HOSPITALITY SECTOR SKILLS – COMPARING CROATIA TO SOUTH EUROPEAN COUNTRIES

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Abstract

Purpose – The paper aims to comparatively analyse general skills differences among employed in the hospitality sector across South European (SE) economies.
Methodology/Design/Approach – The individual responses from the Survey of Adult Skills were used to assess objective skill levels (literacy, numeracy, adaptive problem-solving) and self-perceived skill deficiencies. Descriptive comparisons across the countries and Oaxaca-Blinder decomposition were applied.
Findings – The results show a relatively strong position for Croatia in literacy and numeracy, but a lower score in adaptive problem-solving. The difference in average scores between the countries is due to a compositional effect, mostly related to individuals with lower educational attainment and those of foreign origin.
Originality of the research – The analysis provides objective measures of general skills in the hospitality sector in Croatia and SE economies, complementing previous findings focused on a single country.
Keywords skills, hospitality sector, Croatia, comparative analysis

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INTRODUCTION

Demographic ageing across the European economies has brought the issue of labour shortages to the forefront of many policy discussions. The labour shortages have disproportionately affected the hospitality sector (Baum, 2015), a sector in which the human factor is essential to the quality of service provided (Haven-Tang & Jones, 2008; Sisson & Adams, 2013; Ivančić et al., 2022). At the same time, workers in the hospitality sector are frequently facing seasonality, irregular working hours and lower-than-average salaries (King et al., 2021), which makes attracting the necessary workforce into the sector difficult. Competition for global talent is intensifying at the firm level (Belderbos et al., 2025), with many firms resorting to 'importing' (Ewers et al., 2022) workers, as the inability to secure the appropriate human capital can have significant adverse effects on firm and sector competitiveness. Since the hospitality sector accounts for a large share of the economy in many countries, these issues are important for national competitiveness as well.

Adding to the urgency of the problem is the changing nature of labour demand, with employers' needs not only exceeding the existing number of available workforces, but also swiftly changing the characteristics of the tasks needed to be performed. This creates a moving target for national education systems, requiring constant adjustment to labour market needs. The issue is not relevant only to the tourism sector; however, previous studies have clearly documented its presence there. The most vivid example of this process is digitalization which demands constant reskilling and upskilling (Sousa & Rocha, 2019) because many segments of the tourism industry – such as marketing, distribution, or customer engagement – entail innovation and technological advancements (Dredge et al., 2019). As tourists themselves acquire new digital skills, companies in the tourism industry seek new opportunities to capitalize on emerging communication channels (Asperen et al., 2018; Buhalis et al., 2019). Existing studies suggest a digital skills gap in the tourism sector and that the existing workforce may not possess the required digital competencies (Rasoolimanesh et al., 2019). At the same time, the ability of the firms and the workforce to swiftly adapt to technological changes is crucial for the sector's competitiveness (Sigala, 2020; Chemli et al., 2024).

The analysis of the skills mismatch in the labour market has been initially framed within the human capital theory (Becker, 1964), which stipulates that an individual, through education and training, invests in her human capital, which subsequently enables getting a (well-matched) job position, with desirable working conditions and higher earnings. From employers' perspective, an employee with higher human capital is perceived as more productive, thereby increasing the likelihood of employment and promotion. Employers' perspective on human capital is also crucial in the resource-based view theory (Duarte, 2017), which holds that all firms' resources, including human resources, can be a source of competitive advantage. Within this concept, not only does the (potential) employee have the incentive to invest in acquiring knowledge, but the employer is also interested in maintaining and improving the quality of the workforce because of its direct impact on business results. The direct incorporation of the employer and employee perspectives is further evident in the matching theory (Pissarides, 2000), in which an employer and a potential employee share responsibility for matching workers' skills to job requirements. Technological changes certainly influence the probability of the success in the matching process, as they shape the characteristics demanded on the labour market. This is particularly evident in the case of digital and soft skills, which employers have recently emphasized as the most desirable (Buchmann & Buchs, 2025). It is very likely that demand for higher-level digital communication skills will continue to increase in the future (Johanson et al., 2011; Carlisle et al., 2023a). For example, Carlisle et al. (2023a), by analysing 8 European countries and 5 tourism sectors have established that the largest gaps between the current and the future skill levels

were identified for artificial intelligence and robotics skills and augmented reality and virtual reality skills, but these skills, together with computer programming skills, were considered also as the least important digital skills by the firms in the tourism sector. Focusing on the UK, Minor et al. (2025) confirmed that organizations mostly lack skills in emerging technologies such as artificial intelligence and robotics and highlighted that key skills gaps relate to social media, online marketing, and communication skills. Furthermore, Carlisle et al. (2023b), based on the results of the quantitative survey of senior managers' evaluation of proficiency of employees' social skills in 8 European economies, conclude that there is a need to develop holistic social skill training and education which supports quality customer experiences and sustainable tourism.

The inability of markets to adapt to the changes brought by digitalisation is associated with an identified, and possibly growing, skills mismatch. It has to be emphasized that the skills mismatch is not necessarily related to the employee's lack of adequate skills. Indeed, early literature on skills gap has focused on adverse effects of overskilling and overeducation on workers' remuneration and job satisfaction (Duncan & Hoffman, 1981; Allen & van der Velden, 2001). It has soon been noted that these individual-level adverse effects can lead to higher job turnover rates and lower firm-level productivity (McGuinness & Ortiz, 2016). If these are widespread across the economy, they can certainly impede national competitiveness. Regardless of their importance, the macroeconomic effects are seldom quantified in the literature.

Using data from the European Job and Skills Survey (ESJS) and relying on selfreported skills assessments, McGuinness and Staffa (2025) identify substantial differences in skills mismatch across EU member states. In Croatia, for instance, the share of individuals who consider themselves undereducated for their job is relatively small. However, a notably higher-than-average proportion believe they lack the appropriate skills to perform their job compared with other EU countries. It is particularly striking that Croatian respondents most frequently report deficiencies in social skills, which are of utmost importance for the hospitality and service sectors.

The literature unambiguously argues that the human factor, particularly employees with well-developed communication skills (Čuić Tanković et al., 2023a; Tesone & Ricci, 2025), is essential to the tourism and hospitality sector. In the specific case of Croatia, numerous studies emphasize the importance of skills for the hospitality sector (Čuić Tanković et al., 2023b; Bokan et al., 2026) as well as their apparent deficiencies (Buneta et al., 2016; Filipović et al., 2025). The existing literature is particularly focused on exploring in more detail the most relevant skill for the tourism industry – i.e. communication. Subsequently, Čuić Tanković et al. (2023b) document a positive link between soft skills and customer satisfaction and that communication skills are positively correlated with soft skills. Vidak et al. (2022) explore various aspects of communication skills and their importance to hospitality sector customers, and identify professionalism, courtesy and accessibility as particularly valued by customers. Bokan et al. (2026) analyse soft skills in detail and document that while tourists emphasize outward-facing interpersonal attributes such as empathy, active listening, and understanding customer needs, managers prioritise inward-facing organisational skills such as adaptability, leadership, and problem-solving. It is interesting to note that Adoni and Nimrod (2020) suggested that the use of digital technology requires a specific form of literacy that resembles communication skills. Subsequently, it can be inferred that communication skills and digital requirements are correlated.

This brief review clearly indicates that most empirical studies seek a deeper understanding of the skills demanded within the Croatian hospitality sector. To the best knowledge of the author, there are no recent studies examining the skills of the hospitality sector employees in Croatia compared to other economies. This constitutes the main contribution of the analysis in this paper. While the comparative focus of the study due to the limitation in the data sources does not allow for a detailed inspection of the specific skills and competencies relevant to the hospitality sector, it provides a comparison of the general quality of the workforce employed in the hospitality sector.

The aim of the analysis in this paper is to contribute to the discussion of the competitiveness of the Croatian hospitality sector in comparison to some of its main competitors, by providing a detailed comparison of the hospitality sector workers' general skills. Specifically, the analysis provides a direct comparison of literacy, numeracy and adaptive problem-solving across Croatia, Italy, Portugal and Spain using standardized methodology. Furthermore, for each general skill category, we analyse how much of the cross-country difference can be attributed to skill levels within the hospitality sector workforce and how much to differences in the shares of subgroups across countries. Additionally, we explore the factors contributing to the differences in the identified skill levels.

Since the empirical analysis is focused on persons employed in the hospitality sector, we observe only the characteristics of the "matched" workers, i.e., those who have already accepted a job in the hospitality sector and whose characteristics have been positively evaluated by employers. Thus, the analysis enables only a snapshot of workers' general skills at the moment the survey is taken. The empirical analysis is most closely related to the matching theory, although we are not able to observe the process leading to successful matching. However, decomposing the factors contributing to the general skills differences between Croatia and its competitors, and establishing the different workforce characteristics contributing to the identified "gaps", provides insight into the differences in the results of matching processes across labour markets.

The paper adopts the following structure. The next section briefly presents the methodological approach and the data used, followed by the section devoted to the results and discussion, and the last section offers conclusions.

1. METHODOLOGY

To explore potential general skill deficiencies in the hospitality sector in Croatia relative to selected competitors, we rely on data from the Survey of Adult Skills (SAS), conducted as part of the Programme for the International Assessment of Adult Competencies (PIAAC). This is the only data source that enables a comparative analysis of skill levels between countries that includes Croatia. However, the Survey does not allow for the analysis of specific skills relevant to the hospitality sector, such as communication skills, service orientation, customer interaction, or emotional intelligence, which is an important limitation to the current study. Indeed, due to data constraints, such studies focus on a direct comparison between two countries (Rienda et al., 2024), which do not include Croatia. Because the SAS Survey methodology is rigorously applied across all participating countries and due to the unavailability of alternative data sources, relying on SAS still enables gaining new insights into Croatian hospitality sector's workforce characteristics.

The analysis in the paper relies on the individual responses from the Survey participants (OECD, 2025). Data collection was scheduled between September 2022 and June 2023 among adults aged 16-65 and enables detailed analysis of their skills in literacy, numeracy, and problem-solving (OECD, 2024). The Survey defines literacy as accessing, understanding, evaluating and reflecting on written texts in order to achieve one's goals, develop one's knowledge and potential, and to participate in Society (OECD, 2024). Numeracy is defined as accessing, using and reasoning critically with mathematical content, information and ideas represented in multiple ways in order to engage in and manage the mathematical demands of a range of situations in adult life (OECD, 2024). Adaptive problem-solving is defined as the capacity to achieve one's goals in a dynamic situation, in which a method for reaching a solution is not immediately available, requiring engagement in cognitive and metacognitive processes to define the problem, search for information, and apply a solution in a variety of information environments and contexts (OECD, 2024). Within the Survey, skills are directly assessed using psychological tests, while information on personal characteristics, such as education, is collected using a background questionnaire. As part of the research, participants independently complete exercises in the domains of literacy and numeracy skills and exercises in the domain of adaptive problem-solving, and the assessment results are expressed on a scale of 500 points (Rončević & Gregurović, 2024).

The choice of competing countries to Croatia was guided by data availability and was limited to countries with a similar type of tourism to Croatia's (i.e. summer holidays). That criterion led to the comparison of Croatia with Italy, Spain and Portugal. For the purpose of the analysis, the sample is restricted to the respondents aged 18-64, because respondents in that age range are available in all analysed countries[1]. The sample is further restricted to individuals employed in accommodation (NACE activity 55), food and beverage service activities (NACE 56) and travel agency, tour operator, reservation service and related activities (NACE 79). Since all employed persons are included in the sample, we do not differentiate by employment status. The focus on the hospitality sector implies that we have used 4.9 per cent of the total SAS sample in Croatia, 6.3 per cent in Italy, 5.8 per cent in Spain and 5.4 per cent in Portugal. Given the complex structure of the questionnaire and the need to appropriately handle non-responses, the analysis relies on the STATA package repest, developed by the OECD (Keslair, 2020). While the careful SAS survey design ensures that results can be meaningfully compared across countries, the standardisation of IRT-derived skills implies that comparisons across skill domains should be taken only as suggestive. Thus, for example, we cannot directly compare proficiency in numerical skills to proficiency in literacy.

While it could be argued that literacy, numeracy and adaptive problem-solving are general sets of skills, not specific to the hospitality sector, we resort to their analysis in this case because they provide a comparative perspective. The benefits of relying on the SAS survey are that it enables general discussion on the overall 'quality' of the labour force. Specific skills relevant to specific industries and occupations cannot be assessed using this data source. Indeed, most of the crucial skills relevant to the hospitality sector, such as communication skills, are relatively difficult to "objectively" measure across individuals or organizations, let alone countries (Zerfass et al., 2017). To partially mitigate these limitations, the subjective skills mismatch was explored. To that end, respondents' perceptions of whether their skills are higher, well-matched or under-matched to the job requirements are explored. While many factors influence respondents' perceptions and cannot be directly compared across individuals, this indicator still provides valuable information in case policymakers were to devise specific upskilling strategies.

Following the identification of average general skill levels among persons employed in Croatia and other South European economies, we were able to analyse the gap between the countries. The next step in the analysis was to decompose the identified gaps into a component due to differences in analysed skill levels across subgroups and a component due to subgroup composition. As Albæk and Rosdahl (2019) pointed out, a country might have a higher average skill level than a comparison country, despite all its inhabitants having lower skill levels than comparable inhabitants of the comparison country, if the composition of the subgroups differs significantly between the countries. To disentangle the effect, we resort to the standard Blinder-Oaxaca decomposition technique (Blinder, 1973; Oaxaca, 1971). According to this well-established technique in the literature, the overall difference between the outcomes of two populations is allocated to the explained component, the unexplained component and the interaction between the two. The explained component, also known as endowments (Blinder, 1973), is attributed to the differences in the characteristics of the two populations. The unexplained component, also named as coefficients, is attributed to differences in how these different characteristics are rewarded in two populations. Since our outcome variable is average skill level, the interpretation of the coefficient is related to the difference in return to each considered characteristic between the two countries. The average skills are analysed only for the employed population; i.e. for the successfully matched, thus they

1 Initially, the Croatian sample contains individuals aged 18-64, the Italian sample 17-65, the Spanish sample 16-65 and the Portuguese sample 17-65.

implicitly incorporate differences in labour market efficiencies and educational systems between the two analysed countries. The choice of variables to be included in the decomposition is guided by the idea of educational production function (Hanushek, 1979), which relates the educational outcome (in our case, the level of skills) to individual inputs. The specific choice of inputs depends on data availability and is subsequently briefly justified.

The general basic skills analysed in this paper are closely related to the educational system. In accordance with the human capital theory (Becker, 1964), the very goal of the formal educational system is to ensure that its participants gain adequate skills that will enable their successful integration into the labour market. Indeed, in many cases, the successful job matching depends directly on the educational attainment of the potential worker. Single-country studies can explore relative success in this task by relying on an elaborated national educational organisations' structure. However, since the aim of this paper is to provide a comparative analysis between countries, individual educational attainment is captured in broad ISCED categories (low, medium, high). Thus, three dummy variables were created, each taking the value of 1 in case the highest educational attainment of the respondent is associated with a specific broad ISCED category.

In addition to educational attainment, the decomposition also entails individual characteristics – age, sex and migrant status. These are frequently included in analyses of labour market outcomes (Botrić & Tomić, 2017) and have been found correlated to labour market participation, employment probabilities, and wage promotions. It is expected that the skills of older and younger individuals differ, as they were formed through different educational processes (Pfeifer & Reuß, 2008). This has been operationalised in the empirical analysis using a set of dummy variables that take the value of 1 if the respondent belongs to the specified age group[2]. A similar argument holds for the migrant population, where differences between home and host countries' educational systems are frequently directly observable (Chiswick & Miller, 2009; Kanas & Van Tubergen, 2009). To incorporate this effect, a dummy variable taking the value of 1 if the respondent is born in the reference country is included in the analysis. Female participation in the labour market is considered significantly different from that of males because, in many societies, their decision-making process does not entail only dichotomous outcomes (work or leisure), but also includes a third option, i.e. home production of goods and services, including care (Becker, 1965). Perhaps precisely because of this third option, women are frequently employed in the service sector, where there is a high demand for interaction between consumers and service providers (Kerfoot & Korczynski, 2005; Kwolek-Folland, 2007). To capture the effect of higher female concentration in the service sector, a dummy variable was included, taking the value of 1 based on the respondent's direct answer in the background questionnaire.

Several known factors were not included in the analysis. Specifically, the indicators measuring the quality of education, the personality traits of individuals, or the cultural factors that influence the efficiency of the educational system. While the data source could provide an additional set of indicators, there is a significant issue with their comparability across countries, which precluded their use in the current analysis. The expansion of the potential list of contributors is left for future research.

2. RESULTS AND DISCUSSION

We start with a presentation of the sample characteristics in Table 1, which shows the structure of respondents in the hospitality sector of the analysed economies. This provides important context, as employed in the hospitality sector can significantly differ from those in the general population.

Table 1: **Sample characteristics**

Variables	Croatia	Italy	Spain	Portugal
Male (%)	40.0	47.8	40.7	30.9
Female (%)	60.0	52.2	59.2	69.1
Average age	38.1	34.0	37.7	38.4
Native-born (%)	91.4	45.2	73.9	59.4
Lower education (%)	9.0	32.1	42.5	29.1
Medium education (%)	77.1	60.9	27.8	42.4
Higher education (%)	13.8	7.0	29.6	28.5
Excess skills (%)	39.7	21.6	30.9	35.2
Matched skills (%)	58.4	75.0	63.6	60.0
Skills deficit (%)	1.9	3.4	5.5	4.8
Sample size (N)	210	303	339	170

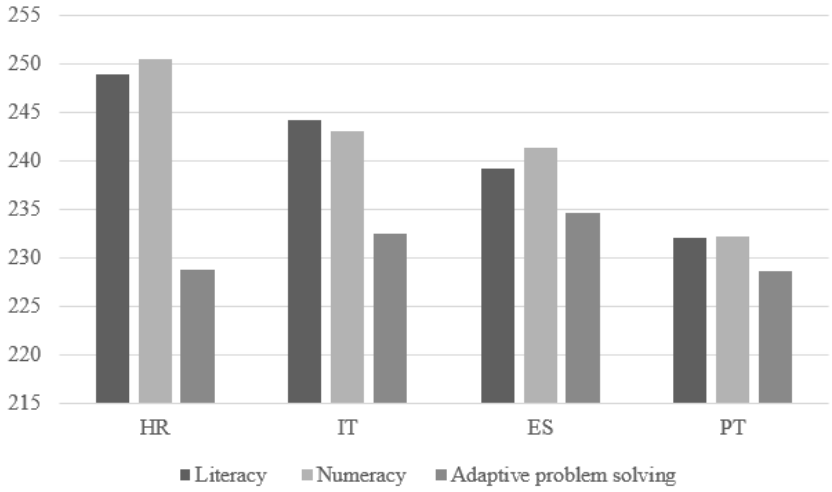
Source: author's estimates based on Survey of Adult Skills 2023.

~~The data reveal c~~compositional differences of the employed in the hospitality sector between the analysed economies. The

2 The following age groups were considered: 18-24, 25-34, 35-44, 45-54, and 55-64.

relatively high share of females employed in the hospitality sector is expected, but we can still notice differences between the countries – Portugal has the highest share, while Italy has the lowest. This is even more pronounced in the case of the share of native-born employed in the sector, which in Croatia is twice that in Italy. While Portugal and Spain have the highest share of the labour force with higher educational attainment, in Croatia, there is a relatively high share of employed with medium-level education and the lowest share of those with lower educational attainment. The data clearly indicate important compositional differences between the countries. It is interesting to note that, despite a lower average educational attainment, Croatian employees are the least likely to perceive their skills as inadequate and the most likely to perceive them as more than sufficient to perform their jobs successfully. To deepen the discussion on the country differences, we turn to directly comparing the average levels of general skills assessed using the techniques used in the SAS in the hospitality sectors of the analysed countries. This is presented in Figure 1.

Figure 1: **Average literacy, numeracy and adaptive problem solving of hospitality sector workers**



Source: author's estimates based on Survey of Adult Skills 2023.

The data in Figure 1 suggest that Croatian hospitality sector workers are relatively well positioned compared to workers from competing tourist destinations in terms of literacy and numeracy, but they fall behind in adaptive problem solving[3]. This insight is important, as it clearly indicates where the improvements in the educational system should be envisaged. While it deserves deeper analysis, it is interesting to note that this result aligns with the assessments of teaching methods in the Croatian educational system, which have found that practices that encourage research and experimental learning are underrepresented in classrooms (Braičić et al., 2015). Without offering firm conclusions, we can point to the literature that warns of insufficient attention to educators' education. For example, Burai and Bušljeta Kardum (2022) showed that programmes for the acquisition of pedagogical competencies in the framework of lifelong learning for educators primarily focus on students' knowledge of pedagogical theory. The importance of addressing this issue in the policy context can be emphasised by the notion that, in the particular case of the hospitality sector, deficiencies in problem-solving skills are crucial to explaining potential competitiveness issues, as customers expect high adaptability to new situations from sector workers.

Additionally, the sample structure clearly indicates a larger share of non-native hospitality sector workers in competing economies than in Croatia, which can partially contribute to the explanation of the literacy results due to the language barriers immigrant workers face in the host country labour market. Indeed, the results not presented here[4] reveal that literacy and numeracy scores of first- and second-generation migrants are, on average, lower than those of native-born hospitality sector workers in the competing countries, with the exception of literacy scores of second-generation hospitality workers in Portugal. On the contrary, it is interesting to note that literacy scores of first-generation migrants in Croatia are significantly higher than those of hospitality workers born in the country, which is most likely related to the traditional structure of immigration in Croatia that used to be predominantly from neighbouring countries (Butković et al., 2022). However, more recent data reveal significant and rapid changes in the structure towards third-countries nationals (Jurić, 2023), which could have a significant impact on the future literacy scores of hospitality sector workers in Croatia.

The factors contributing to these differences in average general skill levels are explored within the Blinder-Oaxaca decomposition framework. We explore differences in the average general skill levels of hospitality sector workers in Croatia and each of the competing countries. Thus, Croatia serves as a reference, and the columns of Table 2 represent the decomposition of the skills gap between Croatia and each of the competing countries.

Table 2: **Blinder-Oaxaca decomposition of average literacy, numeracy and adaptive problem solving between Croatia**

3 It is also interesting to note that average skill levels in the hospitality sector are, on average, lower than the average of the whole population across the skills in most analysed countries. The only exception is adaptive problem-solving in Italy. Indeed, in Italy, employed in the hospitality sector have on average similar adaptive problem-solving skill levels to the general adult population.
4 The results were not included in order to save space but are available from the author upon request.

and other countries

Component	Croatia	Italy	Spain	Portugal
		Literacy		
Mean outcome	248.85	244.23	239.12	232.05
Raw difference		4.62	9.73*	16.80**
		Decomposition - literacy		
Explained (Endowments)		5.44	5.44	15.46***
Unexplained		-1.43	0.01	9.30
Interaction		0.61	4.28	-7.96
		Numeracy		
Mean outcome	250.49	243.07	241.31	232.14
Raw difference		7.42	9.18*	18.35**
		Decomposition - numeracy		
Explained (Endowments)		6.16	8.30*	18.68***
Unexplained		1.83	0.91	11.57
Interaction		-0.57	-0.03	-11.90
		Adaptive problem solving		
Mean outcome	228.69	232.40	234.59	228.65
Raw difference		-3.71	-5.90	0.04
		Decomposition – adaptive problem solving		
Explained (Endowments)		3.12	2.75	14.35***
Unexplained		-6.51	-11.31	-3.78
Interaction		-0.32	2.66	-10.53*

Source: author's estimates based on Survey of Adult Skills 2023.
*** p<0.01, ** p<0.05, * p<0.10

The decomposition results confirm that Croatian hospitality workers have lower adaptive problem-solving skills than those working in other countries, but the difference is not significant. On the other hand, Croatian workers in the hospitality sector have higher numeracy and literacy skills, and the difference is significant compared to workers from Portugal and Spain. Thus, the decomposition methodology suggests relatively good general skill attainment among those employed in the Croatian hospitality sector compared to those in competing economies.

Although the results suggest that the gap in average adaptive problem-solving skills of Croatian workers relative to their peers in Italy and Spain is not statistically significant, they should be further emphasized as they point to potential weaknesses in the Croatian workforce. The adaptability of the workforce is crucial across the economy, particularly in times of uncertainty and fast technological advances. Previous studies clearly document that this applies to the hospitality sector, where, due to the strong reliance on the human factor and the need for real-time decision-making, problem-solving skills are crucial not just for employees but also for management (Giousmpasoglou, 2026). Recognition of the need to enhance the adaptability of hospitality students led to the promotion of experimental learning, as a strategic orientation towards developing human capital aligned with the dynamic and complex nature of the hospitality industry (Yordudom et al., 2025). Failure of Croatia to adapt to these trends could lead to larger skills deficiencies in the future.

The results also reveal that observed skill differences are related to differences in the composition of the respective samples. For example, in the case of the statistically significant difference in literacy between Croatian and Portuguese workers in the hospitality industry, 92 per cent of the difference can be attributed to differences in observed sample characteristics. The detailed results of the decomposition show that the main contribution to the differences in the observed skills gap between the countries can mostly be attributed to the differences in two factors – educational attainment and the share of non-native employees in the hospitality sector. However, as shown in Table A1 in the Appendix, even these two factors are not significant across all countries and all skills measures. The differences in the structure of employed were able to significantly explain the statistically significant gap in literacy and numeracy between Croatia and Portugal, and in numeracy between Croatia and Spain. In the case of Portugal, differences in the share of employed with lower educational attainment contributed to this explanation of the gap, with approximately 64 per cent in both literacy and numeracy. In the case of Spain, the same factor contributed by 87 per cent in explaining the endowments segment of the numeracy gap. Thus, a relatively low share of employed with lower educational attainment in the hospitality sector in Croatia statistically explains the relatively good general skills assessment compared to sector workers in other competing economies.
The unexplained component, presented in detail in Table A2 in the Appendix, is not statistically significant in explaining

differences in rewards to workers' characteristics across the analysed countries. Had the unexplained component been found significant, we would be able to discuss the extent of the general skills gap that would remain between the two countries, had they had similar workforce structures in the hospitality sector. In the case of additional significance of the educational factors, for example, we would be able to open the discussion of the importance of the educational system differences between the analysed countries for the identified gap. However, since our results did not reveal a statistically significant relationship, deeper insight into the findings is left for future research.

The main limitation of the analysis presented in this paper is that it does not include a broader range of factors that affect the individual skills determinants, such as personality traits, cultural factors, or motivational factors (van Laar et al., 2020). The main reason for their omission, even when the dataset allows their inclusion, is the difficulty of ensuring comparability across countries, as cultural factors can affect responses. For example, the dataset allows for the identification of Big Five personality traits. However, from a policy perspective, potential differences in the share of people with extroversion across countries are of little interest, as the change is unlikely to be managed through policy measures.

For the purpose of providing appropriate policy recommendations, future research should incorporate a more detailed analysis of the educational component, which has been confirmed as the dominant factor correlated with higher general skill levels, higher-quality human capital, and the potential to ultimately increase the competitiveness of the hospitality sector. However, this type of analysis is more beneficial at the level of a single country, where the specificities of the occupational structure and the educational system output should be investigated at a detailed level.

CONCLUSION

The analysis in the paper focuses on the quality of the human factor in the Croatian hospitality sector compared to its main competitors in the tourism sector. Based on the individual responses from the Survey of Adult Skills, average scores in the basic general skills – literacy, numeracy, and adaptive problem-solving - of the employed in the hospitality sector were compared between Croatia and Italy, Portugal and Spain. The paper complements previous findings in the literature by providing a comparative perspective on the quality of the workforce in the sector.

The results have revealed that Croatian hospitality sector workers are relatively well positioned compared to the workers from competing tourist destinations in terms of literacy and numeracy, but they fall behind in adaptive problem-solving. While the gap in adaptive problem-solving is not statistically significant, this finding is still important, as it points to a deficiency in the Croatian workforce in this sector that needs to be considered alongside other factors when devising steps to ensure the competitiveness of the Croatian hospitality sector in the longer term. To that end, forward-looking policies should be devised to target the development of these skills in both the existing workforce and the newly employed.

While the results in the paper provide a relatively favourable assessment of average levels of literacy and numeracy among the hospitality sector workers in Croatia, they are related to the compositional effects of the employed in the sector. Specifically, Croatia has a relatively lower share of employed individuals with lower educational attainment and of migrant origin than competing countries. However, there is a marked increase in the share of hospitality sector migrant workers in the most recent period, which is not captured by the data used in the analysis. There is little systematic evidence on the structure of the immigrating workforce in Croatia (regarding skills and education). If the evidence shows that Croatia was not successful in the global talent race, it is likely that the comparative advantage in the hospitality sector, related to the quality of its human resources, will soon be depleted.

While the empirical results do point to some advantages of the workforce in the hospitality sector in Croatia compared to their peers in competing countries, the analysis captures only general skills and not specific skills relevant to the hospitality sector. Thus, further research incorporating the analysis of sector-specific skills is needed to provide comprehensive policy recommendations.

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APPENDIX

Table A1: **Breakdown of explained component (endowments) of the decomposition according to the variables**

Variables	Italy	Spain	Portugal
		Literacy	
Total gap	4.62	9.73*	16.80**
Total endowments	5.44	5.44	15.46***
Female	0.70	0.23	0.48
Age 18-24	0.19	-0.25	0.65
Age 25-34	0.13	0.06	0.06
Age 45-54	-0.02	0.61	-0.06
Age 55-64	0.18	-0.47	1.35
Native parents	0.61	2.86**	5.02**
Education low	3.71	4.26	9.88***
Education high	-0.05	-1.85	-1.92
		Numeracy	
Total gap	7.42	9.18*	18.35**
Total endowments	6.16	8.30*	18.68***
Female	-0.24	-0.15	0.59
Age 18-24	0.72	-0.00	0.67
Age 25-34	0.28	-0.00	-0.01
Age 45-54	-0.06	0.90	0.05
Age 55-64	-0.06	-0.53	1.63
Native parents	0.67	2.57**	5.60**
Education low	4.93*	7.22**	11.95***
Education high	-0.07	-1.70	-1.79
		Adaptive problem solving	
Total gap	-3.71	-5.90	0.04
Total endowments	3.12	2.75	14.35***
Female	-0.08	0.22	0.83
Age 18-24	0.17	-0.14	0.62
Age 25-34	0.10	0.04	0.09
Age 45-54	-0.03	0.77	0.03
Age 55-64	0.10	-0.57	1.08
Native parents	0.30	2.01*	3.69**
Education low	3.15*	1.79	9.33***
Education high	-0.60	1.36	-1.33

Source: author's estimates based on Survey of Adult Skills 2023.
*** p<0.01, ** p<0.05, * p<0.10

Table A2: **Breakdown of unexplained component (coefficients) of the decomposition according to the variables**

Variables	Italy	Spain	Portugal
	Literacy		
Total gap	4.62	9.73*	16.80**
Total coefficients	-1.43	0.01	9.30
Female	-2.36	-0.89	8.06
Age 18-24	-2.33	-5.00	-3.38
Age 25-34	-2.59	-3.03	-1.76
Age 45-54	-3.42	0.20	-1.72
Age 55-64	3.46	2.45	6.43
Native parents	-12.56	-11.19	-13.65
Education low	-2.44	-5.72	1.46
Education high	0.46	-2.62	-4.89
	Numeracy		
Total gap	7.42	9.18*	18.35**
Total coefficients	1.83	0.91	11.57
Female	-0.33	0.22	3.68
Age 18-24	-4.17	-2.39	-3.44
Age 25-34	-4.41	0.39	0.68
Age 45-54	-3.40	4.03	-1.11
Age 55-64	1.21	3.52	8.94
Native parents	-18.34	-13.31	-18.66*
Education low	-0.87	-2.22	3.85
Education high	0.69	-1.35	-3.68
	Adaptive problem solving		
Total gap	-3.71	-5.90	0.04
Total coefficients	-6.52	-11.31	-3.78
Female	4.46	0.90	13.65**
Age 18-24	-2.00	-3.38	-3.05
Age 25-34	-1.62	-1.72	-1.92
Age 45-54	-2.84	2.50	-1.55
Age 55-64	1.35	2.07	4.08
Native parents	-3.63	-6.17	-8.53
Education low	1.00	-2.69	6.81
Education high	0.39	-3.30	-4.44

Source: author's estimates based on Survey of Adult Skills 2023.
*** p<0.01, ** p<0.05, * p<0.10