterranean 2011–2021, from a Socio-Cultural Perspective

Country	2011	2016	2021
Algeria	7.73	7.45	6.82
Egypt	21.04	24.69	19.65
Libya	29.05	27.65	24.69
Tunisia	26.29	21.05	25.88
Morocco	15.88	19.16	22.96

NOTES In percent.

Notably, significant differences were observed in the migration sub-criteria, where Libya stands out primarily due to the high number of illegal maritime arrivals in Italy, which were the largest among the countries studied during the entire period. It is important to highlight that the migration sub-item includes both legal and illegal migration, thereby reducing the relative importance of Libya, as nationals from the other four countries enter and reside in Italy legally in much larger numbers, whereas the number of Libyan nationals in this context is negligible. Although the migration sub-theme accounts for 'only' 21.4% of the socio-cultural aspects according to the AHP weighting, its significance lies in the fact that the issue of immigration has risen to the top of the Italian political agenda and has become a prominent topic in public discourse. This is primarily due to the wave of illegal migration that ensued after the Arab Spring, as well as the migration and refugee crises of 2014–2015. While the Lampedusa disaster in October 2013 and the Mare Nostrum operation had a humanitarian impact on the Italian population, the refugee crisis in 2015 and the record number of illegal immigrants arriving by sea in 2016 shifted the mainstream narrative and intensified the anti-immigration discourse (Hermanin 2019).

TABLE 5 Italian National Interests Related to Mediterranean Migration 2011–2021

Country	2011	2016	2021
Algeria	7.73	7.45	6.82
Egypt	21.04	24.69	19.65
Libya	29.05	27.65	24.69
Tunisia	26.29	21.05	25.88
Morocco	15.88	19.16	22.96

NOTES In percent.

TABLE 6 Illegal Maritime Migration to Italy 2011–2021

Country	2011	2016	2021
Algeria	0.00	0.00	0.00
Egypt	0.00	0.00	0.00
Libya	56.57	95.35	56.41
Tunisia	43.43	3.44	43.59
Morocco	0.00	0.11	0.00

NOTES In percent.

Table 5 illustrates the extent of Italian interests in migration among the five countries along the southern Mediterranean coast. Libya emerges as the country with the highest relevance in terms of migration. By 2021, Libya's relative importance had become comparable to Tunisia and Morocco, primarily due to changing trends in illegal migration. In 2011, the Libyan-Tunisian share of sea arrivals stood at 56% and 43%, respectively, but this dominance by Libya diminished by 2016 when over 95% of sea arrivals originated from Libya. The number of sea-crossers from Tunisia and Libya fluctuates from year to year, depending on internal instability inside the two countries.

In the case of Libya, two factors contribute to a reduction in departures: either the coastal militias exert total control, therefore preventing departures (which was the objective of the Gentiloni government in supporting the coastal militias), or the opposite scenario of complete anarchy, where high levels of insecurity deter migrants from reaching the departure points. In 2021, Libya found itself in a transitional phase: a new government came into power, which was a positive development, but it has not yet been able to establish full control over the entire territory. Consequently, migration to Italy increased during this period.

Applying the AHP methodology, the analysis revealed that the significance of the considerable illegal migration to Libya is counterbalanced by the inclusion of legal migration as measured through the number of granted residence permits. Despite the Italian Ministry of Interior issuing residence permits for Libyans at a negligible rate (less than 5,000), the number of permits issued to Moroccans exceeded 370,000. This disparity explains why Libya's relative importance in the migration sub-perspective does not significantly surpass that of the other examined countries.

[80]

The prominence of Libya in illegal migration shows the challenges posed by irregular migration flows and their implications for domestic politics and public opinion in Italy. Furthermore, the fluctuating dynamics of migration from Libya highlight the need for comprehensive and adaptive migration policies that address both humanitarian concerns and national security interests. By considering the broader socio-cultural implications of migration to Italy, voters expect – without success – from Italian policymakers to develop more effective strategies for managing migration flows and to address the underlying drivers of irregular migration.

Upon examining all the major criteria and sub-criteria, it can be concluded that migration is the primary area where Italian interests are most concentrated in Libya. Both in 2011 and 2016, Libya's relative importance exceeded 50% when considering illegal migration alone, and the proportion is even higher when excluding legal migration. In 2016, it reaches particularly high levels, exceeding 95%. While migration forms an extremely strong link between Italy and Libya compared to the other countries studied, it is not the sole aspect connecting the two nations. There are other areas, such as historico-political relevance and strategic importance, where Libya emerges as the country of greatest interest for Italy. However, the intensity of this connection is significantly stronger in the field of migration compared to other areas.

Overall, the Analytic Hierarchy Process (AHP) methodology allows us to draw comprehensive conclusions regarding the territorialization of Italian national interests based on a comprehensive set of criteria. Within the three broad criteria examined (socio-cultural, politico-military, and economic), it is evident that a significant portion of Italian interests is intertwined with Libya. In terms of economic interests, Algeria emerges as a focal point, primarily due to its substantial role in

TABLE 7 Relative Changes in the Italian National Interests Linked to Libya 2011–2021

National interest	2011	2016	2021
Economic	9.70	13.50	19.30
Politico-military	31.70	26.90	32.40
Socio-cultural	29.05	27.65	24.69

NOTES In percent.

[81]

the production of oil and gas. Throughout the studied period, Italian exports and foreign direct investments (FDI) to Algeria have consistently surpassed those of the other countries. However, when considering the percentage of national interests attributed to Libya alone, its economic significance, in contrast to socio-cultural and politico-military aspects, experienced a significant decline in 2011 following the Arab Spring. Subsequently, from 2011 onwards, Libya's relative importance in the economic sector gradually increased, but it is unlikely to regain its pre-Arab Spring significance in the near future. Nevertheless, the role of oil and gas ensures that Libya remains relevant for Italy within the economic domain in the medium to long term.

Regarding politico-military indicators, the slight percentage decrease observed in 2016 does not signify a substantial change. By 2021, Libya's relative importance in the political and military sectors has slightly exceeded its significance during the Arab Spring. In contrast to the economic and politico-military aspects, socio-cultural interests linked to Libya have experienced a slight but consistent decline over the analyzed period. Notably, the migration sub-objective exhibited a distinct change in trajectory, diverging from the 2011 trend in 2016, and eventually stabilizing around the levels observed in 2011 by the end of the period in 2021 (see migration statistics).

In the case of Libya, migration, a socio-cultural aspect, intersects spectacularly with security concerns, especially regarding irregular migration, which poses challenges to Italy's territorial integrity and societal stability, and it has contributed to the changing Italian political landscape (e.g. see Lega's results in the 2018 parliamentary elections). Additionally, the economic dimension, highlighted by Libya's role in energy production, reflects both power and wealth considerations, aligning with Morgenthau's emphasis on power and economic prosperity as essential components of national interests. Furthermore, the politico-military realm underscores Italy's strategic calculations and geopoliti-

cal positioning in the Mediterranean region, emphasizing the importance of Libya in shaping regional security dynamics.

SUMMARY

[82] Euro-Mediterranean advocacy and power projection form a rational strategy for promoting Italian national interests and enhancing the country's international influence. This approach encompasses a geographically defined area of prime importance, serving both economic and strategic objectives that have significant implications for both domestic and foreign policies. Given the fragmented nature of the enlarged Mediterranean region, which Rome considers strategically vital, a cooperative stance among the central powers of the region is essential. Italy, constrained by limited resources and internal challenges, cannot single-handedly provide a comprehensive response and thus requires a differentiated approach.

Utilizing the Analytic Hierarchy Process (AHP) methodology, which encompasses both qualitative and quantitative aspects, this study examines Italian national interests within the Mediterranean region. Drawing from the theoretical underpinnings of AHP, which enables the synthesis of subjective and objective elements, the research aims to discern the evolving dynamics of Italian foreign policy priorities. By applying the AHP framework to a longitudinal analysis spanning from 2010 to 2021, the study seeks to capture shifts in emphasis and relative importance across various sectors and countries, thereby providing a comprehensive understanding of Italy's strategic imperatives. This analysis is grounded in the theoretical framework of national interests, where the concept of sectors of security put forward by Buzan, Wæver, and de Wilde (1998) (encompassing economic, socio-cultural, and politico-military dimensions) serves as the guiding lens through which Italy's strategic imperatives are examined.

Previous findings underscore the significance of four key regions – the North Atlantic, the Middle East and North Africa (MENA), the 'Europe of the Fifteen,' and the Balkans – as focal points of Italian national interests. Within these regions, MENA and the Balkans, situated within the extended Mediterranean, have a particular prominence, justifying the adoption of Mediterraneanism as a distinct foreign policy for Italy. Applying the same methodological rigor to the narrower Mediterranean context and specifically examining the five states along Italy's southern shores, Libya emerges as the keystone

state for Italy from a politico-military perspective. While Algeria commands more economic interests compared to the other countries, the significance of Libya cannot be overlooked. Despite economic ties between Italy and Libya not fully reverting to pre-Arab Spring levels, the uptick in energy imports from Libya signals a resurgence in the relative importance of this country. [83]

In the realm of security dimensions within the societal sector, a slight decline in Libya's relative importance is noted. However, when scrutinizing the sub-sector of illegal migration, Italian national interests linked to Libya emerge as the most robust throughout the studied period.

In summary, the study's meticulous application of the AHP methodology sheds light on the intricate dynamics of Italian national interests within the Mediterranean, underscoring the multifaceted nature of foreign policy priorities. Through a detailed analysis integrating both qualitative and quantitative elements, the research highlights the strategic imperatives guiding Italy's engagements in the region, emphasizing the pivotal role of Libya while recognizing likewise the dynamic interplay of economic, socio-cultural, and politico-military factors in shaping the objectives of the Italian foreign policy.

Future studies could build upon this research by looking into the evolving nature of national interests over time within the Euro-Mediterranean region. This could entail conducting longitudinal analyses in extended periods as a way to capture shifts in the priorities of the Italian foreign policy and their implications. Furthermore, exploring the role of other countries in the Euro-Mediterranean region, particularly those with emerging influence or undergoing significant political transitions, could provide valuable insights into the broader geopolitical dynamics shaping the region. If reliable data is available from other countries, AHP analysis makes objective comparison possible. Additionally, investigating the impact of external actors, such as international organizations or non-state actors, on Italian national interests and regional stability would offer a comprehensive understanding of the complex interplay of forces in the Euro-Mediterranean arena.

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Case Studies of COVID-19 Pandemic Affecting Early-Career Scientists' Mobility within the Mediterranean Blue Economy Sector

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The COVID-19 pandemic has profoundly impacted scientific international mobility, particularly for early-career scientists (ECSS). This paper aims to provide a comprehensive analysis of the challenges faced

by ECSS in the Mediterranean region during the pandemic, specifically focusing on scientific mobility. Additionally, the study will explore the implications of the pandemic on the career trajectories of ECSS and the long-term effects on scientific research and academia in the Mediterranean. We incorporate individual experiences of three researchers, providing first-hand insights into the challenges and impacts of the COVID-19 pandemic. These personal experiences which will enrich the paper by offering a nuanced understanding of the practical implications and emotional aspects associated with the discussed issues.

[88]

Key Words: scientific mobility, early-career scientists, Mediterranean region, blue economy, COVID-19 pandemic

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GRAPHICAL ABSTRACT

INTRODUCTION

Early career scientists (ECSS) are researchers who are in the initial stages of their professional careers after completing their formal education, such as undergraduate or graduate studies (ECNP n.d.). ECSS are often characterised by their relatively limited experience in their field compared to more established scientists, and they may still be working towards establishing themselves, building their research portfolio, and developing their expertise (Papin, Keim-Malpass, and Syed 2015).

The COVID-19 pandemic (COVID) had far-reaching effects on various research fields worldwide (Korbel and Stegle 2020; Aziz et al. 2021; Squazzoni et al. 2021; Lobe, Morgan, and Hoffman 2020). The blue economy, a sector encompassing sustainable marine and maritime practices and economic activities, has been significantly impacted

by the pandemic, leading to disruptions in scientific mobility and research activities, especially in the Mediterranean (European Commission 2021). The Mediterranean region is a hub for interdisciplinary research, and attracts scholars, scientists, and researchers from diverse fields and other geographic locations (European Commission n.d.a). [89]
During COVID, the mobility of researchers, especially ECSS, faced unprecedented challenges due to widespread travel restrictions and safety concerns (Zabaniotou 2021). International collaborations were hindered as ECSS encountered barriers to travelling abroad for attending conferences, fieldwork, collaborative projects, and other research opportunities (Falk and Hagsten 2020). ECSS had to adapt to remote work and virtual collaboration tools, which, while enabling some level of continued scientific activity, presented communication and productivity challenges. Despite these obstacles, the pandemic prompted innovative solutions, such as virtual conferences and remote data collection methods, fostering new modes of scientific collaboration and knowledge exchange, arrangements that have persisted and remain in place today.

This paper aims to provide an analysis of shared challenges that ECSS face during mobility and to highlight the tools that can be crucial to improving any reduced mobility situation. Scientific mobility is essential for disseminating scientific knowledge, making informed decisions in science management, and training qualified personnel (Ackers 2005; Gureyev et al. 2020). It is a form of cultural exchange hence bringing academic communities closer through collaboration.

We discuss the adaptation strategies that ECSS used during COVID and the resulting impact on scientific collaborations and knowledge dissemination. By examining the shifts in research activity patterns during the pandemic, we seek to elucidate the evolving landscape of scientific mobility in the blue economy sector in the Mediterranean. Analysing the impact of circulation of highly skilled scientists and researchers and the corresponding knowledge transfer within the European Research Area requires understanding the direction of the flows and the nature of scientists' movement.

EARLY-CAREER SCIENTISTS' INTERNATIONAL MOBILITY DURING COVID AND MAIN RELATED ISSUES

International scientific mobility refers to the movement of researchers, students, and professionals across borders to engage in scientific activ-

ities such as research collaboration, training, and conferences (Ackers 2005). It is driven by the desire to access expertise and resources not readily available in one's home country (Aman 2020). ECS design their career path by joining selected research groups to acquire specialised
[90] knowledge or by conducting studies contingent on access to instruments or research infrastructures or in areas that feature unique natural, cultural, and historical attributes (e.g., biodiversity hotspots, geological formations). Scientific mobility may involve short-term visits, long-term stays, or relocation to another country or institution.

The policy briefing *New Concepts of Researcher Mobility* (European Science Foundation 2013) distinguishes among four types of mobility:

- Physical international mobility among countries denotes the cross-border movement of individuals for travel, work, study, or relocation.
- Intersectoral mobility across academia, industry, and public sectors includes the dynamic movement of individuals between academia, industry, and public sectors, facilitating employment opportunities and knowledge exchange initiatives.
- Interdisciplinary mobility is characterised by the movement of individuals across disciplinary boundaries.
- Virtual mobility acknowledges the collaborative nature of research facilitated by digital communication technologies.

In Europe, the mobility of ECSS for research purposes increased significantly before the start of the pandemic in 2020 (Lambert and Merriman 2020; Skakni 2018; Yang 2020). The impact of the pandemic on research productivity, the job market, and funding has been a cause for concern for ECSS (Termini and Traver 2020). The closure of universities and laboratories at the beginning of the pandemic has halted most of the research not directly focused on COVID, leading to a substantial and long-lasting impact on the productivity of the scientific workforce worldwide (Subramanya, Lama, and Acharya 2020; Riccaboni and Verginer 2022). A study by the National Institutes of Health (2020) found that 63% of early career investigators anticipated a negative impact on their career trajectory at a higher proportion than contributed to mobility of senior-career investigators.

Thus, ECSS' ability to travel internationally has been dramatically hampered by the COVID pandemic, which, through lockdowns, quarantines, and social isolation, has impacted their career development

plans, networking opportunities, and chances for international cooperation (Harrop et al. 2021). The mobility restrictions that hampered access to laboratories, especially impacted sea and maritime specialised infrastructures and fieldwork (Korbel and Stegle 2020; Termini and Traver 2020). Korbel and Stegle's (2020) survey confirmed that twenty-five percent of respondents reported losing from 1 to 6 months of work due to laboratory shutdown (wet lab – 73%, and dry lab – 31%). ECS had to adapt to working remotely, exploiting online forums and meeting platforms that became the only space to share ideas (Lopez-Leon, Forero, and Ruiz-Díaz 2020; Mendrika et al. 2021). Results from online surveys sent to 704 academics indicated that working at the office boosts brainstorming ideas with colleagues (Aczel et al. 2021). Yang (2020) argued that information processing workers undergoing social distancing at a technology company experienced a decrease in the number of connections among different working groups in the same firm and a negative impact on the spread of information among workers. According to Harrop et al. (2021), 149 out of 150 ECSS stated that the pandemic had a detrimental effect on their study and 85% of ECSS reported low productivity. In addition, at the beginning of the lockdown period, ECS were inundated with new issues related to slow internet connections and other technical challenges, such as not being able to analyse big data from home (Yoosefi Lebni et al. 2023).

As argued by the European Commission (n.d.b), women generally published less than male researchers, increasing the work-related gender gap. In the ECS career stage, female researchers find it more arduous to reach a stable academic position (Murgia and Poggio 2018; Carreri and Dordoni 2020). Korbel and Stegle (2020) reported less productive working hours for female scientists (70% of females in wet labs versus 60% of male respondents work primarily experimentally). Researchers with caregiving responsibilities or children had an additional disadvantage, struggling to reconcile work and domestic commitments and producing fewer publications (Ipe et al. 2021)

The pandemic has also resulted in the cancellation or postponement of scientific events, including national and international conferences, workshops and training programmes (Subramanya, Lama, and Acharya 2020), further hindering the exchange of scientific knowledge. Conferences are critical for sharing the newest scientific discoveries and building networks (Neuilly and Stohr 2016). The discussions that spark during coffee breaks or social dinners bring invaluable opportunities

that cannot be planned remotely. Sugimoto et al. (2017) showed the physical proximity's importance in enhancing research and scientific advances. During the pandemic, less contact with people led to the loss of brainstorming opportunities and of social exchanges in the work
[92] environment (Duede et al. 2024; Korbel and Stegle 2020). ECSS who were able to move to another country during the pandemic had problems integrating because of fewer social events, quarantine, difficulty with bureaucracy, and less administrative support (Duede et al. 2024). A higher percentage of exchanged ECSS lived alone, as argued by Korbel and Stegle (2020) in their survey, compared to respondents working in their home country. In addition, exchanged ECSS might have faced additional problems with understanding updates to local guidelines and regulations during the emergency (Korbel and Stegle 2020).

Finally, the emergency triggered by the coronavirus pandemic has increased the focus on health issues and the importance of mental health, which is now a central issue regarding personal health in work environments (Venkatesh and Edirappuli 2020). Chrikov et al. (2021) argued that 32% of graduate and professional students suffered from major depressive disorder (two times higher in 2020 compared to 2019). In contrast, and according to the same study, more than a third of undergraduate and graduate students reported experiencing generalised anxiety disorder (1.5 times higher than in 2019).

OGS DEEP BLUE MOBILITY PROGRAMME FOR YOUNG PROFESSIONALS IN THE MARINE AND MARITIME FIELDS

The Deep Blue Fellowships and Programme

The National Institute of Oceanography and Applied Geophysics – OGS coordinated the Deep Blue (Developing Education and Employment Partnerships for a Sustainable Blue Growth in the Western Mediterranean Region) project for the period 01.01.2019–30.06.2021. Deep Blue was funded by the European Maritime and Fishery Fund (EMFF) and the European Agency for Small and Medium-sized Enterprises (EASME) within the framework of the Sustainable Blue Economy Call 2017.[1] The project's core aimed to foster talent circulation across the Mediterranean region by offering innovative training paths to young

[1] EASME/EMFF/2017/1.2.1.12/S3/02/SI2.789633, https://blueskills.inogs.it/projects/deepblue.

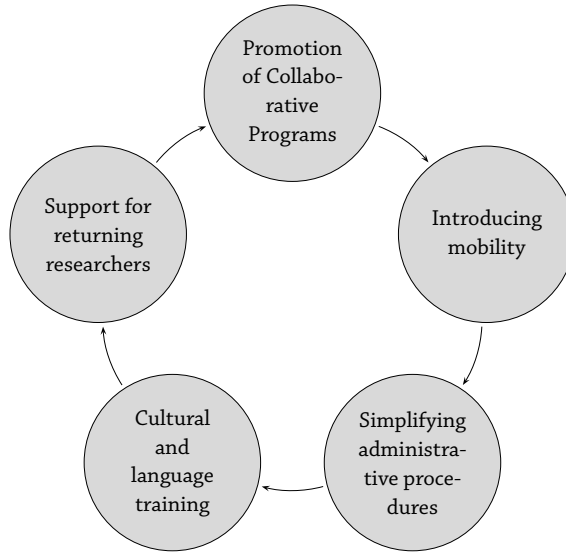

FIGURE 1
Key Initiatives to Enhance Researcher Mobility and Collaboration

professionals in the blue economy sector through increased international scientific cooperation.

With the support of local stakeholders, partners from Italy, Spain, and Tunisia collaborated to develop training paths to share knowledge among Blue Economy's key sectors while fostering North-South and South-South cooperation in the Mediterranean area (figure 1). The lack of research opportunities in the countries of the South Mediterranean poses significant challenges to scientific advancement and socioeconomic development in the region. Limited infrastructures and resources hinder the researchers' ability to conduct high-quality research and address funding pressing local and global challenges. European financial support is crucial in bridging these gaps by providing resources, expertise, and collaboration opportunities.

Case-Studies on ECSS Moving in the Mediterranean during COVID

Three case studies from three ECSS who won Deep Blue mobility grants to relocate to another Mediterranean country during the pandemic are presented below. These case-studies testify to the importance of international mobility for ECSS and show the opportunities for professional development, skills transfer, networking, and transcultural learning that these programs offer to their participants, even in challenging circumstances such as COVID.

ECS1

Female, 35 years old, intern at OGS, Trieste Italy – Exchange at Laboratory of Applied Bioacoustics (LAB), Vilanova i la Geltrù, Spain.

[94]

Fellowship duration 6 months from 2nd March to 2nd September 2020.

Project title 'Using Machine Learning Methods for Wildlife Conservation.'

Topic Cetacean Bioacoustics and Underwater Noise.

Home Institution The National Institute of Oceanography and Applied Geophysics – OGS (Italian: Istituto Nazionale di Oceanografia e di Geofisica Sperimentale – OGS), commonly referred to as OGS, is an Italian public research institution under the supervision of the Italian Ministry of University and Research. It specializes in conducting research in the fields of earth science and oceanography on an international level.

Host Institution The LAB creates technical and interdisciplinary solutions to reduce anthropogenic noise's impact and contribute to the sustainable development of human activities.[2] The proposed research activity contributed to enriching the current knowledge on a cutting-edge topic relevant to marine ecology, oceanography, conservation, and marine policy (Moretti and Affatati 2023).

A Brief Introduction to the Scientific Topic The ocean is not a silent place. Marine organisms, especially marine mammals, have learned to exploit sound as a primary cue for underwater communication and sensing (Affatati 2020; Madsen, Siebert, and Elemans 2023). Anthropogenic noise sources are increasing in number, changing the ocean soundscape and elevating noise levels (Duarte et al. 2021; Affatati and Camerlenghi 2023).

Scientific Activities and Personal Experience After the first two weeks of in-person work at the LAB, starting on 16th March 2020, a strict lockdown was imposed by the government of Spain, and the LAB members started working remotely. Working from home poses specific, different challenges compared to working in a lab or an office (Catayoc 2019). There is a need for additional structure and routine and a lack of social connections, both being crucial even in work environments. Part of

[2] https://michel-andre.squarespace.com/lab.

the first challenges of the experience was focused on succeeding in setting work timetables, improving time management skills, and learning this different work modality. Along with the LAB co-workers, internet connection problems were solved, and professional and human bonds were developed. In addition to daily study sessions with LAB members [95] and numerous Skype meetings per week, project video conferences and general LAB meetings were scheduled.

For her project, ECS1 studied dolphin vocalizations and ship noise using a Controlled Acoustic Repository, which stores data and manual annotations in a structured way and allows training and validation algorithms for Machine Learning. Long-term monitoring is essential for gaining information about animal conservation (Gitzen 2012). However, a large amount of data is difficult to handle manually, possibly leading to biases and subjectivity (Gibb et al. 2019). The data were collected in the Providence Project framework, one of the LAB's projects developed during field work in the South-American Amazons.[3] Target sound types were used to train models that allow the calculation of activity indicators. Vocal activity can be used to estimate long-term changes in the behaviour and presence of the animals (Parks, Clark, and Tyack 2007; Bautista Parra et al. 2023). Oceanic dolphins produce vocalisations that have been relatively well characterised for most species (Au 1993). Less is known about the vocal structure and behaviour in taxa such as Amazon river dolphins, boto (*Inia geoffrensis*) and tucuxi (*Sotalia fluviatilis*), animals living in the reserve (Podos et al. 2002). Starting from the literature, 'buzzes,' 'burst pulses,' and 'squeaks' were defined in terms of acoustic characteristics, waveforms and spectrograms. Similar sounds were found in the Amazon recordings through the labelling campaign, and this activity served as a crucial first step in defining the main sounds produced by these elusive cetaceans.

A Brief Look at Pros and Cons The negative side of this experience mainly revolved around the lockdown and the social distancing. However, this enabled the fostering of friendships with colleagues faster than usual. The beginning of the remote work sessions was not easy either, mainly because long meetings online were more tiring than those in-person. Furthermore, the big monitor, the proper chair, and the desk make a difference in the office. Another aspect to be considered is the impor-

[3] http://www.providence.listentothedeep.com, https://whc.unesco.org/en/list/998.

tance of a team in research fields, and a team is not only built to share the same professional goals but also to have lunch and small breaks together. The social part was difficult to maintain during the lockdown, but the LAB team gave great support. Apart from the team, some of
[96] the many positive aspects of the six months with the LAB were the continuous training in marine bioacoustics, coding, and digital signal processing and the focus on transdisciplinary research activities.

ECS2

Female, 31 years old, post-doctoral researcher at Analyses and Applied Processes to the Environment APAE UR17ES32 ISSAT-Mahdia, University of Monastir, Tunisia – Exchange at University of Aveiro, GeoBioTec Research Centre, Portugal.

Fellowship Duration 3 months from 1st January to 31st March 2021 (Distance cross-border online traineeship).

Project Title 'Mining By-Products as Low-Cost Materials for Heavy Metals and Antimicrobial Water Treatment.'

Topic Waste recycling and water treatment.

Home Institution Analyses and Applied Processes to the Environment (APAE) is a specialised Research Unit UR offered by the Higher Institute of Applied Science and Technology of Mahdia (ISSAT-Mahdia), which is part of the University of Monastir in Tunisia. APAE main activities focus on environmental science, technology, and engineering, emphasizing the analysis and application of processes to address environmental issues.

Host Institution The GeoBioTec Research Centre, Geology Dep., Aveiro Campus, Aveiro-Portugal was created in 2007 by merging two pre-existing research units (ELMAS – Evolução Litosférica e Meio Ambiental de Superfície, and MIA – Minerais Industriais e Argilas). GEOBIOTEC has a mission to explore the geological, biological, physical, and chemical processes that shape the Earth's environment, emphasizing the role of humans as an agent of change aiming for sustainable development. GEOBIOTEC is now the largest Portuguese research unit in the field of Earth sciences.

A Brief Introduction to the Scientific Topic The mining by-products and wastes from the processing of raw materials are often a problem for

manufacturers (Nouairi, Rocha, and Medhioub 2019; Nouairi et al. 2021; Yildiz 2024). In recent decades, the focus has been on recycling the waste in order to reduce its effect on human health and the environment. Nowadays, the relative scarcity and the rising costs of raw geomaterials in the global markets require the valorisation and recycling of non-conventional materials as alternatives. Recent studies focused on recycling of mining by-products in construction materials for a sustainable pathway (Nouairi et al. 2017). Geopolymers, for example, offer several environmentally and economically attractive features: they are materials requiring low energy for their production, and they can be obtained for highly available by-products within a vast panoply of industrial activities. Depending on the physical, chemical, and mechanical properties, geopolymers can be used in civil engineering to immobilise toxic materials and metal pollutants from water. The main goal of this project was to build a new geopolymer for water treatment purposes from low-cost mining residues.

[97]

Scientific Activities and Personal Experience The onset of the COVID-19 pandemic significantly impacted the planned research activities for ECS2, which were initially scheduled to take place in Aveiro Campus, Portugal, over a period of 6 months. The implementation of travel restrictions and safety precautions meant that she had to quickly adapt to the new reality of remote working for only 3 months. This shift brought about a unique set of challenges, particularly in adjusting to the limitations on in-person collaboration and the unavailability of certain resources that would have been accessible in a traditional on-site research setting. However, the circumstances also presented unexpected opportunities. The team and colleagues at GeoBioTec lab offered to conduct all the lab work and experiments that ECS2 was supposed to do during her Deep Blue internship. All the steps, from the formulation of geopolymers to the physical, mineralogical, and mechanical characterisation, were conducted by the GeoBioTec team. With the collected data, ECS2 and GeoBioTec colleagues managed to participate in several international conferences and they publish their work in peer-reviewed journals.

This experience not only demonstrated the resilience, adaptability, and solidarity of the research community but also provided valuable insights into the future integration of remote work practices within the field of research. It sparked important conversations about the poten-

tial for increased flexibility and work-life balance, as well as the role of technology in ensuring the continuity and effectiveness of scientific work, even in the face of unprecedented global challenges. ECS2 and her supervisor, Prof. Fernando Rocha, were also asked to give feedback
[98] on her internship experience on 25th May 2021 during the Deep blue-round table-final event via Zoom.

A Brief Look at Pros and Cons The shift to online research experiences during the pandemic presented both advantages and challenges for ESC2. On the positive side, the ability to continue scientific work and to pursue project milestones provided a sense of continuity, productivity and purpose, which helped reduce stress and improve mental well-being. However, the lack of hands-on laboratory or fieldwork experience hindered the acquisition of essential practical skills and knowledge, potentially diminishing the depth and quality of the research. Additionally, the reduction in funding by half for the Deep Blue Cross-Borders online traineeship adversely affected ECS2, potentially resulting in prolonged ramifications for productivity.

ECS3

Male, 32, Freelancer, exchange at the Mediterranean Information Office for Environment, Culture, and Sustainable Development (MIO-ECSDE) – Athens (Greece).

Fellowship Duration 6 months from 16th March to 17th September 2020.

Project Title 'Streamlining Blue Economy Aspects in the MIO-ECSDE Work Programme.'

Topic Regional cooperation for environmental protection and education.

Home Institution Freelancer.

Host Institution MIO-ECSDE[4] is a non-profit Federation of 134 Mediterranean Non-Governmental Organizations (NGOS) working in the fields of Environment and Development across 28 countries in the Euro-Mediterranean region. Their mission is 'to protect the Natural Environment and Cultural Heritage and promote Sustainable Develop-

[4] https://mio-ecsde.org.

ment in a peaceful Mediterranean by bringing together the efforts of environmental and developmental NGOs.'MIO-ECSDE aims to achieve this by playing an active role in furthering synergies and strengthening public participation in the Mediterranean region and its countries, in close cooperation with governments, international organisations, other socio-economic partners and networks. [99]

Scientific Activities and Personal Experience The placement was marked by the onset of the global COVID-19 pandemic. The appointment was meant to begin on 16th March 2020. However, the MIO-ECSDE Director decided on the very same day to take the precautionary approach and decreed that everybody should work from home that week. The Greek Government declared a national emergency later the same week, enforcing a strict lockdown nationwide. Lockdown measures began to be relaxed on 4th May, with people being allowed to walk freely in the street once again and some organisations returning to the office on a rotating basis. Nevertheless, MIO-ECSDE employees were not fully back in the office until 8th June, only after the Government fully eased the lockdown measures for most activities. Full return to normal activity began on 15th June, 2020.

MIO-ECSDE leads the celebration of Mediterranean Action Day every year. Aside from their own campaign, they support their partner organisations through the provision of small grants for the celebration of their events. MAD2020 was originally meant to take place mainly in May, with the topic 'Marine and coastal Natura2000 Sites.' Due to the COVID-19 emergency, this was no longer the case. Sergio contributed to the organisation and coordination of the campaign, including managing the call for proposals for the events and providing technical support to the organisations implementing them. However, the actual events took place between September 2020 and March 2021.

ECS3 provided expert input to strengthen the MIO-ECSDE's position and contribution to the 'Union for the Mediterranean (UfM) consultation on the future of the blue economy in the Mediterranean regarding environmental governance, fisheries and agriculture, green and circular economy, and sustainable development' (Union for the Mediterranean 2020). He also coordinated MIO-ECSDE's contribution to the First Mediterranean Assessment Report by MedECC (2020).

A Brief Look at Pros and Cons Although the pandemic was far from over, there were no more lockdowns in Greece until the Autumn, and

[100]

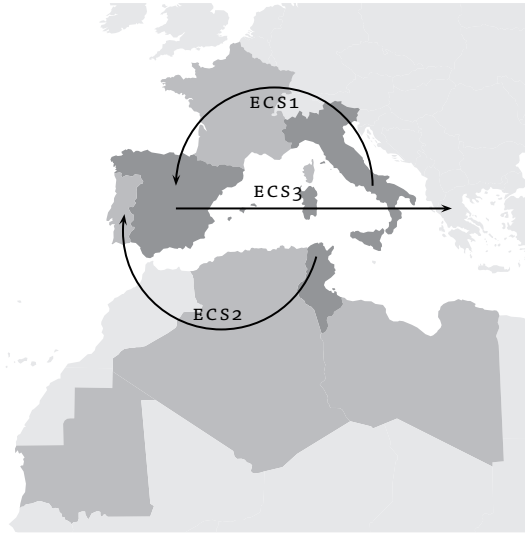

FIGURE 2

Map with member countries (Algeria, France, Italy, Libya, Malta, Mauritania, Portugal, Spain and Tunisia); partners in dark gray: Italy, Spain and Tunisia; arrows show ECSS case-studies movements from home country to host country

the placement could, therefore, continue with relative normalcy (there was still rotation of personnel in the office, together with other precautionary measures such as the use of masks). However, even after the lockdown, caution measures were mostly lifted in Greece in June, but the COVID-19 global emergency continued to limit the workplan implementation. Despite this, MIO-ECSDE satisfactorily managed the crisis. They reacted with proactiveness and precaution in the early days of the pandemic, taking social distancing measures and telework and implementing a progressive return to office and social distancing measures for the work in person. These behaviours allowed, in the end, for a successful placement, characterised by the support and understanding of the colleagues and the collaboration for the implementation of the chosen activities. MIO-ECSDE is an organisation with a regional vision and purpose, and most of its work requires travel and the celebration of training, courses, workshops, and conferences. None of these were possible. Whereas some of these could be run remotely (such as the celebration of the Mediterranean Action Day, which was changed to be run locally by each organisation in their city at their best timing between July and October, without MIO-ECSDE providing anything but remote support and advice), some other proved just impossible to take place (such as the Asterousia Summer University, which was transferred to a hybrid modality, and the dates postponed to 30th November – 20th December 2020, well beyond the duration of the placement).

INTERNATIONAL MOBILITY IN SCIENTIFIC RESEARCH AS A TOOL FOR EARLY-CAREER SCIENTISTS

In today's globalised world, international collaboration is critical in the scientific sector, and international qualifications are highly valued for early-career scientists (Bauder, Hannan, and Lujan 2017; Radloff 2016; Rodrigues, Nimrichter, and Cordero 2016). [101]

It has been proven that mobility leads to better science (Edler et al. 2011; Aman 2020). For example, a study by Sugimoto et al. (2017) reports 40% more publications for mobile researchers, i.e., enrolled in an exchange-mobility programme than sedentary/physically inactive people. Creating a global network is essential for addressing complex scientific challenges and it can lead to opportunities for joint research projects and funding initiatives. International collaboration can foster a sense of community among scientists, helping to build networks of knowledge and exchange, promoting understanding between different cultures and enhancing dialogue amongst scientists as an instrument of science diplomacy (John et al. 2023).

Challenges Associated with International Mobility for Early-Career Scientists and General Strategies and Recommendations to Facilitate and Enhance International Mobility in the Blue Economy Sector

Challenges

Navigating the international scientific mobility as an ECS presents multifaceted challenges. Firstly, stringent visa regulations and immigration policies can hinder the free movement of researchers, leading to delays in collaborative efforts and limitations in attending conferences or collaborating with colleagues from different countries (González 2022). The process of obtaining visas can often be lengthy and complex. Secondly, international research collaborations may encounter language and cultural barriers, which significantly hinder effective communication, a critical aspect for the success of any collaborative project in academic organisations (Chevan, M'kumbuzi, and Biraguma 2012). Language differences can result in misunderstandings, misinterpretations, and delays in decision making processes, while cultural disparities can impact problem-solving approaches, decision-making, and interpersonal interactions (Kalra, Szymanski, and Alike 2023). Thirdly, administrative complexities, including securing funding, obtaining necessary permits and logistical arrangements, can pose sig-

nificant challenges to mobility (Dewhirst 2013). Moreover, concerns about brain drain, referring to the displacement of highly skilled individuals seeking better opportunities elsewhere, highlight the potential loss of valuable expertise within local communities (Johnson and
[102] Regets 1998). This complex scenario calls for a delicate balance between encouraging international opportunities and ensuring the retention of expertise within home countries, highlighting the crucial role of policymakers in enhancing the scientific appeal of nations globally (Ackers and Gill 2005).

General Strategies

Providing opportunities for ECS to engage in international research collaborations and mobility is crucial for fostering a globally connected scientific community and enabling the exchange of ideas, skills, and knowledge across borders. Some general strategies that can help facilitate and enhance international mobility include:

- Promoting collaborative programmes. Establishing joint research programmes, exchange agreements and institutional partnerships may encourage mobility and collaborative projects. Researchers' circulation and interaction at the international level can boost the creation of dynamic networks, improving knowledge and technology transfer.
- Introducing mobility as a positive asset in evaluating universities, research institutes, researchers, and integrating mobility into existing funding schemes.
- Simplifying administrative procedures. Implementing more efficient regulations for issuing visas and residence permits, improving bureaucratic processes, and adopting strategies to simplify and expedite application procedures for EU and non-EU researchers could help facilitate international mobility in science.
- Implementing cultural and language training. Training programmes on cross-cultural communication and collaboration can provide ECSS with the skills to navigate cultural differences effectively.
- Instituting support for returning researchers. To address this concern, it is essential to implement incentives that encourage researchers to return to their home countries after completing their international collaborations. These may include funding

opportunities for research projects, career development programmes, and establishing research centres or institutes that provide attractive working conditions and resources.

Amidst the challenges faced by ECSS working in the blue economy sector during COVID, several tools could serve as opportunities to transform crises into paths for growth and innovation. The European Commission provides funding to support the mobility of researchers in the Mediterranean region through various initiatives.

Overview of International Mobility Programmes

Oceans are crucial for global sustainability and climate regulation, providing vital resources. To maintain ocean health under increasing human impact, advanced understanding of marine processes and human effects is essential. Effective conservation relies on strong research, but there is a shortage of skilled researchers, especially in developing countries, which need to build capacity for marine science (Morrison et al. 2013). A comprehensive review of internationally funded programs, fellowships, exchange funds, contradictions in pacing systems, and internship platforms for the blue economy and other relevant marine-related areas could provide valuable information to support the current and future professionals (Charles 2017). For this, a set of substantial international mobility initiatives available across two marine-related areas, such as the blue economy and the broader marine-related area, were reviewed and analysed. The purpose of the study is to provide the universities and training institutions with the necessary information they need to adapt and promote future international programmes and to graduates of the blue economy field, or of the wider relevant marine-related industries, to facilitate their participation in them.

Despite constraints, graduates from the marine-related industry, including the blue economy sector, tend to have a highly developed international professional network because of their internships and job opportunities in maritime-related international projects. Assembling the profile, the increase in popularity in the impressive international knowledge and information exchange initiatives, which have been launched to attract future young professionals from both developing and developed countries, is conveniently situated in the increasingly international focus of higher educational institutions. An international perspective in higher education not only enables students to become more mobile, understand internships, discover fellowships and

scholarship programs, but also helps to develop the important critical thinking, linguistic, problem-solving, and social skills that all graduates need to be competitive in an increasingly knowledge-based and globalised job market (Öztabak 2022).

[104]

Opportunities for Mediterranean Blue Economy Mobility Tenders and Funds

Furthermore, two major flagship initiatives were launched in the framework of the Union for the Mediterranean and play a pivotal role for the Mediterranean region: the UfM-labelled project 'BlueSkills4Med' funded through the Erasmus+ Capacity-building in Higher Education (CBHE) programme and focused on the development of Marine Data Technicians and Blue Data Specialist skills, thereby contributing to the implementation of the Blue Economy agenda in the Mediterranean; the UfM-labelled project 'BlueGreenFacts: Multiplying Employment Opportunities for a Sustainable Economic Development in the Indian Ocean Area,' funded by the European Neighbourhood Instrument (ENI) and aimed at fostering new business opportunities for young people in the environmental economy in the Indian Ocean Area with a focus on the blue and green economy (Battarra, Gargiulo, and Zucaro 2020). Project Coordination Mechanisms (PCM) aiming at enhancing mobility across the Mediterranean in the blue economy sector are increasingly available (Cañibano, Otamendi, and Solís 2011). Some are designed specifically for the blue economy sector, while others are aimed at enhancing cross-sector interaction and exchange. Among the available European financial instruments that foster mobility programmes in the blue economy, Erasmus for Young Entrepreneurs seems to be a noteworthy case. In the maritime field, the benefits for both the Mediterranean and the European regions are generated by INTERREG funding.

These efforts highlight the European Commission's commitment to fostering research collaboration and mobility in the Mediterranean, ultimately contributing to the advancement of scientific knowledge and the blue economy in the region.

In this context, European scholarships play a crucial role in supporting scientists from the Mediterranean area. The European Union's initiatives address the obstacles to regional integration, including those related to research and innovation, thereby offering valuable support to scientists in the Southern Mediterranean (European Commission

TABLE 1 Summary of the Main Programs and Funding Schemes Available for Mediterranean Countries and Main Features

Program/ Fund	Description	Eligibility	Funding Amount	Application Deadline
ENI CBC Med Programme	Supports cooperation across the Mediterranean to address common challenges.	Public and private entities from eligible countries.	Varies per project; typically, up to €3 million.	Calls for proposals periodically.
Horizon Europe (Cluster 6)	Focuses on research and innovation for food, bioeconomy, natural resources, agriculture, and environment.	EU member states and associated countries.	Up to €10 million per project.	Varies; several calls per year.
Blue Economy Window (EMFF)	Funds innovative projects contributing to the blue economy, including technology development.	SMEs and other entities in the blue economy sector.	Up to €2.5 million per project.	Annual calls for proposals.
Interreg MED Programme	Promotes sustainable growth in the Mediterranean area through innovative practices and cooperation.	Public bodies, SMEs, NGOs, and universities.	Varies per project; typically, up to €5 million.	Calls for proposals periodically.
PRIMA (Partnership for Research and Innovation in the Mediterranean Area)	Supports projects in water management, farming systems, and agro-food value chains.	Public and private entities from participating countries.	Up to €2 million per project.	Annual calls for proposals.
BlueInvest Grants	Supports innovative SMEs in the blue economy to develop and scale up.	SMEs established in an EU member state or associated country.	Up to €2.5 million per project.	Varies; several calls per year.

Continued on the next page

n.d.b). These efforts are essential for promoting knowledge exchange, capacity building, and sustainable development in the region, highlighting the importance of European assistance for scientists from the South Mediterranean.

International Mobility Exchange Programmes (IMEPS) offer a unique chance for ECSS to broaden their perspectives, to learn from different cultures, and to collaborate with international colleagues. By participating in an IMEP, early-career researchers can develop a global

TABLE 1 *Continued from the previous page*

Program/ Fund	Description	Eligibility	Funding Amount	Application Deadline
Life Programme	EU's funding instrument for environmental and climate action projects, including marine projects.	Public and private bodies.	Up to 60% of eligible costs; varies per project.	Annual calls for proposals.
Mediterranean Cooperation Programme (MEDCOP)	Facilitates cooperation among Mediterranean regions to tackle shared challenges.	Regional authorities, NGOS, academic institutions.	Varies per project; typically, up to €4 million.	Calls for proposals periodically.
European Maritime and Fisheries Fund (EMFF)	Supports sustainable fishing and coastal communities.	Fisheries, aquaculture producers, public authorities.	Varies per project; typically, up to €2 million.	Continuous intake; varies by country.
UfM Grant Scheme	Supports projects enhancing regional cooperation and integration in the Mediterranean.	NGOS, local authorities, educational institutions.	Varies per project; up to €1 million.	Calls for proposals periodically.
Marie Skłodowska-Curie Actions (MSCA)	Provides grants for all stages of researchers' careers and encourages transnational, intersectoral, and interdisciplinary mobility.	Researchers and institutions worldwide.	Varies; typically €50,000 to €150,000 per year per researcher.	Varies; multiple calls annually.
Sustainable Blue Economy Partnership (SBEP)	Supports transformative solutions for a sustainable blue economy, addressing economic, environmental, and societal challenges.	Public and private entities from participating countries.	Varies per project; typically up to €5 million.	Annual calls for proposals.

[106]

network of contacts and build relationships that will serve them well throughout their careers. Moreover, IMEPS offer a chance to access funding opportunities that may not be available in their home country or institution, especially for ECSS with limited research resources. IMEPS enable young researchers to work with leading experts in their field and to gain exposure to cutting-edge research methodologies and techniques. This experience can be invaluable for those looking to launch their research projects or pursue an academic career (Netz, Hampel, and Aman 2020).

CONCLUSIONS

The experiences of ECSS in international mobility vary, and more research is needed to understand their motivations and the long-term effects of mobility on their careers. In summary, the COVID-19 pandemic had a significant and potentially long-lasting impact on early career scientists, affecting their research activities, career prospects, and overall well-being. International mobility exchange programmes offer many opportunities for young researchers in Europe. Participating in these programmes, allows researchers to gain valuable experience, expand their networks, and enhance their career prospects. These programmes offer a unique opportunity to gain new perspectives, broaden horizons, and build a brighter future for the global community of scholars.

The illustrated three case studies vividly demonstrate the potential for transforming crises into opportunities within the blue economy sector. These examples serve as compelling evidence that even in the face of adversity, innovative solutions and strategic actions can lead to significant scientific and technological advancements and career growth. These transformative endeavours not only mitigate the impacts of crises but also contribute to the long-term prosperity and resilience of the blue economy sector.

Overall, the COVID-19 pandemic has highlighted the importance of resilience, adaptability, and innovation within the scientific community as researchers navigate challenges and continue to pursue scientific advancement in an evolving global landscape.

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IJEMS | SCIENTIFIC ARTICLE

The Effects of Job Retention Schemes on Employment Preservation during the COVID-19 Epidemic in Euro Area Countries

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In this paper, we analyse the effects of different job retention (JR) schemes take-ups on the preservation of employment during the COVID-19 pandemic in euro area countries. We find that JR schemes in euro area countries helped reduce job losses during the pandemic. The most effective in preserving employment were take-ups of the most extensively updated pre-existing short-time work (STW) schemes that were more generous and included nonstandard workers. However, the impact of JR schemes was less than the overall employment preservation achieved. In contrast to the Great Recession, macroeconomic measures of economic support also helped preserve jobs during the pandemic as well. Corresponding differences in sectoral employment preservation effects show that such macroeconomic support led to more jobs being kept, especially in the group of vulnerable service sectors.

Key Words: COVID-19 pandemic, job retention schemes, short-time work schemes, macroeconomic measures

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INTRODUCTION

Job retention (JR) schemes feature among the key instruments for mitigating the effects of the lockdowns on employment and social hardship introduced or extended by different countries in response to the crisis. Such schemes provided strong income support to workers with reduced working hours, reduced income losses, bolstered aggregate demand, and significantly lowered the number of jobs at risk of being terminated due to liquidity constraints (OECD 2021).

JR schemes can take the form of short-time work (STW) schemes that directly subsidise hours not worked, such as Germany's *Kurzarbeit* or France's *Activité partielle*. They can also include wage subsidy (WS)

schemes that subsidise hours worked, and can in addition be used to top up the earnings of workers with reduced hours, such as the Netherlands' Emergency Bridging Measure (*Noodmatregel Overbrugging Werkgelegenheid,* NOW) or the JobKeeper Payment in Australia.
[116] A crucial aspect of all these JR schemes is that employees keep their contracts with the employer even if their work is fully suspended. According to an OECD assessment (OECD 2020a), in the second quarter of 2020, when take-up rates peaked, JR schemes were being implemented in almost all OECD countries, covering around 60 million workers. In comparison, during the Great Recession, JR schemes only included some 6 million workers, even though 16 OECD countries launched JR schemes or had implemented the schemes already early on in the crisis and 7 OECD countries had introduced new schemes during that period (Hijzen and Venn 2011).

However, research on the impact of JR schemes on employment preservation in the pandemic has brought mixed results. Adams-Prassl et al. (2020) find that in Germany, with a well-established short-time work (STW) scheme, 34% of employees in work at the onset of the pandemic had been asked to reduce their hours to benefit from this scheme. In April 2020, only 5% of German workers had lost their jobs compared to the USA and the UK where the respective figures were 20% and 17% of individuals (Adams-Prassl et al. 2020). Similarly, the JobKeeper Payment scheme in Australia is estimated to have saved one in five jobs (Bishop and Day 2020). In contrast, OECD analysis based on the take-up[1] of JR schemes in OECD countries shows JR schemes had a relatively small effect on employment (compared to data on employment in hours decline), according to which removing the JR schemes would have led to a drop in employment of between 6% and 11% (OECD 2021).

Besides the high costs, an intriguing aspect of running intensive JR schemes might be the 'deadweight effects,' namely, the risk of supporting jobs that actually do not need support (OECD 2021). Thus, governments could be reluctant to use the existing support schemes once they discover their limited reach. This might explain why in most EU (developed) countries scheme cover grew strongly in the second quarter of 2020 but eased considerably already by the next quarter to fall behind the second quarter level in almost every country. This was also seen

[1] Take-up rates refer to actual use and are calculated as a share of total employees in short-time work (OECD 2020a).

during the second and third waves of epidemic when the pick-up in economic activity continued, even though in the most of these countries scheme cover remained available until the middle of 2022.

In addition to JR schemes, EU countries sought to reduce the harmful effects of the lockdowns on economic activity, employment, and [117]
social hardship by launching other powerful fiscal and monetary measures, which had strong and different effects in various sectors of economic activity and hence also on employment. Given that JR schemes were simultaneously operating alongside those policy measures, evaluating the effects of JR schemes by only considering firm-based empirical evidence on the pure take-up of JR schemes' cover could be biased. Moreover, while evaluating the employment preservation effects of such take-ups, one must also consider the sectoral different intensity of the impact of the economic support measures. Sectoral use of JR schemes during the COVID-19 pandemic is quite unlike that seen in the Great Recession. During the first three waves of the epidemic, JR schemes affected employment across many sectors and types of firms, whereas in the Great Recession almost 80% of JR scheme take-ups were concentrated in manufacturing (OECD 2020a).

In this paper, we analyse the effects of different job retention (JR) schemes' take-ups on employment preservation during the COVID-19 pandemic in euro area countries considering the complete portfolio of policy measures and sectoral effects as a crucial non-policy-related factor. We find that JR schemes in the euro area countries helped reduce job losses during the pandemic. The most effective in retaining employment were take-ups of the most extensively updated, pre-existing short-time work (STW) schemes that were generous and included non-standard workers. However, the impact of JR schemes take-ups was less than the achieved level of employment that was preserved. Corresponding differences in sectoral employment preservation effects show that macroeconomic support eased the loss of employment especially in the group of vulnerable service sectors.

Our study complements previous research (Hijzen and Venn 2011; Aiyar and Dao 2021) since assessments of what determines the size and quarterly dynamics of JR schemes take-ups support, and their employment preservation effects by sectors and based on macroeconomic data are rare or only partial. The study contributes to the literature on the implementation and effectiveness of various JR scheme take-ups in different countries regarding several COVID-19 waves and sectors. In

addition, the effects of other macroeconomic (non-JR schemes) measures on employment as well as potential sectoral differences in such macroeconomic employment support are also presented.

[118] LITERATURE REVIEW

Although in the Great Recession JR schemes covered ten times fewer workers than in the recent pandemic, their implementation and effectiveness soon became a subject of academic research. As early as 2011, the OECD conducted a detailed analysis of JR schemes' impact and role during the Great Recession (Hijzen and Venn 2011). The study describes the characteristics of the schemes implemented (albeit, it deals solely with STW schemes) and evaluates their effectiveness in preserving employment in the short and long run (in bust and recovery). It underlines two important potential shortcomings of these schemes. First, it assessed that the impact on jobs was smaller than the potential number of jobs saved, indicating weak targeting and, second, that the schemes led to greater labour segmentation if limited to workers holding permanent contracts.

Similar ambition and results may be seen in a study by Boeri and Bruecker (2011). They found that STW helped reduce job losses during the Great Recession. Still, according to their macroeconomic estimates, the number of jobs saved was less than the full-time equivalent jobs involved in these programmes, in some cases pointing to sizeable deadweight costs entailing the same moral hazard problems as those arising with the provision of unemployment insurance. Workers and employers might collude to extract payments from the state even when incentives for reductions in hours would not be required to avoid layoffs as the firm was no longer facing a negative demand shock.

The performance of JR schemes during the recovery period of the Great Recession episode was analysed in by Hijzen and Martin (2013). They found that STW raises the output elasticity of working time and helps preserve jobs in the sizeable context of a recession by making employment less elastic with respect to output. A key finding was that the timing of STW was crucial.

One can also find several papers dealing with JR schemes' performance during the Great Recession in specific countries. See, for example, Bellmann, Gerner, and Upward (2015) regarding Germany, Calavrezo, Duhautois and Walkoviak (2009) analysing the situation in France, and Siegenthaler and Kohl (2019), describing the Swiss expe-

riences with JR schemes during the Great Recession and afterwards.

As the pandemic developed, many studies tracked the initial impact of the COVID-19 induced crisis on the USA and European countries regarding employment, hours worked, and income (International Labour Organization 2020; 2021; Zimpelmann et al. 2021; Cotofan et al. 2021; Anderton et al. 2020). Gangopadhyaya and Garrett (2020) compared the level of unemployment in both crises: the Great Recession and COVID-19. They found that during the Great Recession unemployment in the USA reached 10%, while during the pandemic unemployment spiked at 12.8%. Anderton et al. (2020) analysed the COVID-19 pandemic's impact on the euro area labour market from the perspective of the cumulative contribution of four specific economic shocks to changes in total hours worked and the labour force: a technology or productivity shock, a shock in the labour supply (via a shock to labour force participation), a shock giving rise to an increase in the demand for labour, and a wage bargaining shock.

The OECD (2020a) analyses the JR schemes that OECD countries relied on during the (first wave of) the COVID-19 pandemic. The OECD estimates that STW schemes typically allow reduced working time at zero cost to firms, while WS schemes generally permit larger reductions in labour costs than STW schemes, yet are associated with greater fiscal costs or weaker income protection for workers. Due to the better targeting of STW subsidies to firms likely to experience financial difficulties, they are probably more effective at saving jobs than WS schemes. According to OECD simulations based on the single-hit scenario, STW subsidies reduce the share of jobs at risk by 10 percentage points from 22%, whereas this is only 7 percentage points under WS. A smaller section of the study also discusses the sectoral dimension of the JR schemes' effects.

Another study for G20 countries (OECD 2020b) finds that diverse working arrangements offered less security and were concentrated in affected sectors. Workers in a range of employment forms that vary from a full-time wage and salary work under a permanent contract – such as self-employed workers, those on temporary, on-call or part-time contracts, and informal economy workers – have been very vulnerable to the job and income losses triggered by the pandemic.

An OECD (2020c) study stresses that the sectors most directly affected by the COVID-19 containment measures account for around 40% of total employment and these sectors employ a large share of nonstan-

dard workers, i.e., part-time workers, self-employed, and workers hired under fixed-term contracts. Relative to permanent employees, temporary workers have a higher risk of losing their jobs and less chance of being enrolled in short-time work schemes.

[120] The OECD (2021) devotes a separate chapter to the JR schemes in place during the first three waves of epidemic. The paper tackles the size and volatility of the JR schemes take-ups, deals with sectoral differences in take-ups, as well as the dependence of employment support on the size of workers income.

Several studies of JR scheme effectiveness have looked at programmes in particular countries, yet their results are also inconclusive. Smaller estimates than expected are also evident in an IMF study for Germany (Aiyar and Dao 2021), whereas estimated effects of the Job-Keeper Payment scheme in Australia show just the opposite – much higher effects, with the JR scheme being estimated to have saved the job of one in five employees (Bishop and Day 2020). Results also differ significantly for studies of the same scheme and country, such as studies of the Paycheck Protection Program (PPP) used in the USA (Autor et al. 2020; Hubbard and Strain 2020).

DATA, DESCRIPTIVE STATISTICS OF MAIN VARIABLES AND HYPOTHESES

Data

We can generally capture the observations made in the previous sections in the following equation:

$$\begin{aligned} \textit{Job preservation} = f(&\textit{JR schemes, macroeconomic effects} \\ &\textit{of the portfolio of fiscal and monetary} \\ &\textit{measures, sectors}) \end{aligned} \tag{1}$$

We explain the sources of data and construction of the main variables below.

Our analysis is based on quarterly data from the first quarter of 2019 until the second quarter of 2021 (Q1 2019–Q2 2021) for 19 euro area countries and 9 sectors. For each sector and euro area country, we take seasonally adjusted data on employment in hours and employment in persons from Eurostat (https://ec.europa.eu/eurostat). We normalise employment data by setting the average employment level achieved in 2019 for each country as 1. This allows us to construct the employment

preservation indicator as a ratio of employment in persons and employment in hours, which serves as the main dependent variable in the research. With the employment preservation indicator, for each quarter, country and sector, we measure the level of employees per number of hours used relative to the average in 2019 so as to capture the relative [121]
level of employees who remained in employment despite the decline in the number of working hours. For instance, in the second quarter of 2020, i.e. during the first COVID-19 wave, the ratio for Germany is 1.10. This indicates that in this quarter Germany recorded a level of employed persons that was 10% higher than the level observed in working hours. It is thus evident that the number of employees in Germany dropped considerably less than the number of working hours. This was actually the case for all euro area countries.

To assess the impacts of different JR schemes, we use the OECD classification whereby countries use five types of JR schemes, namely, besides the four STW schemes also WS (OECD 2020a). According to the OECD study, 23 countries with a pre-existing STW scheme rapidly adjusted their STW scheme to cope with the COVID-19 crisis (OECD 2020a). They applied different combinations of three key changes: (1) simplifying access and extending coverage; (2) extending coverage to non-permanent workers; and (3) making them more generous. Boeri and Bruecker (2011) argue that making the benefits more generous provides the subject workers with stronger support while granting access for nonstandard jobs means that better targeting can be achieved since workers holding nonstandard jobs – i.e. the self-employed and workers with temporary or part-time dependent employment – are very vulnerable to job and income losses.[2] However, employers have little or zero incentive to use STW for nonstandard jobs as they know these workers can be fired at little or no cost, meaning access for nonstandard jobs should probably be combined with more generous STW benefits.

A number of countries have introduced temporary WS in response to the COVID-19 crisis that can be used by firms for hours worked (like standard wage subsidies) as well as for hours not worked (like STW

[2] On average, across the OECD countries, the sectors most directly affected by the COVID-19 containment measures account for around 40% of total employment. These sectors employ a large proportion of 'nonstandard workers,' i.e. part-time workers, self-employed and workers hired under fixed-term contracts. This proportion is generally highest in entertainment industries, hotels and restaurants (OECD 2020c).

TABLE 1 Types of JR Schemes Used during the COVID-19 Pandemic in the Euro Area

Stw1, Least updated, pre-existing STW scheme: Increased access and coverage with more generous benefits	Austria, Belgium, Luxembourg, Slovak Republic
Stw2, Updated, pre-existing STW scheme: increased access and coverage and access for workers in nonstandard jobs	Italy, Portugal
Stw3, Most extensively updated, pre-existing STW scheme: increased access, coverage, benefit generosity and access for workers in nonstandard jobs	Germany, Spain, Finland, France
Stwn, New (not previously existing) STW scheme	Greece, Lithuania, Latvia, Slovenia, Cyprus
Ws, New wage subsidy scheme	Estonia, Ireland, Netherlands, Malta

NOTES Based on data from OECD (2020a).

schemes), e.g., Australia, Canada, Estonia, Ireland, New Zealand. WS are reserved for firms experiencing a significant decline in revenue. In some countries, the size of the actual subsidy only depends on the wage bill (before programme participation) and not the decline in business activity (OECD 2021).

Table 1 presents different types of JR schemes used during the COVID-19 crisis in the euro area. It reveals important cross-country differences in the JR schemes used: 10 countries that adjusted their pre-existing STW schemes; 5 countries with new STW schemes, and 4 countries with wage subsidy schemes.

Data on the total portfolio of economic support measures were collected from the Oxford COVID-19 Government Response Tracker (GitHub 2022). The Oxford COVID-19 Government Response Tracker (OXCGRT) provides a systematic set of cross-national, longitudinal measures of government responses for more than 180 countries since 1st January 2020 (Hale et al. 2021). At present, it includes 19 policy indicators covering closure and containment, health and economic policies. To make it easier to describe government responses in aggregate, OXCGRT calculates simple indices that combine individual indicators to provide an overall measure of the intensity of government response across a family of indicators. These indices are: (1) GRI (all categories); (2) stringency index (containment and closure policies sometimes referred to as lockdown policies); (3) CHI (containment and closure and health policies); and (4) ESI (economic support measures). The ESI index is composed of economic policy response indicators which include

income support, debt/contract relief for households, fiscal measures and giving international support indicators.[3] We used the ESI index as an aggregate measure of the economic support for the period Q1 2019–Q2 2021 for 19 euro area countries.

To be able to determine how much the macroeconomic effects of the portfolio of fiscal and monetary measures (used to mitigate the damage caused by the lockdown measures) helped preserve employment in addition to the actual JR scheme take-up effects, we must control for macroeconomic effects and their sectoral dimension on the trajectory of JR take-ups. Lockdown effects and the corresponding employment lossvaried considerably between sectors. Hence, we use employment data for the A10 sections of the broad NACE structure of EU countries. [123]

Lockdown measures were quantified by using the corresponding stringency index which embraces all indicators on containment and closure policies (school closure, workplace closure, cancellation of public events, restrictions on the size of gatherings, halting of public transport, stay-at home requirement, limitations on internal movement, restrictions on international travel), constructed and published on the Oxford COVID-19 Government Response Tracker (Hale et al. 2021). Specific NPI indicators (restrictions on the size of gatherings and school closure) used while constructing the instruments are collected from the same source.

Descriptive Statistics of Main Variables and Operative Hypotheses

Table 2 presents descriptive statistics of the most important model variables for euro area countries: employment preservation ratio, normalised employment in persons, normalised employment in hours, government's economic support measures, and government's containment measures for each quarter from Q1 2020 until Q2 2021.

The levels of employment in persons and employment in hours in euro area countries were at their lowest in the second quarter of 2020, and while the maximum drop in the average level of employment per person per country did not exceed 7.6% (Spain), unemployment in hours dropped substantially more, notably on average by 12.7% compared to the average for 2019, to reach a maximum decrease of 27.2% in the case of Greece. For the entire period under observation, the normalised level of employment in persons was higher than the level of

[3] The way composite indices are calculated is described in Hale et al. (2021).

TABLE 2 Descriptive Statistics

Item		2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2
Mean	Employment preservation ratio	1.028	1.122	1.021	1.037	1.037	1.019
[124]	Employment in person ∅2019 = 1	1.009	0.989	0.995	0.998	0.997	0.997
	Employment in hours ∅2019 = 1	0.978	0.873	0.975	0.963	0.962	0.991
(a)	Economic support measures	12.10	78.04	74.83	75.73	76.52	74.92
	stwn_take-up	0.078	0.085	0.028	0.050	0.053	0.033
	ws_take-up	0.130	0.158	0.121	0.094	0.085	0.080
	stw1_take-up	0.104	0.180	0.060	0.073	0.094	0.067
	stw2_take-up	0.044	0.145	0.053	0.053	0.056	0.046
	stw3_take-up	0.103	0.250	0.069	0.071	0.114	0.054
(b)	stringency	19.21	68.95	46.92	61.93	69.53	60.21
	gatherings	0.74	3.40	2.59	3.76	3.91	3.69
	school	0.66	2.37	1.50	1.59	2.11	1.67
SD	Employment preservation ratio	0.041	0.116	0.040	0.056	0.071	0.053
	Employment in person ∅2019 = 1	0.007	0.021	0.018	0.016	0.022	0.014
	Employment in hours ∅2019 = 1	0.025	0.068	0.020	0.026	0.031	0.028
(a)	Economic support measures	5.490	14.750	17.470	16.270	17.170	17.400
	stwn_take-up	0.040	0.046	0.018	0.035	0.034	0.021
	ws_take-up	0.125	0.070	0.057	0.066	0.041	0.042
	stw1_take-up	0.045	0.039	0.024	0.029	0.035	0.031
	stw2_take-up	0.034	0.067	0.018	0.028	0.037	0.031
	stw3_take-up	0.061	0.061	0.030	0.046	0.000	0.000
(b)	stringency	5.28	7.46	10.58	10.10	10.96	8.46
	gatherings	0.33	0.43	0.99	0.38	0.27	0.44
	school	0.23	0.44	0.59	0.37	0.55	0.48

Continued on the next page

employment in hours. This difference is most pronounced in the second quarter of 2020 and shrinks slowly afterwards.

The employment preservation ratio was at its highest during the peak of both epidemic waves. Still, there is quite a high cross-country heterogeneity in the preservation ratios, reflecting differences in the intensity of policy responses to the pandemic and the sectoral composition of the economies (Anderton et al. 2020).

The JR support measures were at their lowest in Q1 2020, increased considerably in Q2 2020 and remained at elevated levels for the remaining quarters of the observation period. For all types of JR schemes,

TABLE 2 *Continued from the previous page*

Item		2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2
min	Employment preservation ratio	0.984	1.079	1.079	1.036	1.030	0.988
	Employment in person ∅2019 = 1	0.994	0.924	0.952	0.963	0.933	0.966
	Employment in hours ∅2019 = 1	0.917	0.728	0.931	0.907	0.892	0.917
(a)	Economic support measures	4.120	54.120	37.500	36.410	37.500	37.500
	stwn_take-up	0.022	0.029	0.005	0.001	0.001	0.001
	ws_take-up	0.030	0.058	0.044	0.002	0.054	0.042
	stw1_take-up	0.038	0.129	0.020	0.024	0.043	0.020
	stw2_take-up	0.015	0.063	0.032	0.021	0.011	0.006
	stw3_take-up	0.043	0.190	0.039	0.025	0.114	0.054
(b)	stringency	11.66	57.89	27.92	41.81	49.12	46.09
	gatherings	0.31	2.42	0.48	2.50	3.03	2.49
	school	0.31	1.47	1.00	1.00	1.00	1.00
max	Employment preservation ratio	1.080	1.080	1.080	1.040	1.030	0.990
	Employment in person ∅2019 = 1	1.020	1.010	1.010	1.030	1.030	1.010
	Employment in hours ∅2019 = 1	1.030	0.940	0.940	0.990	1.000	1.020
(a)	Economic support measures	26.370	100	100	100	100	100
	stwn_take-up	0.134	0.150	0.055	0.118	0.091	0.060
	ws_take-up	0.304	0.242	0.177	0.140	0.142	0.138
	stw1_take-up	0.147	0.228	0.080	0.099	0.139	0.107
	stw2_take-up	0.091	0.242	0.080	0.089	0.094	0.086
	stw3_take-up	0.163	0.310	0.098	0.116	0.114	0.054
(b)	stringency	37.85	81.85	66.47	76.83	86.16	73.32
	gatherings	1.67	4.00	4.00	4.00	4.00	4.00
	school	1.25	3.00	2.89	2.49	3.00	2.71

NOTES Row headings are as follows: (a) government's support measures, (b) government's containment measures. Based on data from Eurostat (https://ec.europa.eu/eurostat), OECD (2000a), and Oxford COVID-19 Government Response Tracker (GitHub 2022). Employment variables are normalised on the basis ∅2019 = 1; index of economic support variable, Stringency index, School closing and Gatherings are used as defined in the Oxford COVID-19 Government Response Tracker (GitHub 2022). Types of JR schemes defined as suggested in the OECD (2020a) study.

the highest level of take-ups was reached in the second quarter of 2020 while afterwards they declined and stayed quite stable. In the second quarter of 2020, the level of scheme use (take-ups) reached a maximum level of 31% (Italy) for scheme type stw2 (a pre-existing STW scheme with updated access and coverage as well as access for workers holding nonstandard jobs) with a mean value of 25% of scheme take-ups. The

lowest level of take-ups was reached in all quarters in those countries with new STW schemes (stwn), even though they had an average level (7.8%) of take-up in Q2 2020 with a corresponding minimum level of almost 2.8% (Latvia).

[126] The containment and closure policies index (stringency, measured from 1 to 100) is at its lowest in Q1 2020 and its highest in Q2 2021. Overall, the mean value increased after Q3 2020 and remained high through the other periods. A similar pattern occurred with the indicator Restriction on the size of gatherings (ordinal values, 1–5), while the indicator School closure (ordinal values 1–5) was at its highest in Q2 2020 (2.37), but later relaxed.

Against this background and the literature reviewed, we test the following hypotheses:

1 Changes in the employment preservation ratio over time can be to a larger degree explained by changes in JR scheme take-up rates.
2 Changes in the preservation indicator over time are also influenced by changes in other support measures (fiscal and monetary) that governments have implemented during the pandemic.
3 Among different JR schemes, the most effective at preserving employment levels were take-ups of already existing STW schemes that had been most extensively updated.

MODEL

In normal times, Okun's law[4] suggests that employment in persons depends on employment in hours, the cyclical phase of economic activity (Burggraeve, de Walque, and Zimmer 2015), as well as sectoral and country characteristics (Crivelli, Furceri, and Toujas-Bernaté 2012). However, in the pandemic, policymakers have supported employment preservation (our dependent variable) directly by using JR schemes and indirectly through macroeconomic policy support to the economy.

We start the description of the equation composing our model of employment preservation with the equation for employment to appropriately encompass the relationship between employment in persons and employment in hours (Burggraeve et al. 2015). Explanatory variables of the model for employment in persons are therefore employ-

[4] Okun's Law is an empirically observed relationship between unemployment and losses in a country's production (Prachowny 1993).

ment in hours, JR scheme take-up rates, economic support measures, and time fixed effects. To encompass large differences in the potential effects of economic support between sectors, economic support variable effects are specified separately for five groups of sectors. Corresponding explanatory variables are defined as a product of the sectoral group indicator variable and economic support variable. Time fixed effects are included to account for any other time-specific effects on the employment in persons variable that might have affected penetration rates in the countries under study. [127]

If EP_{ijt} is employment in persons and EH_{ijt} employment in hours, $JR_{it} \cdot dum\_jr_{ik}$ the take-up of JR scheme k (for country i take-up JR_{it} and scheme dum_jr_{ik}), $ES_{it} \cdot dum\_es_{il}$ sectoral economic support (for country i economic support ES_{it} and sector dum_es_{il}), dum_t time indicators embracing potential other (undisclosed) yet systematic factors' effects on persons employed dynamics, U_i unobservable country effects, U_j unobservable sector effects and ε_{ijt} the error term, then the conceptual version of the model for employment may be formally written as

$$EP_{ijt} = F(EH_{ijt}, JR_{it} \cdot dum\_jr_{ik}, ES_{it} \cdot dum\_es_{il}, dum_t, U_i, U_j, \varepsilon_{ijt}), \quad (2)$$

where index i stands for country, j for sector, t for time, k for type of scheme and l for sectoral group.

Regarding the specification of the function F, it is assumed that there is a linear dependence of EP_{ijt} on the elasticity of EH_{ijt} and the increments of other variables stated such that the complete specification of the estimable operative version of the model for EP_{ijt} is the following:

$$EP_{ijt} = EH_{ijt}^{\alpha} \cdot \exp\Big(\sum_k \beta_k JR_{it} \cdot dum\_jr_{ik} + \sum_l \gamma_l ES_{it} \cdot dum\_es_{il} + \sum \delta_t dum_t + U_i + U_j + \varepsilon_{ijt}\Big). \quad (3)$$

Sectoral groups are defined by sectors of the A10 sections of the broadest NACE sectoral classification. These groups of sectors are defined according to the potential extent of their lockdown exposure (manufacturing, construction, utilities, vulnerable services, non-vulnerable services, public sector). Types of JR schemes are specified according to the classification used in OECD (2020a).

We analyse the period Q1 2019–Q2 2021. The period is extended to

the beginning of 2019 to identify the effects of modifications made to JR schemes at the start of the epidemic (14 euro area countries modified an already existing STW scheme in Q1 2020, as well as potential other systematic (but undisclosed) time-specific impacts on employment during the epidemic episode (parameters σ_t) as well as to increase the accuracy of the estimated dependence of the employment preservation indicator.

[128]

Since for estimated relation (3) parameter α did not significantly differ from 1,[5] the estimable starting operative version of the model specification for employment preservation is defined as follows:

$$\log\frac{\mathrm{EP}_{ijt}}{\mathrm{EH}_{ijt}} = \sum_k \beta_k \mathrm{JR}_{it} \cdot dum\_jr_{ik} + \sum_l \gamma_l \mathrm{ES}_{it} \cdot dum\_es_{il} + \sum_t \sigma_t dum_t + U_i + U_j + \varepsilon_{ijt}, \quad (4)$$

where index i stands for country, j for sector, t for time, k for type of scheme and l for sectoral group.

This starting version of the model is estimated and analysed in three steps; in each step, specification of the previous step is further simplified to allow specific characteristics of the model to be analysed.

In step one, the starting version of the model specification (4) is used to check the potential existence of specific time effects influencing employment preservation in the epidemic episode.

In step two, the model is estimated in its basic specification as

$$\log\frac{\mathrm{EP}_{ijt}}{\mathrm{EH}_{ijt}} = \sum_k \beta_k \mathrm{JR}_{it} \cdot dum\_jr_{ik} + \sum_l \gamma_l \mathrm{ES}_{it} \cdot dum\_es_{il} + U_i + U_j + \varepsilon_{ijt}. \quad (5)$$

Notably, the basic specification differs from the starting specification only in (missing) time dummies. Since it encompasses both theoretically important factors – the take-up of different JR scheme effects as well as the sectoral macroeconomic effects, a discussion of the basic model estimates represents the core of the analysis in this paper.

A robustness check of the main basic model conclusions is made in step three when the model is estimated without any explicit specification of the sectoral differences, therefore formally in the following specification:

[5] Corresponding estimates are available from the author upon request.

TABLE 3 Hausman Test

Model	χ^2	P
Starting model	Asymptotic assumptions violated	
Basic model	42.9	0.00
Robust model	16.1	0.01

NOTES Hausman test values and significance; the data for the starting model violate the asymptotic assumptions of the test.

$$\log\frac{\mathrm{EP}_{ijt}}{\mathrm{EH}_{ijt}} = \sum_k \beta_k \mathrm{JR}_{it} \cdot dum\_jr_{ik} + \gamma_1 \mathrm{ES}_{it} + U_i + U_j + \varepsilon_{ijt}. \quad (6)$$

The presented stepwise simplification of the model specification enables the explicit focusing on (testing of) the crucial questions (hypotheses) of the study embraced in the stated paper research question.

RESULTS

The model (4) is estimated on panel data (where the observation unit is country, sector in a quarter) for 19 euro countries and 9 sectors in the period Q1 2019–Q2 2021. Due to missing data, there are 1,330 complete observations.

Because of the high possibility that unobservable individual effects for country and sectors are present,[6] a fixed effects estimator should be used as it excludes country and sector time-invariant variables' impacts and gives consistent parameter estimates. Nonetheless, Hausman's test is conducted to test for the presence of fixed effects and whether the more efficient random effects estimator could also be used. Table 3 presents values of Hausman's test for all three model specifications analysed (starting specification, basic specification, robust specification). Hausman's test does not enable the use of a random effects estimator in any model variant and thus all three models are estimated with fixed effects.

The possible endogeneity of economic support measures as well as the JR scheme take-up rates leads us to run an instrumental version of the fixed effects regression (the instrumental estimator GMM is used).[7]

[6] Crivelli et al. (2012) suggest a set of determinants of cross-country variations of employment growth consisting of the following variables: (a) Structural and Policy Variables (labour market policies, product market policies, and government size), (b) Product market regulations, like labour market regulations, (c) government size, (d) macroeconomic variables, and (e) demographic variables.

[7] Economic support measures and the associated JR scheme take-ups are highly endoge-

TABLE 4 Starting Model Estimates

Explanatory variables	Coefficient	*t*-stat	*P*
support(–1)	0.00085	1.03	0.303
support_con(–1)	–0.00000	–0.00	0.998
support_vul(–1)	0.00049***	2.89	0.004
support_nvul(–1)	–0.00000	–0.01	0.998
support_uti(–1)	–0.00021	–1.07	0.285
support_pub(–1)	–0.00015	–0.78	0.438
takeup_ws	0.76782***	2,93	0.003
takeup_stw3	2.77364***	3.51	0.000
takeup_stw2	1.22646***	4.68	0.000
takeup_stw1	1.66697***	4.28	0.000
takeup_stwn	0.91449***	3.37	0.001
dum_stwo	0.10218***	3.37	0.001
dum_2019q2	0.00576	0.85	0.396
dum_2019q3	0.00293	0.43	0.666
dum_2019q4	0.00278	0.41	0.683
dum_2020q1	–0.01192	–0.86	0.390
dum_2020q2	–0.03714	–0.92	0.360
dum_2020q3	–0.06888	–1.00	0.319
dum_2020q4	–0.05189	–0.78	0.436
dum_2021q1	–0.06727	–0.99	0.320
dum_2021q2	–0.05736	–0.85	0.398
_cons	–0.06921***	–3.42	0.001

Continued on the next page

[130]

The instruments used are a stringency index, lockdown variables for public gatherings and school closures, dummies for sectors and the type of JR schemes as well as the combination (products) of these variables. We used instrument variables representing pandemic containment measures as they are defined in relation to the state of the pan-

nous to labour market conditions since they were mainly used to alleviate the short-term effects of the COVID policy measures constraining social mobility on employment and temporary unemployment (Bole, Prašnikar, and Rop 2021). For instance, firms tend to place workers in JR schemes when the underlying conditions are poor and, correspondingly, reduce the share of the workforce in JR schemes when business conditions improve. Such pro-cyclical behaviour strongly biases the estimate of our variable of interest because the unobservable business conditions would be part of the residual and negatively correlated with the JR scheme take-up variable (for Germany, see Aiyar and Dao 2021).

TABLE 4 *Continued from the previous page*

Explanatory variables	*P*
Anderson canon correlation test of under identification	0.000
Sargan Hansen test of over identification	0.682

NOTES Calculations based on Eurostat (https://ec.europa.eu/eurostat) and Oxford COVID-19 Government Response Tracker (GitHub 2022). The dependent variable is employment in persons per employment in hours, normalised so that the average in 2019 is 1. Explanatory variables are: support_con(–1) – economic support policy index multiplied by a dummy for construction, lag1; support_vul(–1) – economic support policy index multiplied by a dummy for vulnerable, lag1; support_nvul (–1) – economic support policy index multiplied by a dummy for non-vulnerable, lag1; support_uti (–1) – economic support policy index multiplied by a dummy for utilities, lag1; support_pub (–1) – economic support policy index multiplied by a dummy for public sector, lag1; takeup_ws – take-ups multiplied by a dummy for a WS scheme; takeup_stw3 – take-ups multiplied by a dummy for an updated STW scheme (increased access and coverage; increased generosity; increased access for workers in non-standard jobs); takeup_stw2 – take-ups multiplied by a dummy for an updated STW scheme (increased access and coverage; increased access for workers in non-standard jobs); takeup_stw1 – take-ups multiplied by a dummy for an updated STW scheme (increased access and coverage; increased generosity); takeup_stwn – take-ups multiplied by a dummy for a new STW scheme; dum_stwo – a dummy for a pre-COVID STW scheme. Sargan-Hansen over identification test (significance); Anderson test of under identification (significance). ***, **, * significant, respectively at 0.01, 0.05 and 0.1.

demic and not the state of the labour market and the economy, but may well impact the level of the government's economic support measures and JR schemes.

Table 4 presents estimates of the model in its starting specification (5) for euro area countries. The Sargan-Hansen and Anderson tests confirm that the instruments' quality is acceptable. The coefficients of JR scheme take-up types are significant and have the expected sign, while among the sectoral economic support variables only the support for vulnerable sectors is significant. Others have the expected sign but are not significantly different from the corresponding effect of manufacturing, which represents the basis of the sectoral economic support variables comparison and which in itself is non-significant. Given that all time dummies in the COVID-19 period are non-significant and are not significantly different from the time dummies in the pre-COVID-19 period,[8] there are no other decisive factors mitigating employment losses during the lockdown episode.

Table 5 displays estimates of the model in its basic specification. It

[8] Corresponding estimates are available from the author upon request.

TABLE 5 Basic Model Estimates

Explanatory variables	Coefficient	*t*-stat	*P*
support(–1)	0.00013	1.01	0.315
support_con(–1)	0.00000	0.00	0.998
support_vul(–1)	0.00049	3.19***	0.001
support_nvul(–1)	0.00000	–0.01	0.994
support_uti(–1)	–0.00021	–1.18	0.238
support_pub(–1)	–0.00015	–0.86	0.392
takeup_ws	0.60253	8.31***	0.000
takeup_stw3	2.10297	11.86***	0.000
takeup_stw2	1.01807	11.81***	0.000
takeup_stw1	1.42968	13.56***	0.000
takeup_stwn	0.65103	6.45***	0.000
dum_stwo	0.08637	7.75***	0.000
Cons	–0.05647	–7.60***	0.000
Anderson canon correlation test of under identification			0.000
Sargan Hansen test of overidentification			0.605

NOTES N = 5130. The dependent variable is employment in persons per employment in hours, normalised so that the average in 2019 is 1. Explanatory variables are: support (–1) – economic support policy index, lag1; support_con(–1) – economic support policy index multiplied by a dummy for construction, lag1; support_vul(–1) – economic support policy index multiplied by a dummy for vulnerable, lag1; support_nvul (–1) – economic support policy index multiplied by a dummy for non-vulnerable, lag1; support_uti (–1) – economic support policy index multiplied by a dummy for utilities, lag1; support_pub (–1) – economic support policy index multiplied by a dummy for public sector, lag1; takeup_ws – take-ups multiplied by a dummy for a WS scheme; takeup_stw3 – take-ups multiplied by a dummy for an updated STW scheme (increased access and coverage; increased generosity; increased access for workers in non-standard jobs); takeup_stw2 – take-ups multiplied by a dummy for an updated scheme STW (increased access and coverage; increased access for workers in non-standard jobs); takeup_stw1 – take-ups multiplied by a dummy for an updated STW scheme (increased access and coverage; increased generosity); takeup_stwn – take-ups multiplied by a dummy for a new STW scheme; dum_stwo a dummy for a pre COVID STW scheme. Sargan-Hansen over identification test (significance); Anderson test of under identification (significance); ***, **, * significant, respectively at 0.01, 0.05 and 0.1.

[132]

differs from the model's starting specification in the absence of time dummies. The model is estimated with instrumentalised fixed effects. In estimating the basic model, the same instruments are used as for estimating the starting model.

The coefficients of the JR scheme take-up rates are highly significant and have the expected sign. A positive impact was especially strong in pre-existing STW schemes with increased access and cov-

TABLE 6 Effects of Employment Preservation Policy

Period	Actual values	All model measures	Macroec. measures
Q1 2020	0.027	0.036	0.000
Q2 2020	0.110	0.123	0.002
Q3 2020	0.020	0.028	0.015
Q4 2020	0.035	0.033	0.014
Q1 2021	0.034	0.042	0.015
Q2 2021	0.022	0.024	0.017
Average	0.041	0.048	0.011

NOTES Employment preservation; basic model simulation of employment preservation effects; actual values; total simulated effects; simulation of the effects of only the macroeconomic support measures.

erage, increased generosity, and increased access for workers holding non-standard jobs.

The effects of the macroeconomic economic support by way of mitigated sectoral employment loss are positive for manufacturing, construction, vulnerable and non-vulnerable services, but only significant for the group of vulnerable sectors.

To reveal the structure of policy contributions to the retained employment levels, table 6 presents actual values of employment in person per working hours, model-simulated common effects of the JR schemes and the macroeconomic support measures, as well as the contribution of only the macroeconomic support measures. Average values for all sectors and countries are given.

Employment preservation effects were quite volatile in the first three waves of the epidemic. They reached their peak in Q2 2020 when slightly more than 10% of the employed were not working. The biggest contribution to such employment preservation effects was made by the taking up of JR schemes. Still, the contribution made by the macroeconomic measures to curbing employment losses was also not negligible. It was small only in the first two quarters of the COVID-19 pandemic. After that, the contribution was quite sizeable; in the whole period of the first three epidemic waves, it accounted for around one-quarter (0.011/0.048 = 0.23) of the total mitigation effects.

Overall, it may be concluded that in line with hypotheses 1 and 2 changes in the employment preservation ratio over time can be to a larger degree explained by changes in JR scheme take-up rates and by changes in other government support measures.

TABLE 7 Macroeconomic Support Effects on Employment Preservation – Sectoral Differences

Sector	support_con	support_vul	support_nvul	support_uti	support_pub
support_man	0.005	0.488***	−0.0001	−0.208	−0.151
support_con		0.483***	−0.005	−0.213	−0.156
support_vul			−0.488***	−0.696***	−0.639***
support_nvul				−0.208*	−0.151
support_uti					0.057

NOTES Differences in macroeconomic support effects on employment preservation; sectoral differences (column sector less row sector item) are multiplied by 1,000; macroeconomic support effects on employment preservation in: manufacturing (support_man), construction (support_con), vulnerable service sectors (support_vul), nonvulnerable service sectors (support_nvul), utilities (support_uti), and public sector (support_pub); ***, **, * significant at 0.01, 0.05, and 0.1, respectively.

[134]

The estimated effects of macroeconomic support on sectoral employment preservation presented in table 5 also enable a comparison of those effects between sectors. Corresponding differences in sectoral employment preservation effects are given in table 7. Macroeconomic support is shown to have mitigated employment loss by far the most in the group of vulnerable service sectors. The employment-preservation impact of economic support measures for the vulnerable service sectors is several times (significant at $p = 0.00$) larger than in the other sectors. However, as shown in table 7, the effects of those sectors (with one exception) did not significantly exceed the effects in any other sector; only the effects in non-vulnerable service sectors differ from the effects in utilities by the lowest margin of significance ($p = 0.10$).

We may conclude that the evidence presented in table 8 confirms that the impact of economic support measures on employment preservation varies across sectors, especially between vulnerable sectors and others.

Estimates of the basic model (in table 5) also indicate that the effectiveness of different types of JR scheme take-ups varies considerably. To enable a more detailed comparison, table 8 presents differences in the effects on employment preservation of the analysed types of JR scheme take-ups.

The evidence presented in table 8 shows that the most successful countries have been those with a previous STW scheme which they extended most extensively by applying all three key changes to it (the most extensively updated STW schemes – denoted by takeup_stw3):

- simplifying access and extending coverage;

TABLE 8 Employment Preservation Effects – Differences between JR Schemes Take-Ups

	takeup_stw234	takeup_stw24	takeup_stw23	takeup_stwn	dum_stwo
takeup_ws	1.500***	0.416***	0.827***	0.048	−0.516***
takeup_stw3	−1.085***	−0.673***	−1.452***	−2.017***	
takeup_stw2		0.412***	−0.367**	−0.932***	
takeup_stw1			−0.779***	−1.343***	
takeup_stwn					−0.565

NOTES Differences in employment preservation effects for types of JR scheme take-ups; effect of JR scheme take-ups in column less the effect of a JR scheme in row item; analysed types of JR schemes: takeup_ws – take-ups multiplied by a dummy for WS scheme; takeup_stw3 – take-ups multiplied by a dummy for an updated existing STW scheme (increased access and coverage; increased generosity; increased access for workers in non-standard jobs); takeup_stw2 – take-ups multiplied by a dummy for an updated existing STW scheme (increased access and coverage; increased access for workers in non-standard jobs); takeup_stw1 – take-ups multiplied by a dummy for an updated existing STW scheme (increased access and coverage; increased generosity); takeup_stwn – take-ups multiplied by a dummy for a new STW scheme; dum_stwo a dummy for a pre-COVID STW scheme; ***, **, * significant, respectively at 0.01, 0.05 and 0.1.

- extending coverage to non-permanent workers; and
- making their benefits more generous.

The take-ups of this JR scheme had the strongest impact on employment preservation, outperforming other types of JR schemes in the COVID-19 pandemic by 25%–70%. The lowest effect on employment preservation was seen for take-ups of the JR scheme WS, which supported employment by subsidising all employees in the firm (denoted by takeup_ws). For every 1% of take-ups, this type of JR scheme reduced employment losses almost four times less effectively than the most successful STW scheme.

One may conclude that the empirical evidence given in table 9 validates the last (3rd) research hypothesis, namely, that among the different JR schemes in the COVID-19 pandemic the most effective at preserving employment levels were take-ups of already existing STW schemes that had been most extensively updated.

ROBUSTNESS TEST

To check the robustness of the estimated basic model with regard to its estimates, consistency and lessons, the model is also estimated in the robust specification (6). The model is estimated in a simplified version without an explicit sectoral dimension. Again, we employed an instrumental version of the fixed effects regression (instrumental estimator

TABLE 9 Robust Model Estimates

Explanatory variables	Coefficient	*t*-stat	*P*
support(–1)	0.00019***	3.280	0.001
takeup_ws	0.60253***	8.22	0.000
takeup_stw3	2.10297***	11.75	0.000
takeup_stw2	1.01807***	11.70	0.000
takeup_stw1	1.42968***	13.43	0.000
takeup_stwn	0.65103***	6.38	0.000
dum_stwo	0.08637***	7.67	0.000
Cons	–0.05650***	–7.54	0.000
Anderson canon correlation test of under identification			0.000
Sargan-Hansen test of over identification			0.609

NOTES The dependent variable is employment in persons per employment in hours, normalised so that the average in 2019 is 1. Explanatory variables are: support (–1) – economic support policy index, lag1; takeup_ws – take-ups multiplied by a dummy for a WS scheme; takeup_stw3 – take-ups multiplied by a dummy for an updated STW scheme (increased access and coverage; increased generosity; increased access for workers in non-standard jobs); takeup_stw2 – take-ups multiplied by a dummy for an updated STW scheme (increased access and coverage; increased access for workers in non-standard jobs); takeup_stw1 – take-ups multiplied by a dummy for an updated STW scheme (increased access and coverage; increased generosity); takeup_stwn – take-ups multiplied by a dummy for a new STW scheme; dum_stwo a dummy for a pre-COVID STW scheme. Sargan-Hansen over identification test (significance); Anderson test of under identification (significance); ***, **, * significant, respectively at 0.01, 0.05 and 0.1.

[136]

GMM). Instruments used in estimating the robust model are again constructed according to the same principles as for the previous model variants. The estimated model is presented in table 9.

The macroeconomic effects on employment preservation are highly significant and larger than the simple average of the corresponding sectoral effects in the basic model. Namely, the simple average of the sectoral effects in the basic model (see table 5) was 0.00016 (p = 0.06) versus 0.00019 (p = 0.00) in the robust version of the model.

This fact further confirms the sectoral differences in the economic support measures effects and, in particular, the size and importance of the vulnerable service sectors support for the success in limiting the loss of jobs during the COVID-19 pandemic, as already seen in table 7.

CONCLUSION

The COVID-19 pandemic has had an unprecedented impact on the labour market across world economies. The key instruments for mit-

igating the effects of the lockdowns on employment and social hardship that different countries introduced or extended in response to the crisis include different job retention (JR) schemes. JR schemes were implemented in all euro area countries, although different countries introduced or extended a range of JR schemes. Using data for euro area countries, this paper has analysed the effects of various JR scheme take-ups on employment preservation during the COVID pandemic. To assess the impacts of different JR schemes, we used the OECD classification whereby the countries use five types of JR schemes (OECD 2020a). [137]

Our paper supports literature findings (Hijzen and Venn 2011; Boeri and Bruecker 2011; Hijzen and Martin 2013; OECD 2020a; 2020b; 2020c; 2021) that JR schemes have been the most important instrument for reducing the loss of employment following the impacts of the nonpharmaceutical interventions during the COVID-19 crisis. Such schemes were able to relatively successfully limit excessive layoffs in the situation of a temporary reduction in business activity. Our results also show that countries (France, Germany, Spain, Finland) which extended a previous STW scheme by increasing its access, coverage and generosity, and also integrated workers holding non-standard jobs (denoted by takeup_stw3) into the scheme had the most successful JR scheme take-ups.

Our study reveals that JR schemes contributed less than the overall employment preservation achieved during different epidemic waves, and that other macroeconomic measures (non-JR schemes) contributed around one-quarter to the employment preserved. Corresponding differences in sectoral employment preservation effects show that macroeconomic support mitigated the loss of jobs by far the most in the group of vulnerable services sectors, where the corresponding nonpharmaceutical intervention (NPI) losses were the highest, and which was the crucial driver of the high indirect net effects in other sectoral groups (Bole, Prašnikar, and Rop 2021). Better targeting by using STW for non-standard jobs (i.e. self-employed workers and those in temporary or part-time dependent employment) and providing more generous benefits have no doubt helped to improve the situation (OECD 2020b). Still, since employers have little or zero incentive to use STW for non-standard jobs when they know that these workers can be fired at little or no cost, and governments are reluctant to subsidise these jobs due to the moral hazard problem (Boeri and Bruecker 2011), other

macroeconomic measures (non-JR schemes) might also do a good job at preserving jobs, in particular, in these sectors of the economy.

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IJEMS | SCIENTIFIC ARTICLE

The Positive Impact of the COVID-19 Pandemic on the Slovenian Economy

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The objective of the paper is to assess the resilience of Slovenia's economy during the COVID-19 pandemic that hit the global economy in Q4 2019, in years 2020, 2021 and 2022. To assess the resilience of Slovenia's economy, two sets of forecasts are generated: forecasts using historical data including the pandemic (from Q4 1997 to Q2 2022) and not including the pandemic (from Q4 1997 to Q3 2019). The computation of the difference of their averages is an indicator of the resilience of the economy during the pandemic, the greater the difference the greater the resilience. Eurozone and Germany are used as benchmarks. By subtracting the average forecasted Q3 2022–Q4 2050 Eurozone quarterly GDP growth rate (annualized) obtained with the Q4 1997–Q2 2022 data, +0.68%, by the one obtained with the Q4 1997–Q3 2019 data, +0.57%, the difference is +0.11%, whereas with Slovenia the difference is 0.10% [+1.20% – (+1.10%)] and with Germany the difference is –0.12% [+0.89% – (+1.01%)]. Thus, Slovenia's economy shows an almost equal resilience (+0.10%) than the Eurozone's (+0.11%) based on Q3 2022–Q4 2050 forecasts and a stronger resilience than Germany's (–0.12%). In addition, the authors pointed out that the average of the Q3 2022–Q4 2050 quarterly (annualized) growth rate forecasts of Slovenia is expected to be +1.20% with the Q4 1997–Q2 2022 data whereas it is expected to be only +0.68% for the Eurozone and +0.89% for Germany. Slovenia's economy shows better prospects than the Eurozone's and Germany's economies.

Key Words: GDP, spectral analysis, wavelet analysis, forecasting, Slovenia, Eurozone, Germany

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INTRODUCTION

Overview

The objective of the paper is to assess the resilience of Slovenia's economy during the COVID-19 pandemic and its 2050 projections. For this purpose, an innovative diagnostic test is used. Diagnostic tests in health statistics are used to differentiate between those with and without disease. The diagnostic test of this paper assesses the resilience of Slovenia's economy by generating two sets of forecast estimates of real GDP using a wavelet analysis forecasting model: forecast estimates using historical data including the pandemic (from Q4 1997 to Q2 2022) and not including the pandemic (from Q4 1997 to Q3 2019). The computation of the difference of their averages is an indicator of the resilience of the economy during the pandemic: the greater the difference the greater the resilience. This paper focuses on Slovenia benchmarked to Germany and the Eurozone (19 countries).

Some Facts About the Slovenian Economy

Slovenia is a miniature country of 20,273 km^2 and 2 million inhabitants, located in southern central Europe, bordered by the Julian Alps and Austria to the north, Croatia to the south, Italy to the west and Hungary and Serbia to the east. It is a place of passage and the privileged destination of many tourists for the beauty of its countryside and cities.

The economy of Slovenia is tiny, ranking 84th in the world in size of GDP equal to 61,749 million USD (2021 estimate, World Bank 2023). The GDP composition by sector of origin is represented by services (65.9% of GDP, 2017 est.), including tourism (source of 10.8% of GDP in 2019, 7.2% of GDP in 2020, 7.7% of GDP in 2021, World Travel and Tourism Council 2022), industry (32.2% of GDP, 2017 estimates) and agriculture being marginal (1.8% of GDP, 2017 estimates). The importance of tourism to the economy must be mentioned since tourism was heavily hit by lockdowns and travel bans during the pandemic. Its main exports partners are Germany (18%), Italy (11%), Croatia (8%), Austria (7%), France (5%) and Switzerland (5%), as of 2019 estimates, while its main imports partners are Germany (14%), Italy (12%), Austria (8%), Switzerland (8%) and China (7%9), as of 2019 estimates.

Slovenia's economy projections and resilience will be benchmarked to the Eurozone's economy (19 countries including Slovenia) and Germany. The Eurozone has added one member in 2023, Croatia, and remains the monetary union of 20 out of 28 European Union member

TABLE 1 Correlation Coefficient Matrix between Quarterly Real GDPS of Slovenia, the Eurozone and Germany between Q4 1997 and Q2 2022 (99 quarters)

Region	Eurozone	Germany	Slovenia
Eurozone	100		
Germany	96	100	
Slovenia	98	93	100

NOTES In percent.

TABLE 2 Economic Indicators of Slovenia, the Eurozone, and Germany

Item	Slovenia	Eurozone	Germany
Nominal GDP in 2022 (ranked in the world) Millions of US dollars	60,063	14,135,993	4,082,469
GDP at Purchasing Power Parity (PPP in US$) per capita in 2022	$50,032	$48,022	$63,150
2023 GDP annual Growth rate (year to year)	2%	+0.7%	−0.5%

Continued on the next page

states, all of which have adopted the Euro as their single currency and sole legal tender. The monetary authority of the Eurozone is the Eurosystem. Eurozone members are Austria, Belgium, Croatia, Finland, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Greece, Slovenia, Cyprus, Malta, Slovakia, Estonia, Latvia, and Lithuania. The other eight members of the European Union continue to use their own national currencies, although most of them have undertaken to adopt the Euro in the future. The choice of Germany and the Eurozone as benchmarks is backed by table 1 illustrating the correlation coefficient matrix between their three real GDPS between Q4 1997 and Q2 2022 (99 quarters).

The correlation coefficient assesses the robustness of the relationship between the three economies: assuming that real GDP is a good proxy of an economy, Slovenia's economy has a strong and positive relationship with the Eurozone (98%) and Germany (93%). Slovenia, the Eurozone and Germany real GDPS evolved in sync over the historical period under study, between Q4 1997 and Q2 2022. Table 2 gathers some economic indicators of the three economies under study.

According to the GDPS per capita, the economies of Slovenia, the Eurozone and Germany are considered as high-income, Germany ranking 17th worldwide in terms of GDP per capita, Slovenia 31st and the

TABLE 2 *Continued from the previous page*

Item	Slovenia	Eurozone	Germany
Main exports partners	Germany 18%, Italy 11%, Croatia 8%, Austria 7%, France 5%, Switzerland 5% (2019 est.)	Eurozone: N/A. European Union: USA with a share of 21% (527 billion US$), China with a share of 9.57% (239 billion US$), Switzerland with a share of 7.92% (198 billion US$), United Kingdom with a share of 5.57% (139 billion US$)	US 9%, China 8%, France 8%, Netherlands 6%, UK 6% (2021)
Main imports partners	Germany 14%, Italy 12%, Austria 8%, Switzerland 8%, China 7% (2019 est.)	Eurozone: N/A. European Union: China with a share of 21% (657 billion US$); USA with a share of 12.3% (372 billion US$); Russia with a share of 6.46% (195 billion US$); Switzerland with a share of 5.08% (153 billion US$)	China 10%, Netherlands 10%, Poland 7%, France 6%, Italy 6% (2021)

NOTES Based on data from World Bank (2024), Statista (2024), Worldometers (2024b), and The World Factbook (2024).

Eurozone 36th (Worldometers 2024b). Slovenia's economy was ranked 15th in size of the GDP among the 19 members of the Eurozone in 2021. According to Statista (2024) data, the top 5 economies based on GDP annual growth rate in 2023 (year to year) were Malta (+3.8%), Greece (+2.5%), Spain (+2.5%), Portugal (+2.3%) and Cyprus (+2.2%) when the 5 laggers were Germany (–0.5%), Luxembourg (–0.4%), Lithuania (–0.2%), Finland (–0.1%) and Austria (+0.1%). Slovenia (+2%) was ranked seventh behind Romania (2.2%), on par with Ireland (+2%). One interesting fact is that the largest economy of the Eurozone, Germany, was the worst performer in 2023 with –0.5% of annual growth rate when the Eurozone had an annual growth rate of +0.7%. 'When Germany sneezes, the Eurozone catches a cold!' According to *The Irish Times* ('When Germany Sneezes, the Euro Zone Catches a Cold' 2024), Germany's sheer size within the Eurozone and its economic strength makes it a bellwether for the European economy. If, as the German Central Bank mentioned, the German economy is already in recession with production falling for a second consecutive quarter in Q1 2024, due to weak external demand, consumers remaining cautious and domestic investment held back by high borrowing costs (Koranyi 2024), Germany could drag Eurozone members into recession as well. Slovenia is particularly vulnerable, as Germany is its first economic partner.

The following section will discuss the meaning of wavelets analysis in spectral analysis that will be used to forecast GDPS in this paper and explore the ways signal processing has been applied in the literature.

LITERATURE REVIEW

Introduction

The assumption in this research is that GDPS propagate through time in waveforms. Wavelet analysis captures the dynamics of these waves. Wavelet analysis expands functions in terms of wavelets generated in the form of translations and dilations of a fixed function called the mother wavelet. The resulting wavelets have special scaling properties, localized in time and frequency, permitting a closer connection between the represented function and their coefficients. Greater numerical stability in reconstruction and manipulation is ensured (Lee and Yamamoto 1994, 44). By extending the analysis to the complex behavior of economic signals, the originality of this paper lies in the application of wavelet analysis to economic variables subject to common dynamics such as GDP time series.

Since late 2019, the COVID-19 pandemic is present since late 2019 and has spread to the five continents in 2020, killing people by the millions and plunging the world economy into severe recession. This unexpected and dramatic event has forced governments to introduce unprecedented measures such as lockdowns of populations to contain its spread. By March 3, 2024, the recorded number of Coronavirus cases in the world was 703,872,042 people, with a death toll of 7,003,527 (Worldometers 2024a). The lockdowns have paralyzed economies across the five continents, shutting down factories and bringing manufacturing to a halt, with service sectors contracting on a massive scale, forcing millions of workers to leave the labor force. Globally, the economic activity has contracted at a rapid pace and put economies into recession.

Wavelet Analysis versus Traditional Economic Forecasting Methods

Traditional economic forecasting methods include causal methods (regression analysis, logit, probit), time series methods (moving average, exponential smoothing, trend and seasonal decomposition, Box-Jenkins ARIMA used as a benchmark in this paper; Box and Jenkins 1976; Box, Jenkins, and Reinsel 1994) and qualitative methods (Delphi Method, Jury of Executive Opinion, Sales Force Composite, Consumer Market Survey) (Faculty of Economic Informatics 2019). In this paper, signal processing used to forecast the Eurozone's, Germany's and Slovenia's GDPS belongs to time series methods. Signal processing, a field of physics, focuses on the analysis, synthesis, and modification of signals. The basic assumption of this paper is that economic time series

behave like signals propagating through time instead of propagating through space as do the phenomena studied by physics such as audio, video, speech, geophysical, sonar, radar, medical and musical signals. Wavelet analysis is a signal processing tool. In physics, wavelets as-
[146] sume the practical applications of modeling physical phenomena such as electrical, audio or seismic signals, which propagate through space in waveforms. Wavelets have specific properties that mimic signals, which makes them useful for signal processing. Signal processing focuses on the analysis, synthesis, and modification of signals. Spectral (or spectrum) analysis focuses on the data analysis of signals. More specifically, from a finite record of a stationary data sequence, spectral analysis estimates how the total power is distributed over frequency. In meteorology, astronomy and other fields, spectral analysis may reveal 'hidden periodicities' in data, which are to be associated with cyclic behavior or recurring processes (Stoica and Moses 2005).

Regarding wavelet analysis, forecasters have focused on the Discrete Wavelet Transform (DWT, explained at step three of the methodology), directing attention to several non-tractable properties of continuous wavelet transform (CWT), such as highly redundant wavelet coefficients (Valens 1999), the infinite number of wavelets in the wavelet transform and the absence of analytical solutions for many functions of the wavelet transforms. A wavelet-based forecasting method using the redundant 'à trous' wavelet transform and multiple resolution signal decomposition was presented in Renaud, Starck, and Murtagh (2002). Challenges involved in forecasting day-ahead electricity prices based on the wavelet transform and ARIMA models have been detailed in Conejo et al. (2005). Schlüter and Deuschle (2010), capturing seasonalities with time-varying period and intensity, incorporated the wavelet transform to improve forecasting methods. Tan et al. (2010) proposed a price forecasting method based on wavelet transform combined with ARIMA and GARCH models. Kao et al. (2013) integrated wavelet transforms, multivariate adaptive regression splines (MARS), and support vector regression (SVR called Wavelet-MARS-SVR) to address the problem of wavelet sub-series selection and to improve forecast accuracy. Ortega and Khashanah (2013) proposed a wavelet neural network model for the short-term forecast of stock returns from high-frequency financial data. Kriechbaumer et al. (2014) showed the cyclical behavior of metal prices using wavelet analysis to capture the cyclicality by decomposing a time series into its frequency and time domain. They pre-

sented a wavelet-autoregressive integrated moving average (ARIMA) approach for forecasting monthly prices of aluminum, copper, lead and zinc. He et al. (2014) proposed an entropy optimized wavelet-based forecasting algorithm to forecast the exchange rate movement. Berger (2016) transformed financial return series into its frequency and time [147]
domain via wavelet decomposition to separate short-run noise from long-run trends and assess the relevance of each frequency to value-at-risk (VaR) forecast. Rostan and Rostan (2018a) illustrated the versatility of wavelet analysis to the forecast of financial time series with distinctive properties. Choosing two market indices with divergent properties of their time series – the S&P 500 Composite Index being non-stationary and the VIX (volatility) index being stationary – they proved that using wavelet analysis combined with the Burg model offers high accuracy in terms of forecasts of their time series, thus demonstrating the versatility of this model. Rostan, Belhachemi, and Rostan (2015) appraised the financial sustainability of the Spanish pension system, and Rostan and Rostan (2018b) applied the same methodology to the Saudi pension system using spectral analysis. Extending the analysis to the complex-behavior of economic signals, the originality of this paper lies in the application of wavelet analysis to economic variables subject to common dynamics such as GDP time series that were used to forecast the Spanish economy (Rostan and Rostan 2018c), as well as Greek (Rostan and Rostan 2018d), Saudi (Rostan and Rostan 2021a; 2024b; Rostan, Rostan, and Wall 2024), Austrian (Rostan and Rostan 2020), Persian Gulf (Rostan and Rostan 2022a), Turkish (Rostan and Rostan 2022b), UK (Rostan and Rostan 2022c), Australian (Rostan and Rostan 2024a), South Korea's (Rostan and Rostan 2023b), Cyprus' (Rostan and Rostan 2023c), Brazil's, Mexico's and Argentina's economies (Rostan and Rostan 2024b), Iraq's (Alami, Rostan, and Rostan 2024) and the Eurozone's (Rostan, Rostan, and Nurunnabi 2023) economies. Interest rates were forecasted with wavelet analysis due to their valuable property of propagating through time in waveforms (Rostan, Belhachemi, and Racicot 2017).

In addition, fossil fuels price estimates (Rostan and Rostan 2021b), solid waste of OECD countries (Rostan and Rostan 2023d), and population estimates (Rostan and Rostan 2017) were forecasted with wavelet analysis as well as global temperatures (Rostan and Rostan 2023a). Berger and Gençay (2020) presented evidence that the application of wavelet-based covariance estimates from short-run information out-

performs portfolio allocations that are based on covariance estimates from historical data.

Assessing the Resilience of the Slovenian Economy after the COVID-19 Pandemic

[148]

Out of a total Slovene population of 2.1 million in 2021, the number of cases and deaths from the COVID-19 pandemic have been 1,328,673 cases and 7,071 deaths by March 2, 2023 (Worldometers 2024a), which represent about 63.03% of the Slovene population in terms of cases and 0.33% in terms of deaths. Using the total of 48 European countries as benchmark, the number of cases and deaths from the COVID-19 pandemic have been 246,371,491 cases and 2,017,562 deaths by March 2, 2023, out of a population of 748,845,084 which represent about 32.9% of the population in terms of cases and 0.26% in terms of deaths. It shows that the Slovene population was 91% more infected by the COVID-19 pandemic than the European population (63.03% versus 32.9%) and was 26% more impacted by death than the European population (0.33% versus 0.26%). The Slovenian population seemed less concerned about protecting themselves against the COVID-19 pandemic and less resistant to death after contracting the COVID-19 disease than the European population.

Following the COVID-19 pandemic, Slovenia's recovery and resilience plan was endorsed by the European Commission in July 2021 and implemented by its government to respond to the urgent need of fostering a strong recovery and making Slovenia future-ready (European Commission 2021). To this end, the plan consists of 55 investments and 33 reforms, supported by € 1.8 billion in grants and €705 million in loans, 42% of the plan supporting climate objectives and 21% of the plan fostering the digital transition. The plan is expected to foster economic growth and create jobs. It should lift Slovenia's gross domestic product by 1.1% to 1.7% by 2026. This boost to the economy should bring up to 6,000 people into jobs. As a highly export-orientated economy, Slovenia will benefit also from the recovery and resilience plans of other Member States. These spill-over effects should account for 0.6 percentage points of gross domestic product in 2026.

By the end of 2021, the Slovenian economy posted a strong, broad-based, post-pandemic recovery (International Monetary Fund 2023). Following the phasing out of COVID-19 containment measures and the implementation of the recovery and resilience plan, GDP rebounded

by +8.1 percent in 2021 – above the euro area average (+6.22%) and surpassing its pre-pandemic level (+2.77% average of Slovenia's growth rates between 1996 and 2019). Exports and private consumption were the main drivers of growth, the latter reflecting supportive policies, rising incomes, and lower household savings rates. Investment also picked [149]
up significantly, helped by higher public capital spending. On the supply side, activity recovered in most sectors apart from those services significantly affected by the epidemiological restrictions (travel and entertainment).

In 2022, Slovenia's GDP was projected to have expanded by +5.1%, mainly supported by the strong carry-over from 2021 (European Commission 2023). Over Q1 to Q3 2022, private consumption continued to increase, and investments proved robust. Imports increased significantly faster than exports, leading to a negative contribution from net exports. In Q3 2022, the economy contracted quite strongly. Slowly improving economic sentiment over the last months suggests that this trend could be partly reversed in Q4 2022. Employment remained strong and the industrial production indicator also improved. Inflation in Q4 2022 was slightly lower than in Q3. However, energy inflation was the only component that decreased, with the prices of industrial goods, food and services increasing faster than before. Overall, inflation averaged 9.3% in 2022. With global energy prices easing and growth remaining weak, headline inflation was projected to decrease to 6.1% in 2023. Core inflation was expected to remain elevated on account of more generalized price and wage growth. In 2023, inflation remains one of the main challenges for the Slovenian government, as for most governments around the world.

METHODOLOGY

The objective of the paper is to identify, using a wavelet analysis forecasting model, the resilience of Slovenia's economy during the COVID-19 pandemic that hit the global economy in Q4 2019, in years 2020, 2021 and 2022. Quarterly growth rates (annualized) of the real GDPS of Slovenia, the Eurozone and Germany are forecast between Q3 2022 and Q4 2050. Two sets of forecasts are generated: forecasts using historical data including the pandemic (from Q4 1997 to Q2 2022) and those not including the pandemic (from Q4 1997 to Q3 2019). The computation of the difference of their averages is an indicator of the resilience of the economies during the pandemic: the greater the difference the greater

the resilience. The wavelet analysis forecasting model used in this research has 4 main steps:

1 De-noising and Compression of the quarterly real GDP growth rate (annualized) time series of Australia and of Canada;
[150] 2 Wavelet Decomposition;
3 Burg extension of approximations and details; and
4 Wavelet Reconstruction, i.e., forecasting.

These steps are explained below.

De-noising and Compression of the Quarterly Real GDP Growth Rate (Annualized) Time Series of Slovenia, the Eurozone and Germany

Each series is de-noised using a one-dimensional de-noising and compression-oriented function using wavelets. The function is called 'wdencmp' in Matlab (Misiti et al. 2015). The underlying model for the noisy signal is of the form:

$$s(n) = f(n) + \sigma e(n), \tag{1}$$

where time point n is equally spaced, $e(n)$ is a Gaussian white noise $N(0,1)$ and the noise level σ is supposed to be equal to 1. The de-noising objective is to suppress the noise part of the signal s and to recover f. The de-noising procedure proceeds in three steps:

- *Decomposition*. Choose the wavelet sym4 and choose the level 2-decomposition. Wavelet analysis breaks a signal down into its constituent parts for analysis, in this case with a level 2-decomposition (the decomposition method is explained in the section on Wavelet Decomposition). Wavelet analysis is the breaking down of a signal into shifted and scaled versions of the original mother wavelet. Sym4 is a Symlets wavelet of order 4 used as the mother wavelet for decomposition and reconstruction. It is a nearly symmetrical wavelet belonging to the family of Symlets proposed by Daubechies (1994).
  Wavelets are defined by the wavelet function, also naming the mother wavelet and the scaling function, the latter also named the father wavelet in the time domain. The wavelet function is in effect a band-pass filter and scaling that for each level halves its bandwidth (Mallat 2009). Wavelets are mathematical functions that cut up data into different frequency components and

then study each component with a resolution matched to its scale (Graps 1995). The wavelet decomposition of the signal *s* is computed at level 2.

- *Detail coefficients thresholding.* For each level from 1 to 2, a threshold is selected and soft thresholding is applied to the detail coefficients. [151]
- *Reconstruction.* Wavelet reconstruction is computed based on the original approximation coefficients of level 2 and the modified detail coefficients of levels from 1 to 2. Like de-noising, the compression procedure contains three steps: (1) Decomposition. (2) Detail coefficient thresholding. For each level from 1 to 2, a threshold is selected, and hard thresholding is applied to the detail coefficients. (3) Reconstruction. The difference with the de-noising procedure is found in step 2. The notion behind compression is based on the concept that the regular signal component can be accurately approximated using a small number of approximation coefficients (at a suitably selected level) and some of the detail coefficients.

The de-noising technique works in the following way: 'When a data set using wavelets is decomposed, filters act as averaging filters and others that produce details. Some of the resulting wavelet coefficients correspond to details in the data set. If the details are small, they might be omitted without substantially affecting the main features of the data set. The idea of thresholding, then, is to set to zero all coefficients that are less than a particular threshold. These coefficients are used in an inverse wavelet transformation to reconstruct the data set' (Graps 1995, 12).

Wavelet Decomposition

Wavelet analysis breaks a signal down into its constituent parts for analysis. Signals are decomposed after being differentiated, de-noised and compressed at step 2. The signals, i.e., the quarterly time series of Slovenia's, the Eurozone's, and Germany's real GDPS, are decomposed into decomposed signals *cAs*, named approximations, and *cD*s, named details. To understand this process, a quick review of wavelet theory is presented.

A wavelet dictionary (Mallat 1999) is constructed from a mother wavelet ψ of zero mean:

$$\int_{-\infty}^{+\infty} \psi(t)dt = 0. \tag{2}$$

To analyze a non-stationary signal, wavelet analysis identifies the correlation between the time and frequency domains of this signal
[152] (Wavelet.org 2019). The wavelet transform allows exceptional localization in both the time domain via translations of the mother wavelet, and in the scale domain, also called frequency domain via dilations. The translation and dilation operations applied to the mother wavelet are performed to calculate the wavelet coefficients, which represent the correlation between the wavelet and a localized section of the signal. The wavelet coefficients are calculated for each wavelet segment, giving a time-scale function relating the wavelet correlation to the signal.

The mother wavelet ψ represented by equation 2 is dilated with a scale parameter b, and translated by a:

$$D = \left\{ \psi_{a,b}(t) \frac{1}{\sqrt{b}} \psi\left(\frac{t-a}{b}\right) \right\}_{a\in\Re, b>0.} \tag{3}$$

The present methodology uses Sym4, symlets wavelet of order 4, as the mother wavelet ψ for decomposition and reconstruction. It is a nearly symmetrical wavelet belonging to the family of Symlets proposed by Daubechies (1994). In this paper, many different wavelets including the ones belonging to the Daubechies family were tested with equal or lower performance.

The discrete form of the wavelet (Mallat 1999) is defined as:

$$\psi_{j,n}(t) = \frac{1}{\sqrt[n]{s_0^j}} \psi\left(\frac{1 - n\tau_0 s_0^j}{s_0^j}\right), \tag{4}$$

with j and n integers, $s0 > 1$ is a fixed dilation step and the translation factor $\tau 0$ depends on the dilation step.

The continuous wavelet transform of a signal s at any scale b and position a is the projection of s on the corresponding wavelet atom:

$$Ws(a,b) = \langle s, \psi_{a,b} \rangle = \int_{-\infty}^{+\infty} s(t) \frac{1}{\sqrt{b}} \psi\left(\frac{t-a}{b}\right) dt. \tag{5}$$

The reconstruction of the original signal $s(t)$ is obtained by inverse wavelet transform (Mallat 1999, 111):

$$s(t) = \frac{1}{C_\psi} \int_0^{+\infty} \int_{-\infty}^{+\infty} ws(a,b)\psi b(t-a) \frac{db}{b^2} da. \tag{6}$$

The scaling function and the wavelet function of a discrete wavelet transform (DWT) are defined as:

$$\varphi(2^j t) = \sum_{i=1}^{n} h_{j+1}(n)\varphi(2^{j+t}t - n), \tag{7}$$

$$\psi(2^j t) = \sum_{i=1}^{n} g_{j+1}(n)\psi(2^{j+t}t - n). \tag{8}$$

[153]

The signal $s(t)$ is expressed as:

$$s(t) = \sum_{i=1}^{n} \lambda_{j-1}(n)\varphi(2^{j+t}t - n) + \sum_{i=1}^{n} \gamma_{j-1}(n)\psi(2^{j+t}t - n). \tag{9}$$

The discrete wavelet transform (DWT) is evaluated by passing the signal through lowpass and highpass filters (Corinthios 2009), dividing it into a lower frequency band and an upper band. Each band is subsequently divided into a second level lower and upper bands. The process is repeated, taking the form of a binary, or 'dyadic' tree. The lower band is referred to as the approximation *cA* and the upper band as the detail *cD*. DWT decomposes the signal into mutually orthogonal set of wavelets.

The model produces two sequences called *cA* and *cD*, which are downsampled. The signal is decomposed after being differentiated, de-noised and compressed. The signal, i.e., for the Q4 1997–Q3 2019 period the 87-quarter (for the Q4 1997–Q2 2022 period the 98-quarter) time series of Slovenia's, the Eurozone's and Germany's real GDP quarterly annualized growth rate transformed at step 1, is decomposed into decomposed signals *cAs* named approximations and *cDs* named details. The Discrete Wavelet Transform is a kind of decomposition scheme evaluated by passing the signal through lowpass and highpass filters (Corinthios 2009), dividing it into a lower frequency band and an upper band. Each band is subsequently divided into a second level lower and upper bands. The process is repeated, taking the form of a binary, or 'dyadic' tree. The lower band is referred to as the approximation *cA*, and the upper band as the detail *cD*. The two sequences *cA* and *cD* are downsampled. The downsampling is costly in terms of data: using multilevel decomposition and at each one-level of decomposition, the sample size is reduced by half (in fact, slightly more than half the length of the original signal, since the filtering process is implemented by convolving the signal with a filter. The convolution 'smears' the signal, in-

troducing several extra samples into the result). Therefore, the decomposition can proceed only until the individual details consist of a single sample. Thus, the number of levels of decomposition will be limited by the initial amount of data of the signal.

[154] For a better understanding of signal decomposition using discrete wavelet transform, refer to the methodology section of Rostan and Rostan (2018a).

Burg Extension of Approximations and Details

Burg extension is applied to *cA* and *cD*. To run the Burg extension, an autoregressive pth order is applied to historical data. In this paper, the pth order is equal to the longest available order when forecasting. For instance, in Q3 2019, when forecasting Slovenia's, the Eurozone's and Germany's real GDP growth rates for the subsequent 31 years until 2050 ($4 \times 31 + 1 = 125$ quarters), the longest pth order available is 86 out of 87 historical data. Given x the decomposed signal (which is *cA* or *cD*), a vector a of all-pole filter coefficients is generated that models an input data sequence using the Levinson-Durbin algorithm (Levinson 1946; Durbin 1960). The Burg (1975) model is used to fit a pth order autoregressive (AR) model to the input signal, x, by minimizing (least squares) the forward and backward prediction errors while constraining the AR parameters to satisfy the Levinson-Durbin recursion. x is assumed to be the output of an AR system driven by white noise. Vector a contains the normalized estimate of the AR system parameters, $A(z)$, in descending powers of z:

$$H(z) = \frac{\sqrt{e}}{a(z)} = \frac{\sqrt{e}}{1 + a_2 z^{-1} + \cdots + a_{p+1} z^{-p}}. \tag{10}$$

Since the method characterizes the input data using an all-pole model, the correct choice of the model order p is important.

In a last step, the Infinite Impulse Response (IIR) filter extrapolates the index values for each forecast horizon. IIR filters are digital filters with infinite impulse response. Unlike finite impulse response (FIR) filters, IIR filters have feedback, which is a recursive part of a filter, also known as a recursive digital filter.

Wavelet Reconstruction

The forecast signals are recomposed/reconstructed after Burg extension. In this paper, the second-level decomposition/reconstruction is

applied, being most of the time the optimal level confirmed in the literature.

RESULTS

The objective of the paper is to assess the resilience of Slovenia's economy towards the COVID-19 pandemic that hit the global economy in Q4 2019, in years 2020, 2021 and 2022. To assess the resilience of Slovenia's economy towards the COVID-19 pandemic, two sets of forecasts are generated: forecasts using historical data including the pandemic (from Q4 1997 to Q2 2022) and not including the pandemic (from Q4 1997 to Q3 2019). The computation of the difference between their averages is an indicator of the resilience of the Slovenian economy after the pandemic, the greater the difference the greater the resilience. In this section, Slovenia's 2050 GDP and growth rate quarterly forecasts are illustrated and the resilience of the Slovenian economy after the COVID-19 Pandemic is assessed. The Eurozone's and Germany's GDP and growth rate quarterly forecasts are used as benchmarks. [155]

Presentation and Analysis of Historical Data

Figure 1 illustrates the historical quarterly GDP time series of the Eurozone economy (19 countries, not including Croatia which joined in 2023), Germany and Slovenia from Q4 1997 to Q2 2022. It shows two almost identical patterns – down and up – at the start of 2020 when the two economies, Slovenia and Eurozone, entered recession following the economic shock from the COVID-19 pandemic that hit the global economy. Because of the choice of the scale, the down and up pattern is not clear for Germany in figure 1. Since 1998, the GDP of Slovenia seems to have grown at a more rapid pace with a steeper slope than the GDP of the Eurozone economy between 1998 and 2020, the two economies seem to have declined at an identical rate in 2020 and Slovenia seems to have recovered at a more rapid pace in 2021 with a steeper slope.

Figure 2 illustrates the historical quarterly real GDP growth rate (annualized) time series of the Eurozone economy (19 countries), Germany and Slovenia from Q1 1998 to Q2 2022. Between Q1 1998 and Q3 2019, the quarterly Real GDP growth rate (annualized) of Slovenia was most of the time above those ones of the Eurozone (19 countries) and Germany. Between Q1 1998 and Q3 2019, Slovenia had an average quarterly growth rate (annualized) of +2.64% versus +1.43% for the Eurozone and +1.34% for Germany.

[156]

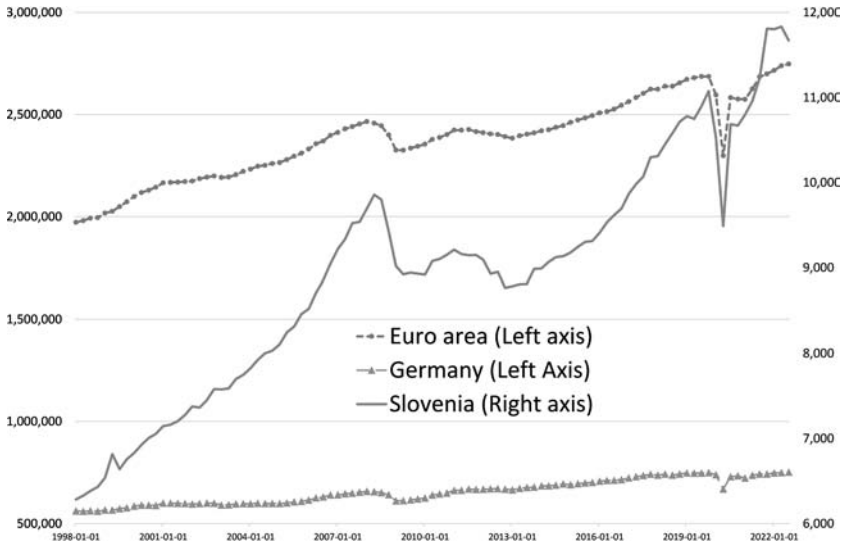

FIGURE 1 Quarterly real GDPS time series, Seasonally Adjusted for Euro area (19 countries), and Germany, Millions of Chained 2010 Euros (left axis) versus Slovenia (right axis), Millions of Chained 2010 Euros from Q4 1997 to Q2 2022 (based on data from Federal Reserve Bank of St. Louis, https://fred.stlouisfed.org)

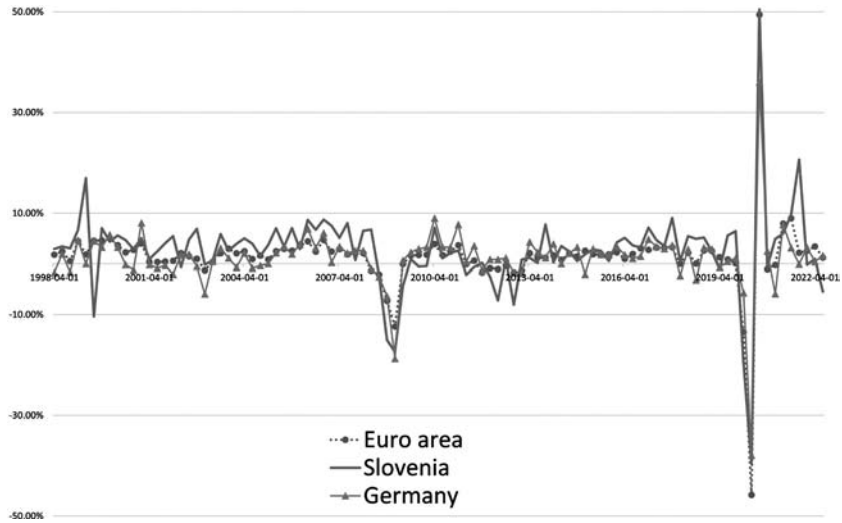

FIGURE 2 Quarterly real GDP growth rate (annualized) time series of the Eurozone economy (19 countries), Germany and Slovenia from Q1 1998 to Q2 2022 (based on data from Federal Reserve Bank of St. Louis, https://fred.stlouisfed.org)

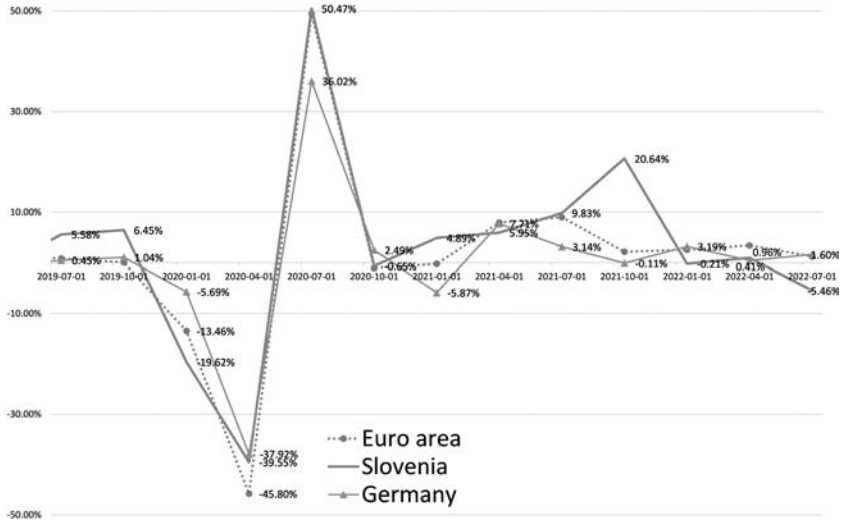

FIGURE 3 Quarterly Real GDP Growth Rate (Annualized) Time Series of the Eurozone Economy (19 Countries), Germany and Slovenia from Q2 2019 to Q2 2022 (based on data from Federal Reserve Bank of St. Louis, https://fred.stlouisfed.org)

Figure 3 is a zoom of figure 2 between Q2 2019 and Q2 2022. It illustrates the historical quarterly real GDP growth rate (annualized) time series of the Eurozone economy (19 countries) and Slovenia from Q2 2019 to Q4 2021.

As illustrated in figure 3, at the beginning of the pandemic, in Q4 2019 the three economies started a decline of their quarterly annualized growth rate (–5.69% for Germany, –13.46% for the Eurozone and –19.62% for Slovenia), which extended in Q1 2020 (–37.92% for Germany, –45.80% for the Eurozone and –39.55% for Slovenia). Then the three economies rebounded in Q2 2020 (+36.02% for Germany, +49.40% for the Eurozone and +50.47% for Slovenia). During the pandemic, between Q4 2019 (2020-01-01) and Q2 2022 (2022-07-01), the quarterly real GDP growth rate (annualized) of Slovenia was most of the time above those of the Eurozone (19 countries) and Germany, with an average growth rate of +2.48% for Slovenia versus +1.37% for the Eurozone and +0.45% for Germany. It confirms the historical relationship between the three economies observed between Q1 1998 and Q3 2019.

In conclusion, the 2050 projections of these 3 economies are expected to respect this relationship, displaying a stronger and more

resilient economy in Slovenia than in the Eurozone and Germany in terms of real GDP growth rate. However, we need to keep in mind that the size of the Eurozone's economy (19 countries) was about 235 times the size of Slovenia's in 2021: Slovenia's GDP represented about 0.42%
[158] of the Eurozone's GDP, while Germany's economy was about 68 times the size of Slovenia's and Slovenia's GDP represented about 1.46% of Germany's GDP in 2021.

In the Eurozone, the growth of its economies varies widely. For example, based on Statista (2022) data, the top 5 economies based on the GDP annual growth rate in 2021 (year to year) were Ireland (+13.5%), Malta (+9.4%), Greece (+8.3%), Estonia (+8.3%) and Slovenia (+8.1%) when the 5 laggers were Germany (+2.9%), Slovakia (+3%), Finland (+3.5%), Austria (+3.5%) and Latvia (+4.5%). The average annual GDP growth rate for the 19 economies of the Eurozone was 6.22% in 2021. Besides, as illustrated in figure 4, the largest economy of the Eurozone, Germany, was the worst performer in 2021 with +2.9% of annual growth rate. Slovenia's economy was the fifth top performer of the Eurozone in terms of 2021 annual growth rate (+8.1%). Ranked in increasing GDP, the 13 smallest economies, from Malta to Ireland, had an average 2021 annual growth rate of 6.56%, while the 6 top largest economies, from Belgium to Germany, had an average 2021 annual growth rate of 5.46%. The correlation coefficient between the size of the 2021 GDP and the growth rate of the 19 countries is –20%. This is not a strong relationship between the two variables, but the correlation is still negative, and it shows that small economies have coped better with the COVID-19 pandemic crisis than large economies of the Eurozone. This rule applies to Slovenia, since as a small economy (ranked 5th in order from smallest to greatest GDP), it was the 5th top performer of the Eurozone, with a growth rate of +8.1% in 2021.

Forecasts of Q3 2022 to Q4 2050 of Slovenia and the Eurozone Quarterly Annualized Real GDP Growth Rates

Figure 5 illustrates 114 forecasts with spectral analysis of Slovenia and the Eurozone quarterly annualized Real GDP growth rates from Q3 2022 to Q4 2050.

Based on the 114 forecasts for the period Q3 2022–Q4 2050, Slovenia's forecasts are more optimistic than the Eurozone's, with an average quarterly (annualized) growth rate of +1.10%, using forecasts generated with the Q4 1997–Q3 2019 data, versus +1.20% with those generated

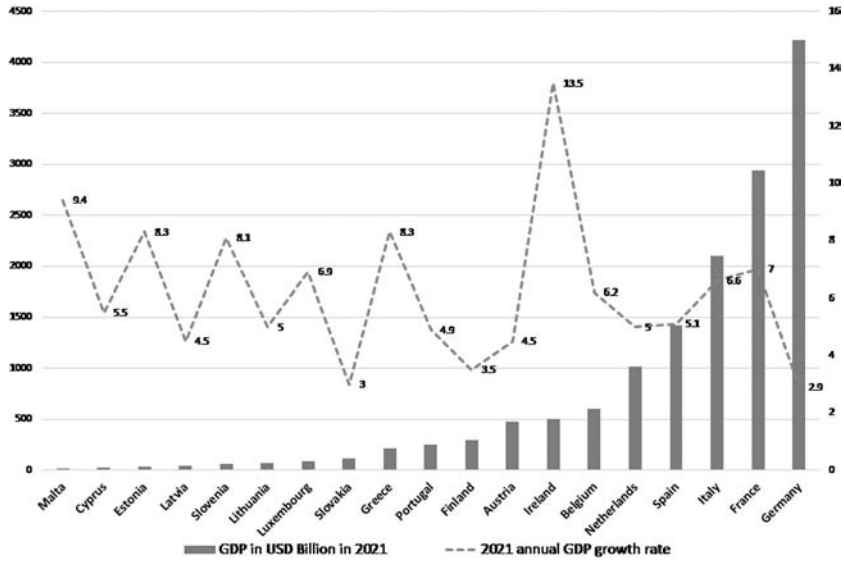

FIGURE 4 2021 GDP in USD Billion (Left Axis) and 2021 Annual GDP Growth Rate in % (Right Axis) of the 19 Eurozone Economies Including Slovenia's Economy (based on data from Statista 2022 and Tradingeconomics 2022)

with the Q4 1997–Q2 2022 data. The Eurozone's forecasts have an average quarterly (annualized) growth rate of +0.57% with the Q4 1997–Q3 2019 data, versus +0.68% with the Q4 1997–Q2 2022 data. In an additional exercise (not illustrated in figure 1) as the largest economy of the Eurozone, Germany's forecasts have an average quarterly (annualized) growth rate of +1.01% with the Q4 1997–Q3 2019 data, versus +0.89% with the Q4 1997–Q2 2022 data. It shows that Slovenia (+1.20% with the pandemic data versus +1.10% without the pandemic data) and the Eurozone (+0.68% versus +0.57%) benefited from the pandemic when Germany's economy was hurt by the pandemic (+0.89% versus +1.01%). As represented in figure 4, small economies of the Eurozone had in 2021, on average, a higher GDP growth rate than the larger economies of the Eurozone. The forecasts of the 2050 growth rates in this paper confirm that a small economy like Slovenia has been more resilient to the pandemic and has a better future outlook than the largest economy of the Eurozone, Germany.

Table 3 gathers the descriptive statistics of historical data of quarterly growth rates (annualized) between Q1 1998 and Q2 2022 and forecasts estimates between Q3 2022 and Q4 2050 obtained with Q1 1998

[160]

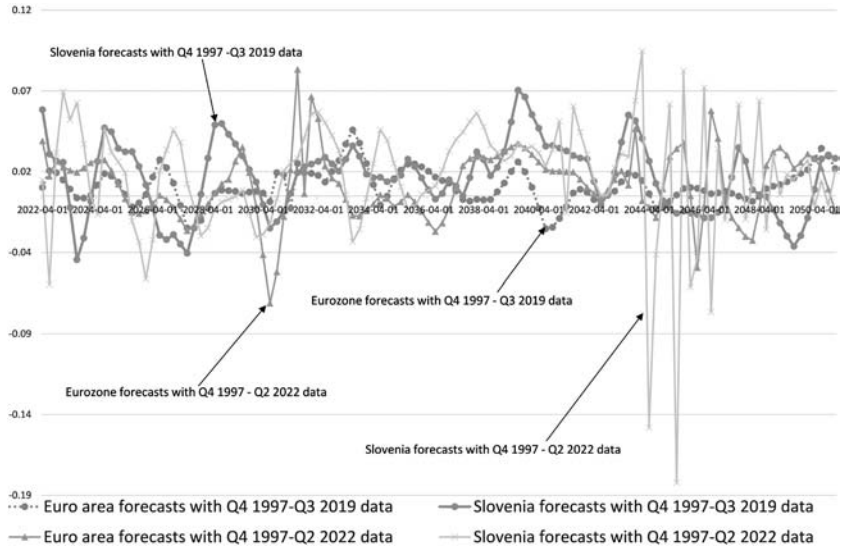

FIGURE 5 114 Forecasts with Spectral Analysis of Slovenia and Eurozone Quarterly Annualized GDP Growth Rates from Q3 2022 to Q4 2050

and Q2 2022 historical data and the wavelet analysis forecasting model.

Comparing the 114 growth rate forecast estimates over the period Q3 2023–Q4 2050 using Wavelet Analysis (obtained from 99 historical data from Q4 1997 to Q2 2022) to 98 historical data from Q1 1998 and Q2 2022, the forecast estimates for the Eurozone, Slovenia and Germany are more pessimistic on average (+0.68% versus +1.43% in the Eurozone, +1.20% versus +2.62% in Slovenia and +0.89% versus +1.24% in Germany). Slovenia's economy shows better prospects than the Eurozone's and Germany's economies for the next 28 years (+1.20% in Slovenia versus +0.68% in the Eurozone and +0.89% in Germany). Policymakers need to be aware of the reduced growth rate expected from these three economies over the next 28 years compared to the past 24 years. In addition, based on table 3, the volatility of real GDP growth rates should decline in the next 28 years for both the Eurozone (+2.12% future standard deviation versus +7.43% past standard deviation), Slovenia (+3.67% versus +8.55%) and Germany (+1.74% versus +6.37%) offering more opportunities for investments by institutional investors, if we assume that lower GDP volatility has a positive impact on investment. When higher volatility leads to lower rates of investment, output and consumption, the result will be a slower economic

TABLE 3 Descriptive Statistics of Historical Data of Quarterly Growth Rates (Annualized) between Q1 1998 and Q2 2022 and Forecasts Estimates between Q3 2022 and Q4 2050 Obtained with Q4 1997 to Q2 2022 Historical Data and the Wavelet Analysis Forecasting Model

Item	Eurozone		Slovenia		Germany	
	(1)	(2)	(1)	(2)	(1)	(2)
Mean	0.0143	0.0068	0.0262	0.0120	0.0124	0.0089
Standard Error	0.0075	0.0020	0.0086	0.0034	0.0064	0.0016
Median	0.0183	0.0069	0.0311	0.0162	0.0179	0.0039
Mode	N/A	N/A	N/A	N/A	0.0000	N/A
Standard Deviation	0.0743	0.0213	0.0855	0.0367	0.0637	0.0174
Sample Variance	0.0055	0.0005	0.0073	0.0013	0.0041	0.0003
Kurtosis	34.2911	1.5992	15.6614	7.6749	23.5909	2.3473
Skewness	−0.0178	−0.0844	0.2592	−1.8683	−1.0547	0.9782
Range	0.9521	0.1444	0.9002	0.2668	0.7394	0.1096
Minimum	−0.4580	−0.0661	−0.3955	−0.1771	−0.3793	−0.0267
Maximum	0.4940	0.0782	0.5047	0.0897	0.3602	0.0830
Sum	1.3963	0.7721	2.5720	1.3674	1.2163	1.0115
Count	98	114	98	114	98	114

NOTES Column headings are as follows: (1) descriptive statistics of historical data of quarterly growth rates (annualized) between Q1 1998 and Q2 2022; (2) descriptive statistics of forecasts estimates between Q3 2022 and Q4 2050 obtained with Q4 1997 to Q2 2022 historical data and the wavelet analysis forecasting model.

growth and lower levels of welfare for the society at large (Carneiro, Minh, and Odawara 2016) and vice versa.

Forecasts of Q3 2022 to Q4 2050 of Slovenia, Germany, and the Eurozone Quarterly Real GDPs

Figure 6 illustrates 114 quarterly real GDP forecasts with spectral analysis of Slovenia, Germany, and the Eurozone from Q3 2022 to Q4 2050. Figure 3 shows a rebound of the three economies in Q2 2020 (+50.47% in Slovenia, +49.40% in the Eurozone and +36.02% in Germany), following a huge contraction in Q1 2020 (–39.55% in Slovenia, –45.80% in the Eurozone and –37.92% in Germany). This observation may explain the fact that the 2050 projections of the three economies show a positive trend, spectral analysis forecasting model being more sensitive to recent data. In addition, as explained in section 'Presentation and Analysis of Historical Data,' the pandemic benefited Slovenia and the Eurozone's economies, but Germany's economy was hurt, its Q32022–

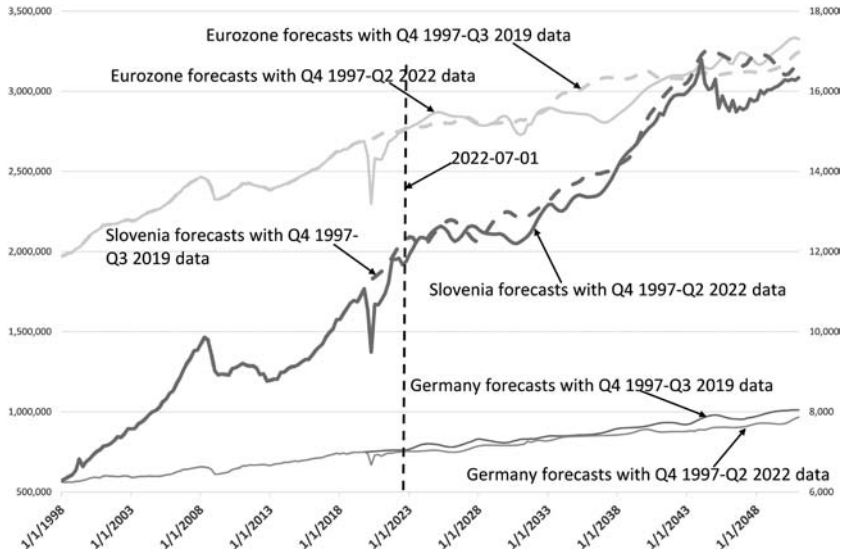

FIGURE 6 Historical Data and Forecasts with Spectral Analysis Until Q4 2050 of Slovenia, Germany and Eurozone Quarterly GDPS (Annualized)

Q4 2050 projections obtained with data including the pandemic being consistently below the ones obtained with data not including the pandemic. In this section, the resilience of the three economies towards the pandemic is formally assessed.

Assessing the Resilience of Slovenia's Economy after the COVID-19 Pandemic

To assess the resilience of Slovenia's economy towards the COVID-19 pandemic, two sets of forecasts are generated: forecasts using historical data including the pandemic (from Q4 1997 to Q2 2022) and not including the pandemic (from Q4 1997 to Q3 2019). The computation of the difference between their averages is an indicator of the resilience of the economies during the pandemic: the greater the difference the greater the resilience. By subtracting the average forecast Q3 2022–Q4 2050 Eurozone quarterly GDP growth rate (annualized) obtained with the Q4 1997–Q2 2022 data, +0.68%, by the one obtained with the Q4 1997–Q3 2019 data, +0.57%, the difference is +0.11%. With Slovenia the difference is 0.10% [+1.20% – (+1.10%)], while with Germany the difference is –0.12% [+0.89% – (+1.01%)]. Thus, Slovenia shows an equal resilience (+0.10%) than the Eurozone (+0.11%), based on Q3 2022–Q4 2050 fore-

casts, and a stronger resilience than Germany (–0.12%). In addition, the authors pointed out that the average of the Q3 2022–Q4 2050 quarterly (annualized) growth rate forecasts for Slovenia is expected to be +1.20% with the Q4 1997–Q2 2022 data, whereas it is expected to be only +0.68% for the Eurozone and +0.89% for Germany. [163]

CONCLUSION AND DISCUSSION

This paper assesses the resilience of Slovenia's economy towards the COVID-19 pandemic that hit the global economy in Q4 2019, in years 2020, 2021 and 2022. The paper presents Slovenia's 2050 real GDP and growth rate quarterly forecasts before (between Q4 1997 and Q3 2019) and during the pandemic (between Q4 1997 and Q2 2022) by using spectral analysis. Slovenia's economy is benchmarked to the Eurozone economy (19 countries) and Germany. Wavelet analysis can analyze changing transient physical signals. Extending the analysis to complex-behavior economic signals, the originality of this paper is to apply Wavelet analysis to economic variables subject to common dynamics such as GDP time series. The forecasts cover 114 quarters from Q3 2022 to Q4 2050 and derive from historical quarterly data extending from Q4 1997 to Q2 2022 and 125 forecast quarters from Q4 2019 to Q4 2050 from historical quarterly data extending from Q4 1997 to Q3 2019. Wavelet analysis methodology follows four steps that lead to real GDP quarterly (annualized) growth rate forecasts: the quarterly real GDP growth rate (annualized) time series of the Eurozone, Slovenia and Germany are de-noised and compressed, then decomposed in simpler signals called approximations and details in the framework of the one-dimensional discrete wavelet analysis. Thirdly, the decomposed series are extended with the Burg (1975) model, which fits a pth order autoregressive (AR) model to the input signal by minimizing (least squares) the forward and backward prediction errors, while constraining the AR parameters to satisfy the Levinson-Durbin recursion. Finally, the series are reconstructed, the extensions being the forecasts.

As illustrated in figure 3, during the pandemic, between Q4 2019 and Q2 2022, the quarterly real GDP growth rate (annualized) of Slovenia was most of the time above those ones of the Eurozone (19 countries) and Germany, with an average growth rate of +2.48% for Slovenia versus +1.37% for the Eurozone and +0.45% for Germany. It confirms the historical relationship between the three economies observed between Q1 1998 and Q3 2019 (+2.64% for Slovenia versus +1.43% for the Eu-

rozone and +1.34% for Germany). To formally assess the resilience of Slovenia's economy to the COVID-19 pandemic, two sets of forecasts are generated: forecasts using historical data including the pandemic (from Q4 1997 to Q2 2022) and not including the pandemic (from Q4
[164] 1997 to Q3 2019). The computation of the difference between their averages is an indicator of the resilience of the economies during the pandemic: the greater the difference the greater the resilience. By subtracting the average forecast Q3 2022–Q4 2050 Eurozone quarterly GDP growth rate (annualized) obtained with the Q4 1997–Q2 2022 data, +0.68%, by the one obtained with the Q4 1997–Q3 2019 data, +0.57%, the difference is +0.11%, whereas with Slovenia the difference is +0.10% [+1.20% – (+1.10%)] and with Germany the difference is –0.12% [+0.89% – (+1.01%)]. Thus, Slovenia shows an almost equal resilience (+0.10%) than that of the Eurozone (+0.11%), based on Q3 2022–Q4 2050 forecasts, and a stronger resilience than Germany (–0.12%).

In a last exercise, comparing 114 growth rate forecast estimates over the period Q3 2023–Q4 2050 using Wavelet Analysis (obtained from 99 historical data from Q4 1997 to Q2 2022) to 98 historical data from Q1 1998 and Q2 2022, the forecast estimates for the Eurozone, Slovenia and Germany are more pessimistic on average (+0.68% versus +1.43% in the Eurozone, +1.20% versus +2.62% in Slovenia and +0.89% versus +1.24% in Germany). Slovenia's economy shows better prospects than the Eurozone's and Germany's economies for the next 28 years (+1.20% in Slovenia versus +0.68% in the Eurozone and +0.89% in Germany). Policymakers need to be aware of the reduced growth rate expected from these three economies over the next 28 years compared to the past 24 years. In addition, based on table 3, the volatility of real GDP growth rates should decline in the next 28 years for both the Eurozone (+2.12% future standard deviation versus +7.43% past standard deviation), Slovenia (+3.67% versus +8.55%) and Germany (+1.74% versus +6.37%), offering more opportunities for investments by institutional investors, if we assume that lower GDP volatility has a positive impact on investment. When higher volatility leads to lower rates of investment, output and consumption, the result will be slower economic growth and lower levels of welfare for the society at large (Carneiro, Minh, and Odawara 2016) and vice versa.

Further research may focus on additional economic indicators of Slovenia to identify the strengths and weaknesses of the Slovenian economy and how to improve them.

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Résumés

La contribution du Maroc à la consolidation de la migration intra-africaine : une analyse sous le prisme des flux migratoires estudiantin gabonais et camerounais de la ville de Fès

PIERRE OYONO MVOGO ET SANAE KASMI

Cet article apporte un éclairage supplémentaire sur le renforcement de la migration intra-africaine, qui ne fait guère l'objet de recherches approfondies, en dehors de la migration irrégulière vers l'Europe. Cette étude met en lumière l'implication du Maroc dans la consolidation des processus migratoires des étudiants africains à partir de la perspective des étudiants africains camerounais et gabonais dans la ville de Fès. Des entretiens semi-structurés ont révélé des opinions mitigées concernant leur intégration dans le pays d'accueil, aussi bien dans l'environnement universitaire que dans leur lieu d'habitation. L'étude relève que Fès est un lieu idéal pour les études, même si une communauté étudiante (gabonaise) bénéficie de toutes les facilités au détriment de l'autre (camerounaise), en relation avec les accords préétablis par leurs gouvernements, ce qui entraînera un déséquilibre dans la relation d'intégration, et qui a donné lieu à une comparaison entre les deux communautés d'étudiants. Cette analyse a conduit à s'interroger sur l'implication des États d'origine mais aussi sur les réactions du pays d'accueil à cette politique du Royaume d'attirer plus d'étudiants à Fès. Cette étude s'inscrit dans la lignée des études contemporaines sur les migrations internationales, constitue une perspective pour l'expansion des canaux de migration légale et une invitation pour l'Union africaine à promouvoir la migration « intra-africaine ».

Mots clés : migration intra-africaine, Maroc, étudiants gabonais, étudiants camerounais, Fès
IJEMS 16 (1): 9–32

Internationalisation à domicile : engagement interculturel des étudiants dans les activités parascolaires ; étude de cas MED2IaH

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KARIM MOUSTAGHFIR ET DORSAF BEN MALEK

Cette étude explore le rôle des activités parascolaires dans l'amélioration des capacités interculturelles des étudiants, en utilisant le projet MED2IaH Erasmus+ CBHE comme étude de cas. Réalisé entre 2020 et 2023 dans 12 établissements d'enseignement supérieur des pays du sud de la Méditerranée non membres de l'UE, le projet visait à intégrer des aspects internationaux et

interculturels dans l'éducation locale. Le concept de « l'Internationalisation à Domicile » (IAH) est mis en avant, soulignant l'inclusion des opportunités d'apprentissage global au sein du programme et de la vie universitaire pour tous les étudiants. L'étude révèle que des activités parascolaires spécifiques, telles que la narration numérique, les événements interculturels et les FRIENDS TeaHouses, contribuent de manière significative à l'IAH en favorisant l'engagement et la compréhension interculturels. La recherche conclut que ces initiatives favorisent efficacement les compétences interculturelles, améliorent les compétences en communication et en travail d'équipe, et offrent des perspectives précieuses pour la gestion des collaborations culturelles, soutenant ainsi les objectifs d'internationalisation des établissements d'enseignement supérieur.

Mots clés : activités interculturelles, ambiance universitaire diversifiée, internationalisation dans un cadre national
IJEMS 16 (1): 33–62

L'utilisation du Processus d'Analyse Hiérarchique pour mesurer les intérêts nationaux : démonstration de l'étude de cas de la pertinence changeante de la Libye pour la politique étrangère italienne entre 2011 et 2021

LILI TAKACS

Cette étude utilise le Processus d'Analyse Hiérarchique (PAH) pour évaluer quantitativement les intérêts nationaux italiens sur une période de 10 ans (2011–2021) dans le contexte de cinq États le long de la côte sud de la Méditerranée. En adoptant une approche longitudinale, cette recherche examine les dynamiques et l'importance relative de chaque État, éclairant ainsi les éventuels changements dans la politique étrangère de l'Italie. L'étude introduit une méthodologie complète pour visualiser et analyser les intérêts nationaux, offrant des perspectives précieuses sur le paysage géopolitique évolutif de la région méditerranéenne. Les résultats soulignent les schémas changeants et l'importance relative de ces intérêts au cours de la période examinée, révélant de subtiles évolutions dans la perspective stratégique de l'Italie. En offrant un examen détaillé de la région méditerranéenne, cette étude présente une compréhension approfondie de l'interaction complexe entre les intérêts nationaux italiens et les dynamiques géopolitiques des États voisins. La visualisation de ces données fournit un aperçu complet des relations et des dynamiques de pouvoir évolutives, facilitant une prise de décision éclairée et la formulation de politiques.

Mots clés : intérêt national, Italie, Méditerranée, politique étrangère, Processus d'Analyse Hiérarchique
IJEMS 16 (1): 63–85

Études de cas sur l'impact de la pandémie de COVID-19 sur la mobilité des scientifiques en début de carrière en Méditerranée

JIHENE NOUAIRI, ALICE AFFATATI, GIORGIA RIVOIRA, SERGIO REJADO ALBAINA ET MOUNIR GHRIBI

La pandémie de COVID-19 a profondément impacté la mobilité internationale scientifique, en particulier pour les scientifiques en début de carrière. Cet article vise à fournir une analyse complète des défis rencontrés par les scientifiques en début de carrière dans la région méditerranéenne pendant la pandémie, en se concentrant spécifiquement sur la mobilité scientifique. De plus, l'étude explorera les implications de la pandémie sur les trajectoires de carrière de ces scientifiques et les effets à long terme sur la recherche scientifique et le milieu académique en Méditerranée. Nous incorporons les expériences individuelles de trois chercheurs, offrant ainsi des perspectives directes sur les défis et les impacts de la pandémie de COVID-19. Ces expériences personnelles enrichissent l'article en offrant une compréhension nuancée des implications pratiques et des aspects émotionnels associés aux questions discutées.

Mots clés : mobilité scientifique, scientifiques en début de carrière, pandémie de COVID-19, économie bleue, région méditerranéenne
IJEMS 16 (1): 87–113

Les effets des programmes de rétention d'emploi sur la préservation de l'emploi pendant l'épidémie de COVID-19 dans les pays de la zone euro

ANTON ROP

Dans cet article, nous analysons les effets des différents taux de recours aux dispositifs de maintien de l'emploi (DME) sur la préservation de l'emploi pendant la pandémie de COVID-19 dans les pays de la zone euro. Nous constatons que les dispositifs DME dans les pays de la zone euro ont contribué à réduire les pertes d'emplois pendant la pandémie. Les plus efficaces pour préserver l'emploi étaient les taux de recours aux dispositifs de chômage partiel (DCP) pré-existants les plus étendus et mis à jour, qui étaient plus généreux et incluaient les travailleurs non standards. Cependant, l'impact des dispositifs DME était inférieur à la préservation globale de l'emploi réalisée. Contrairement à la grande récession, les mesures macroéconomiques de soutien économique ont également contribué à préserver les emplois pendant la pandémie. Les différences correspondantes dans les effets de préservation de l'emploi par secteur montrent que ces mesures de soutien macroéconomique ont permis de conserver davantage d'emplois, de loin les plus nombreux dans le groupe des secteurs des services vulnérables.

Mots clés : pandémie de COVID-19, dispositifs de maintien de l'emploi (JR), dispositifs de chômage partiel (STW), mesures macroéconomiques
IJEMS 16 (1): 115–140

[174] L'impact positif de la pandémie de Covid-19 sur l'économie slovène

PIERRE ROSTAN IN ALEXANDRA ROSTAN

L'objectif de cet article est d'évaluer la résilience de l'économie slovène pendant la pandémie de Covid-19 qui a frappé l'économie mondiale au quatrième trimestre 2019, en 2020, 2021 et 2022. Pour évaluer la résilience de l'économie slovène, deux séries de prévisions sont générées : des prévisions utilisant les données historiques incluant la pandémie (du quatrième trimestre 1997 au deuxième trimestre 2022) et n'incluant pas la pandémie (du quatrième trimestre 1997 au troisième trimestre 2019). Le calcul de la différence de leurs moyennes est un indicateur de la résilience de l'économie pendant la pandémie, plus la différence est grande, plus la résilience est grande. La zone euro et l'Allemagne sont utilisées comme points de référence. En soustrayant le taux de croissance trimestriel moyen du PIB de la zone euro prévu pour le troisième trimestre 2022 au quatrième trimestre 2050 (annualisé) obtenu avec les données du quatrième trimestre 1997 au deuxième trimestre 2022, soit +0,68 %, par celui obtenu avec les données du quatrième trimestre 1997 au troisième trimestre 2019, soit +0,57 %, la différence est de +0,11 %, alors qu'avec la Slovénie, la différence est de 0,10 % [+1,20 % – (+1,10 %)] et avec l'Allemagne, la différence est de –0,12 % [+0,89 % – (+1,01 %)]. Ainsi, l'économie slovène montre une résilience presque égale (+0,10 %) à celle de la zone euro (+0,11 %) sur la base des prévisions du troisième trimestre 2022 au quatrième trimestre 2050 et une résilience plus forte que celle de l'Allemagne (–0,12 %). De plus, les auteurs ont souligné que la moyenne des prévisions de taux de croissance trimestriel (annualisé) pour le troisième trimestre 2022 au quatrième trimestre 2050 de la Slovénie devrait être de +1,20 % avec les données du quatrième trimestre 1997 au deuxième trimestre 2022, alors qu'elle ne devrait être que de +0,68 % pour la zone euro et de +0,89 % pour l'Allemagne. L'économie slovène montre de meilleures perspectives que les économies de la zone euro et de l'Allemagne.

Mots clés : PIB, analyse spectrale, analyse en ondelettes, prévision, Slovénie, zone euro, Allemagne.
IJEMS 16 (1): 141–169

Povzetki

Prispevek Maroka h konsolidaciji migracij znotraj Afrike: Analiza skozi prizmo gabonskih in kamerunskih študentskih migracijskih tokov v mestu Fez

PIERRE OYONO MVOGO IN SANAE KASMI

Članek osvetljuje krepitev migracij znotraj Afrike, ki so poleg nezakonitih migracij v Evropo redko predmet poglobljenih raziskav. Raziskava izpostavlja sodelovanje Maroka pri krepitvi migracijskih tokov afriških študentov na primeru afriških kamerunskih in gabonskih študentov v mestu Fez. Polstrukturirani intervjuji so razkrili različna stališča o njihovem vključevanju v državo gostiteljico, tako v univerzitetnem okolju kot v njihovem življenjskem okolju. Študija ugotavlja, da je Fez idealen za študij, čeprav ima ena skupnost študentov (gabonska) koristi od vseh zmogljivosti na škodo druge (kamerunske), zaradi sporazumov, ki so jih predhodno sklenile njune vlade, kar bo povzročilo neravnovesje v odnosu vključevanja, in je spodbudilo primerjavo med dvema študentskima skupnostma. Ta analiza je pripeljala do vprašanj o vpletenosti matičnih držav, pa tudi o odzivih države gostiteljice na to politiko Kraljevine, ki želi privabiti več študentov na študij v Fez. Raziskava v skladu s sodobnimi študijami o mednarodnih migracijah, predstavlja perspektivo za širitev zakonitih migracijskih poti in Afriško unijo poziva k spodbujanju »znotrajafriških« migracij.

Ključne besede: znotrajafriške migracije, Maroko, Gabonski študenti, Kamerunski študenti, Fez
IJEMS 16 (1): 9–32

Internacionalizacija doma: medkulturno vključevanje študentov v obštudijske dejavnosti; študija primera MED2IaH

ANICA NOVAK TRUNK, NADA TRUNK ŠIRCA,
KARIM MOUSTAGHFIR IN DORSAF BEN MALEK

Članek obravnava vlogo izvenšolskih dejavnosti pri krepitvi medkulturnih sposobnosti študentov, pri čemer kot študijo primera uporablja projekt MED2IaH Erasmus+ CBHE. Projekt, ki je potekal med letoma 2020 in 2023 na 12 visokošolskih ustanovah v državah južnega Sredozemlja, ki niso članice EU, je bil namenjen vključevanju mednarodnih in medkulturnih vidikov v lokalno izobraževanje. Poudarek je bil na konceptu »internacionalizacija doma« (IaH), ki poudarja vključitev globalnih učnih priložnosti v kurikulum in življenje v kampusu za vse študente. Študija ugotavlja, da posebne zunajšolske

dejavnosti, kot so digitalno pripovedovanje zgodb, medkulturni dogodki in čajnice FRIENDS, pomembno prispevajo k IaH s spodbujanjem medkulturnega sodelovanja in razumevanja. Raziskava zaključuje, da te pobude učinkovito spodbujajo medkulturne kompetence, izboljšujejo veščine komunikacije in timskega dela ter zagotavljajo dragocene vpoglede v upravljanje kulturnih sodelovanj, s čimer prispevajo k internacionalizaciji visokošolskih institucij.

Ključne besede: medkulturne dejavnosti, raznoliko univerzitetno vzdušje, internacionalizacija v domačem okolju
IJEMS 16 (1): 33–62

Uporaba analitičnega hierarhičnega procesa za merjenje nacionalnih interesov: prikaz študije primera spreminjanja pomena Libije za italijansko zunanjo politiko v obdobju 2011–2021

LILI TAKACS

Članek obravnava strateški pomen zagovorništva in projekcije moči v evrosredozemski regiji kot gonilni sili italijanskih nacionalnih interesov in posledično krepitve mednarodnega vpliva države. Medtem ko sta merjenje in določanje prednostnih nalog nacionalnih interesov že dolgo predmet raziskovanja na področju zunanje politike, je izraženo pomanjkanje široko razširjenih metodologij, ki bi zagotavljale kvantitativne rezultate, ključne za sprejemanje strateških odločitev. Analitični hierarhični proces (AHP) je metoda, ki vključuje tako kvalitativne kot kvantitativne dejavnike, zaradi česar je primerna za analizo nacionalnih interesov in pomoč odločevalcem pri določanju prednostnih nalog in dodeljevanju virov. V tem prispevku je metodologija AHP uporabljena za preučitev italijanskih nacionalnih interesov v evrosredozemski regiji, s posebnim poudarkom na Libiji. V okviru študije je ocenjen spreminjajoči se pomen Libije v italijanski zunanji politiki v sredozemskem kontekstu, ki zajema pet držav ob južni obali Sredozemskega morja (Maroko, Tunizijo, Alžirijo, Libijo in Egipt). Cilj je opredeliti področja italijanskih interesov v tej regiji in oceniti razvoj teh interesov skozi čas. Rezultati te analize bodo izboljšali razumevanje mednarodnih političnih odločitev in prispevali k učinkovitejšemu oblikovanju italijanske zunanje politike v evrosredozemski regiji.

Ključne besede: nacionalni interes, Italija, Sredozemlje, zunanja politika, analitični hierarhični proces
IJEMS 16 (1): 63–85

Mobilnost znanstvenikov na začetku kariere v Sredozemlju med COVID-19: spreminjanje krize v priložnosti za modro gospodarstvo

JIHENE NOUAIRI, ALICE AFFATATI, GIORGIA RIVOIRA, SERGIO REJADO ALBAINA IN MOUNIR GHRIBI

Pandemija COVID-19 je močno vplivala na mednarodno znanstveno mobilnost, zlasti pri znanstvenikih na začetku kariere (ECS). Namen tega prispevka je zagotoviti celovito analizo izzivov, s katerimi so se med pandemijo soočali ECS v sredozemski regiji, s posebnim poudarkom na znanstveni mobilnosti. Poleg tega študija preučuje vpliv pandemije na poklicno pot mladih raziskovalcev ter dolgoročne učinke na znanstveno raziskovanje in akademsko sfero v Sredozemlju. Vključujemo individualne izkušnje treh raziskovalcev, ki zagotavljajo neposreden vpogled v izzive in učinke pandemije COVID-19. Te osebne izkušnje obogatijo članek, saj ponujajo niansirano razumevanje praktičnih posledic in čustvenih vidikov, povezanih z obravnavanimi vprašanji.

Ključne besede: znanstvena mobilnost, znanstveniki na začetku kariere, pandemija COVID-19, modro gospodarstvo, sredozemska regija
IJEMS 16 (1): 87–113

Učinki programov ohranjanja delovnih mest na ohranjanje delovnih mest med epidemijo COVID-19 v državah evroobmočja

ANTON ROP

V prispevku analiziramo učinke različnih shem ohranjanja zaposlitve (JR) na ohranjanje delovnih mest med pandemijo COVID-19 v državah evroobmočja. Ugotavljamo, da so sheme JR v državah evroobmočja pomagale zmanjšati izgubo delovnih mest med pandemijo. Najučinkovitejše pri ohranjanju zaposlenosti so bile sheme skrajšanega delovnega časa, ki so bile najbolj posodobljene in so bile bolj velikodušne ter so vključevale nestandardne zaposlene. Vendar pa je bil učinek shem JR manjši od doseženega splošnega ohranjanja zaposlovanja. V nasprotju z veliko recesijo so makroekonomski ukrepi gospodarske podpore pomagali ohranjati delovna mesta tudi med pandemijo. Ustrezne razlike v sektorskih učinkih ohranjanja delovnih mest kažejo, da je takšna makroekonomska podpora omogočila ohranitev več delovnih mest, zlasti v skupini bolj ranljivih storitvenih sektorjev.

Ključne besede: pandemija COVID-19, sheme ohranjanja delovnih mest, sheme skrajšanega delovnega časa, makroekonomski ukrepi
IJEMS 16 (1): 115–140

Pozitiven vpliv pandemije COVID-19 na slovensko gospodarstvo

PIERRE ROSTAN IN ALEXANDRA ROSTAN

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Cilj prispevka je oceniti odpornost slovenskega gospodarstva v času pandemije COVID-19, ki je svetovno gospodarstvo prizadela v četrtem četrtletju 2019, v letih 2020, 2021 in 2022. Za oceno odpornosti slovenskega gospodarstva sta izdelana dva sklopa napovedi: napovedi z uporabo zgodovinskih podatkov, ki vključujejo pandemijo (od 4. četrtletja 1997 do 2. četrtletja 2022), in napovedi brez pandemije (od 4. četrtletja 1997 do 3. četrtletja 2019). Izračun razlike njunih povprečij je kazalnik odpornosti gospodarstva med pandemijo, večja kot je razlika, večja je odpornost. Kot referenčni vrednosti se uporabljata evroobmočje in Nemčija. Če od povprečne napovedane četrtletne stopnje rasti BDP (anualizirane) za evroobmočje v obdobju od 3. četrtletja 2022 do 4. četrtletja 2050, dobljene s podatki za obdobje od 4. četrtletja 1997 do 2. četrtletja 2022, +0,68 %, odštejemo tisto, dobljeno s podatki za obdobje od 4. četrtletja 1997 do 3. četrtletja 2019, +0,57 %, dobimo razliko +0,11 %, pri Sloveniji je razlika 0,10 % [+1,20 % – (+1,10 %)] in pri Nemčiji –0,12 % [+0,89 % – (+1,01 %)]. Tako slovensko gospodarstvo na podlagi napovedi za obdobje od 3. četrtletja 2022 do 4. četrtletja 2050 kaže skoraj enako odpornost (+0,10 %) kot gospodarstvo evroobmočja (+0,11 %) in večjo odpornost kot gospodarstvo Nemčije (–0,12 %). Poleg tega so avtorji poudarili, da naj bi povprečje napovedi četrtletnih (anualiziranih) stopenj rasti za Slovenijo na podlagi podatkov za četrto četrtletje 1997 in drugo četrtletje 2022 znašalo +1,20 %, medtem ko naj bi za evroobmočje znašalo le +0,68 %, za Nemčijo pa +0,89 %. Slovensko gospodarstvo ima boljše obete kot gospodarstva evroobmočja in Nemčije.

Ključne besede: BDP, spektralna analiza, valovna analiza, napovedovanje, Slovenija, evroobmočje, Nemčija
IJEMS 16 (1): 141–169

ملخصات

مساهمة المغرب في تعزيز الهجرة داخل إفريقيا: تحليل من خلال منظور تدفقات هجرة الطلاب الجابونيين والكاميرونيين في مدينة فاس

الملخص

يسلط هذا المقال مزيدًا من الضوء على تعزيز الهجرة البينية بين الأفارقة، والتي نادرا ما كانت موضوع بحث متعمق باستثناء الهجرة غير النظامية إلى أوروبا. تسلط هذه الدراسة الضوء على مشاركة المغرب في تعزيز إجراءات هجرة الطلاب الأفارقة خصوصا من منظور الطلاب الأفارقة الكاميرونيين والغابونيين في مدينة فاس. وكشفت تقنية المقابلات شبه المهيكلة عن آراء متباينة فيما يتعلق باندماجهم في البلد المضيف، سواء في البيئة الجامعية أو في مكان إقامتهم. و أبانت الدراسة على أن فاس مكان مثالي للدراسة، على الرغم من أن إحدى الفئتين الطلابيتين (الغابونيون) تستفيد من جميع التسهيلات مقارنة مع الأخرى (الكاميرونيون)، وذلك وفقا للإتفاقيات التي وضعتها حكومتيهما مسبقًا، مما سيترتب عنه اختلال في علاقة الاندماج، وهو ما أدى إلى عقد مقارنة بين الجاليتين الطلابيتين. وقد أدى هذا التحليل إلى طرح تساؤلات حول إشراك بلدان المنشأ، وكذلك حول ردود فعل البلد المضيف على سياسة المملكة في جذب المزيد من الطلاب إلى فاس. تتماشى هذه الدراسة مع الدراسات المعاصرة للهجرة الدولية، وتوفر منظورًا لتوسيع قنوات الهجرة القانونية ودعوة الاتحاد الأفريقي لتشجيع الهجرة "البينية"

الكلمات الرئيسية: الهجرة البين إفريقية ؛ المغرب؛ الطلاب الغابونيون؛ الطلاب الكاميرونيون؛ فاس

العولمة في المنزل: المشاركة بين الثقافات للطلاب في الأنشطة اللامنهجية - دراسة حالةMED2IaH

الملخص

تبحث هذه الدراسة في التأثير الإيجابي للأنشطة اللامنهجية على تطوير القدرات بين الثقافات لدى الطلاب، مع التركيز على مشروع MED2IaH (دول البحر الأبيض المتوسط نحو العولمة في المنزل) الممول من برنامج Erasmus+ CBHE كمثال محدد. نُفذ المشروع بين عامي 2020 و2023 في 12 مؤسسة تعليم عالي تقع في دول جنوب البحر الأبيض المتوسط غير الأعضاء في الاتحاد الأوروبي، وكان الهدف منه هو دمج الجوانب الدولية والثقافية في البيئات التعليمية المحلية. تُبرز الدراسة أهمية "العولمة في المنزل (IaH) ، التي تدمج الجوانب الدولية في المنهاج الدراسي، وحياة

الحرم الجامعي، ومشاركة الهيئة التدريسية لتقديم فرص تعلم عالمية لجميع الطلاب بغض النظر عن حالتهم التنقلية.

تشجع بعض الأنشطة اللامنهجية على العولمة في المنزل (IaH) خصوصاً تلك التي تُنشأ خصيصاً لتعزيز التفاعل والفهم بين الثقافات بين الطلاب. تعزز هذه الأنشطة فهماً أعمق للتنوع الثقافي، وتحسن مهارات التواصل والعمل الجماعي لدى الطلاب، وتوفر رؤى قيمة لإدارة التعاون الثقافي بفعالية. يشير التقرير السادس للمسح العالمي للاتحاد الدولي للجامعات (IAU) إلى أن الأنشطة اللامنهجية التي اكتسبت أهمية للعولمة في المنزل في السنوات الخمس الماضية في معظم مؤسسات التعليم العالي حول العالم تشمل العولمة الافتراضية، والفعاليات التي تقدم تجارب بين الثقافات أو دولية في الحرم الجامعي أو في المجتمع المحلي، وورش العمل التي تهدف إلى تطوير المهارات بين الثقافات لكل من الموظفين والطلاب (IAU, 2024) . [180]

على سبيل المثال، تُعد "بيوت الشاي للاصدقاء " الخاصة بمشروعMED2IaH ، التي أنشئت لتعزيز التفاعل بين الثقافات بين الطلاب المحليين والأجانب، أمثلة جيدة على مثل هذه المبادرات. بالإضافة إلى ذلك، يُظهر مجموعة من الأنشطة اللامنهجية، مثل أنشطة سرد القصص الرقمية، ومخيم تدريب الطلاب، ومجموعة من الفعاليات بين الثقافات التي نُفـّذت في مشروع MED2IaH مساهمات غنية في العولمة في المنزل.

تعد الدراسة دراسة حالة نوعية تستخدم الاستبيانات وتحليل الوثائق لتقييم نتائج هذه الأنشطة. تشير النتائج إلى أن الأنشطة اللامنهجية ناجحة في تعزيز الكفاءات بين الثقافات من خلال المشاركة العملية وفرص التأمل. اكتسب الطلاب فهماً أعمق للتنوع الثقافي، وحسنوا مهاراتهم في التواصل والعمل الجماعي، وحصلوا على رؤى مهمة حول تنسيق الجهود الثقافية.

تختتم الدراسة بأن التكامل المستمر والهادف لمبادرات العولمة في المنزل (IaH) يمكن أن يسهم بشكل كبير في تحقيق أهداف العولمة لمؤسسات التعليم العالي. يضمن هذا التكامل أن يحصل جميع الطلاب على تجارب بين الثقافات ضرورية لتنميتهم المهنية والشخصية في مجتمع عالمي مترابط بشكل متزايد.

الكلمات المفتاحية: الأنشطة بين الثقافات، بيئة جامعية متنوعة، العولمة في إطار محلي

استخدام عملية التحليل الهرمي لقياس المصالح الوطنية :دراسة حالة لتوضيح تغير أهمية ليبيا في السياسة الخارجية الإيطالية بين 2011-2021

الملخص

لتقييم المصالح الوطنية الإيطالية (AHP) تستخدم الدراسة عملية التحليل الهرمي بشكل كمي على مدى عشر سنوات)2011-2021 (في سياق خمس دول على طول الساحل الجنوبي للبحر الأبيض المتوسط .من خلال تبني نهج طولي، تبحث هذه الدراسة في ديناميكيات وأهمية كل دولة على حدة، مما يسلط الضوء على التحولات المحتملة في السياسة الخارجية الإيطالية .تقدم الدراسة منهجية شاملة لتصور وتحليل المصالح الوطنية، مما يوفر رؤى قيمة حول المشهد الجيوسياسي المتطور في منطقة البحر الأبيض المتوسط.

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تسلط النتائج الضوء على الأنماط المتغيرة وأهمية هذه المصالح على مدى الفترة التي تم فحصها، وتكشف عن تحولات دقيقة في النظرة الاستراتيجية لإيطاليا .من خلال تقديم فحص دقيق لمنطقة البحر الأبيض المتوسط، تقدم هذه الدراسة فهماً مفصلاً للتفاعل المعقد بين المصالح الوطنية الإيطالية والديناميكيات الجيوسياسية للدول المجاورة .يتيح تصور هذه البيانات لمحة شاملة عن العلاقات المتطورة وتوازن القوى، مما يسهم في اتخاذ قرارات مستنيرة وصياغة السياسات.

الكلمات المفتاحية :المصلحة الوطنية، إيطاليا، البحر الأبيض المتوسط، السياسة الخارجية، عملية التحليل الهرمي

دراسات حالة حول تأثير جائحة كوفيد-19 على تنقل العلماء في بداية مسيرتهم المهنية ضمن قطاع الاقتصاد الأزرق في منطقة البحر الأبيض المتوسط

الملخص

لقد أثرت جائحة كوفيد-19 بشكل عميق على التنقل الدولي العلمي، لا سيما بالنسبة للعلماء في بداية مسيرتهم المهنية .تهدف هذه الورقة إلى تقديم تحليل شامل للتحديات التي واجهها العلماء في بداية مسيرتهم المهنية في منطقة البحر الأبيض المتوسط خلال الجائحة، مع التركيز بشكل خاص على التنقل العلمي .بالإضافة إلى ذلك، تكشف الدراسة تأثيرات الجائحة على مساراتهم المهنية والتأثيرات طويلة الأمد على البحث العلمي و الأوساط الأكاديمية في منطقة البحر الأبيض المتوسط .ندمج في هذه الورقة تجارب ثلاثة باحثين فرديين، مما يوفر رؤى مباشرة حول التحديات والآثار التي تسببت بها جائحة كوفيد-19 .تثري هذه التجارب الشخصية الورقة من خلال تقديم فهم دقيق للجوانب العملية والعاطفية المتعلقة بالقضايا التي نوقشت.

الكلمات المفتاحية :التنقل العلمي، العلماء في بداية مسيرتهم المهنية، جائحة كوفيد-19، الاقتصاد الأزرق، منطقة البحر الأبيض المتوسط.

آثار برامج الاحتفاظ بالوظائف على الحفاظ على التوظيف خلال جائحة كوفيد19 في بلدان منطقة اليورو

الملخص

[182] في هذا المقال، نقوم بتحليل تأثيرات مختلف برامج الاحتفاظ بالوظائف على الحفاظ على التوظيف خلال جائحة كوفيد19 في دول منطقة اليورو .نجد أن برامج الاحتفاظ بالوظائف في دول منطقة اليورو ساعدت في تقليل فقدان الوظائف خلال الجائحة. وكانت البرامج الأكثر فعالية في الحفاظ على التوظيف هي تلك التي تم تحديثها بشكل موسع من برامج العمل لوقت قصير الموجودة مسبقًا والتي كانت أكثر سخاءً وشملت العمال غير النظاميين .ومع ذلك، كان تأثير برامج الاحتفاظ بالوظائف أقل من الحفاظ الشامل على التوظيف الذي تم تحقيقه .وعلى عكس الركود الكبير، ساعدت التدابير الاقتصادية الكلية للدعم الاقتصادي في الحفاظ على الوظائف خلال الجائحة أيضًا. تظهر الفروقات المقابلة في تأثيرات الحفاظ على التوظيف في القطاعات أن هذا الدعم الاقتصادي الكلي أدى إلى الحفاظ على المزيد من الوظائف، وبفارق كبير في مجموعة القطاعات الخدمية الهشة

الكلمات الرئيسية :جائحة كوفيد 19؛ برامج الاحتفاظ بالوظائف ؛ برامج العمل لوقت قصير؛ التدابير الاقتصادية الكلية

تأثير جائحة كوفيد-19 الإيجابي على الاقتصاد السلوفيني

الملخص

الهدف من هذا المقال هو تقييم مرونة اقتصاد سلوفينيا خلال جائحة كوفيد 19 التي ،ضربت الاقتصاد العالمي في الربع الرابع من عام 2019، وفي السنوات 2020 و2022 .لتقييم مرونة اقتصاد سلوفينيا، تم توليد مجموعتين من التوقعات 2021: توقعات باستخدام البيانات التاريخية بما في ذلك فترة الجائحة)من الربع الرابع 1997 إلى الربع الثاني 2022 (وتوقعات بدون فترة الجائحة)من الربع الرابع 1997 إلى الربع الثالث 2019 .(يُعتبر حساب الفرق بين متوسطاتهم مؤشرًا على مرونة الاقتصاد خلال الجائحة، وكلما كان الفرق أكبر، كانت المرونة أكبر .تم استخدام منطقة اليورو وألمانيا كمعايير .من خلال طرح متوسط معدل نمو الناتج المحلي الإجمالي الفصلي السنوي المتوقع لمنطقة اليورو من الربع الثالث 2022 إلى الربع الرابع باستخدام بيانات من الربع الرابع 1997 إلى الربع الثاني 2022، والذي بلغ 2050

من معدل النمو المتوقع باستخدام بيانات من الربع الرابع 1997 إلى الربع ،%0.68+ الثالث 2019، والذي بلغ +0.57%، يكون الفرق +0.11%، في حين أن الفرق في %سلوفينيا هو 0.10+] %1.20+) %1.10[(%، وفي ألمانيا الفرق هو 0.12 وبالتالي، يظهر اقتصاد سلوفينيا مرونة تقارب مرونة .[(%1.01+) %0.89+] [183] منطقة اليورو +)0.10 (%مقارنة بمنطقة اليورو +)0.11 (%بناءً على توقعات من .الربع الثالث 2022 إلى الربع الرابع 2050 ومرونة أقوى من ألمانيا)0.12(% بالإضافة إلى ذلك، أشار المؤلفون إلى أن متوسط معدل النمو السنوي الفصلي المتوقع %من الربع الثالث 2022 إلى الربع الرابع 2050 لسلوفينيا يُتوقع أن يكون +1.20 باستخدام بيانات من الربع الرابع 1997 إلى الربع الثاني 2022، في حين يُتوقع أن يكون فقط +0.68 %لمنطقة اليورو و +0.89 %لألمانيا. يُظهر اقتصاد سلوفينيا آفاقًا أفضل من اقتصادات منطقة اليورو وألمانيا

الكلمات المفتاحية :الناتج المحلي الإجمالي ؛ التحليل الطيفي؛ تحليل المويجات؛ التنبؤ؛ سلوفينيا؛ منطقة اليورو؛ ألمانيا

Building Bridges Across the Mediterranean: EMUNI's Vision for the Future

Since the assumption of office by our new president prof. dr. Rado Bohinc, EMUNI University has embarked on an exciting path of expansion, development, and increased engagement across the Euro-Mediterranean region. In recent months, we have witnessed significant progress shaping the future of our institution and enhancing our academic and professional networks. The president's administration has prioritised strengthening relationships between the Euro-Mediterranean academic and professional sectors. EMUNI has actively engaged with diverse partners through forums, conferences, and bilateral meetings to create new opportunities for collaboration. These efforts have expanded our network and fostered opportunities for joint research projects, student exchange programmes, and shared academic initiatives. As a result, the university's role as a hub of Euro-Mediterranean cooperation is becoming increasingly prominent, and these collaborations are crucial to the sustained success of our mission.

Among EMUNI's most notable academic achievements is the launch of five newly established study programmes. Each programme is designed to address the evolving needs of the region through a multidisciplinary approach and research into pressing global challenges. These courses, spanning topics from intercultural communication to sustainability, underscore the university's commitment to providing advanced, research-based education that prepares students for a globalised society. Newly offered PhD programmes include Kinesiology and Comparative Corporate Governance, while Master's programmes cover Comparative Business Law, Digitalisation and Human Rights, and Sports Management. This diverse range of programmes reflects EMUNI's strategic focus on fostering innovation and equipping students with relevant knowledge for a dynamic global environment.

In a continuing effort to enhance access to our academic programmes, EMUNI has proudly established a scholarship fund to support talented and deserving students from diverse cultural, social, and economic backgrounds. This initiative not only signifies our strong commitment to diversity and inclusion but also highlights our belief in education's transformative potential to effect lasting change in individuals and

communities. By alleviating financial barriers and enabling more students to benefit from our unique educational offerings, we aim to cultivate a more inclusive and vibrant academic environment. In doing so, we empower students from all walks of life to realise their full potential, acquire essential skills, and make meaningful contributions to the [185]
social, economic, and cultural development of the Euro-Mediterranean region and beyond. Through this endeavour, we reaffirm our dedication to fostering diversity, encouraging collaboration, and creating a future where education is accessible to all.

The ongoing creation of the Euro-Mediterranean Student Empowerment Fund (EMSEF) represents another significant achievement. This crucial project aims to support and promote innovative social entrepreneurs across the region. Building on the framework of the Euro-Mediterranean Students' Empowerment Fund, EMSEF further advances EMUNI's commitment to enhancing educational and business opportunities in the Mediterranean region. It provides financial support, mentorship, and scholarships to students, researchers, and educators from diverse backgrounds, with a particular focus on individuals from politically and economically unstable areas. EMSEF seeks to develop projects addressing societal challenges, drive economic growth, and achieve a positive social impact by empowering social entrepreneurs and promoting academic collaboration. Through intercultural communication, sustainable development, and regional cooperation, this programme reinforces EMUNI's role in fostering a more resilient and united Mediterranean. EMSEF transforms challenges, such as migration, into opportunities for education, innovation, and growth, involving over 109 participating higher education institutions from the Middle East, North Africa, and MED9 countries.

Furthermore, thoughtful preparations are underway for a prestigious conference scheduled for October. This event will provide a vital forum for discussion and knowledge sharing. Prominent scholars and experts from across the Euro-Mediterranean region will convene for the conference which will take place in Piran between 9-11th October. This event aims to address key issues facing the region and highlights EMUNI's leadership in fostering insightful dialogues. By hosting this conference, EMUNI demonstrates its commitment to supporting collaborative initiatives that advance the region.

Additionally, EMUNI is excited to introduce the EMUNI Knowledge & Innovation Centre (EKIC), an innovative project designed to

propel institutions to new heights. By establishing an EKIC in partnership with EMUNI, institutions will benefit from enhanced academic standards, expanded international engagements, and a dynamic environment for innovation and knowledge exchange. Collaborating with
[186] EMUNI through EKIC offers access to a global network of universities and institutions, opportunities for joint study programmes, and support for PhD and Master's programmes. EKIC also promotes collaborative research efforts, strengthens marketing campaigns with strategic support, and leverages branding to enhance reputation and visibility.

In conclusion, EMUNI University's growth and development have accelerated significantly under the direction of our new president prof. dr. Rado Bohinc, whose leadership has had a profoundly transforming effect. His forward-thinking strategy and remarkable effectiveness have improved our academic programs, promoted diversity, and fortified regional collaboration. These developments highlight his stewardship's efficacy and his dedication to furthering the goal of our institution. With his motivating leadership and strategic guidance, we hope to build on this momentum and accomplish more innovations and successes that will further establish our leadership in higher education.

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