Journal of Risk Analysis and Crisis Response, 2025, 15(2), 354-370
https://jracr.com/
ISSN Print: 2210-8491
ISSN Online: 2210-8505

Article

University-Industry Cooperation in Labor Market Regulation: Shortening the Transition Period from Graduation to Employment

Bekim Marmullaku [1] and Kestrim Avdimetaj [1,*]

[1] Faculty of Management and Business and Economics, University for Business and Technology, Prishtine (10000), Republic of Kosovo
* Correspondence: kestrimavdimetaj@gmail.com; Tel.: +38348482428

Received: February 17, 2025; Received in revised form: April 24, 2025; Accepted: May 15, 2025; Available online: June 30, 2025

Abstract: This paper examines the impact of university-industry cooperation on reducing the transition period from graduation to employment and maintaining the validity of acquired competencies. Despite the consensus on the importance of graduate employability, there is ambiguity regarding the most critical graduate attributes. To investigate this, surveys were conducted involving 582 businesses, 15 universities, and 735 graduates from May 2022 to October 2022. Statistical tests, including correlation and multiple regression analyses, confirm that collaboration between higher education institutions (HEIs) and employers positively influences employment rates and shortens the transition period. The results indicate a negative linear correlation between the transition period and competency validity, emphasizing the importance of curriculum alignment with labor market needs.

Keywords: Employment; Transition Period Diploma – Employment; Curricula; Higher Education Institution

1. Introduction

University-industry collaboration has been widely debated as a crucial factor in aligning education with labor market needs. The rapid pace of technological and social transformation presents challenges for universities in preparing graduates with industry-relevant competencies. A significant gap persists between university curricula and employer expectations, often necessitating additional workplace training for graduates. This study aims to analyze labor market trends and developments in Kosovo, investigate the employment challenges faced by graduates, assess the duration of the transition from education to employment, examine the theoretical relationship between university curricula and labor market demands, and promote the role of HEI-business cooperation in curriculum development and graduate recruitment. Although higher education is recognized as a catalyst for economic and social progress, the disconnect between education systems and labor market demands continues to hinder graduates' employability. International best practices suggest competency-based curricula as a solution to bridge this gap, facilitating graduates' swift adaptation to the workforce.

Collaboration between universities and businesses in defining the necessary competencies for students—by clearly establishing learning outcomes—would create an effective combination of knowledge, skills, abilities, and values. This, in turn, would enable individuals to integrate more quickly and easily into the labor market [1,2,3]. There is a clear consensus among stakeholders on the importance of enhancing graduate employability. However, there is less agreement on which graduate attributes are most important [4,5,6,7]. As a result, employers often undervalue university diplomas and assume that new employees will require preliminary training before they can effectively perform their workplace duties. Higher education plays a decisive role in promoting social and economic development in modern societies. The link between education and the labor market is becoming increasingly evident.

However, despite this recognition, the dynamic relationship between these two sectors remains insufficiently connected and unable to fully meet mutual demands. Even today, achieving effective cooperation and alignment between higher education institutions and employers remains a challenge, affecting young people's employment prospects and career development. In developed countries, new approaches to curriculum development are emerging, focusing on defining the relationship between university education, the competencies graduates need, and labor market requirements. This competency-based approach is now one of the most widely discussed topics in curriculum development. This study examines the connection between higher education offerings and labor market demands in Kosovo. It also highlights the obstacles faced by first-time job seekers and the importance employers place on graduates' knowledge, skills, and abilities.

2. Theoretical Framework

2.1. Curriculum Development - Processes and Models

For decades there has been a debate among researchers about the curriculum development process and the best models that can be used in their design. Today, there are different approaches and perspectives regarding the process of developing new curricula or revising them. But what they have in common is that teaching and learning is a process and with that the approach should be the same in the development of curricula, where this thing is as important as the product itself that brings a curriculum. In this study, we will present some of the studies of different authors and the models proposed by them regarding the process of curriculum development, review and design, in the modern and postmodern concepts of this process.

According to the study [8], the curriculum cycle "involves the development of curricula through a process such as: assessment of needs, design, implementation and results. After that, the results are reviewed and evaluated and compared with the initial assessment of needs. Curriculum as a dynamic activity change with social expectations and with the needs of teachers, where this, too, requires change and management of resources". A critical factor in curriculum design is the clear definition of graduate competencies. However, the term "competence" remains contested in academic literature [9]. Winterton [10] have debated its meaning, often conflating it with related terms like "competency" [11,12]. A persistent issue is the balance between theoretical knowledge and practical skills, with employers increasingly demanding job-ready graduates capable of navigating complex, dynamic work environments [13]. Among the most debatable issues today is the impact of education on the economic growth of a country.

Until now, studies give great credit to the development of human capital and education as a direct factor in the economic development of a country. In particular, higher education is emphasized here, which provides technology and innovation and offers highly qualified workers in the labor market, and thereby increasing economic growth [14]. These technologies offer the potential to process and analyze vast volumes of diverse data, from academic records and personal achievements to market trends and industry demands [15]. In one side foundational, traditional methodologies often fall short in addressing the complexities of a job market marked by rapid technological advancements and fluctuating economic conditions [16], in other side relatively few studies focus on how higher education is expanded and utilized [17].

2.2. The concept of the Development of Postmodern Curricula

Geraldine O'Neill's postmodern curriculum model, developed at University College Dublin, integrates collaborative, student-centered approaches [18,19]. Similarly, Bermejo et al. [20] demonstrate the success of a cooperative Plan-Do-Study-Act model in aligning manufacturing engineering curricula with industry needs. The transition from college to the workforce is fraught with uncertainty. Imagine a recent graduate, armed with a degree and aspirations, facing a job market in constant flux. Traditional employment prediction tools, often relying on limited historical data and basic statistical models, often provide inadequate guidance [21]. An example of co-operative model based on the Plan–Do–Study–Act cycle is presented and described by Bermejo et al. [20]. It's an appliance in the curriculum design of two courses in welding within a Manufacturing Engineering Master's program is detailed. The model was found successful based on the evaluation of the courses by students, teachers, and the industrial representatives involved. Therefore, it proved to be an effective tool for bridging the gap between industrial needs and academia in the field of Manufacturing Engineering education.

At the same time, the methodology is generalizable and is applicable to any field of education. Kosovo's Strategic Plan of Education 2017-2021 highlights the mismatch between higher education and labor market demands. To address this, state institutions promote post-study training programs and university-business cooperation (ETF, 2017). Based on this Strategic Plan, education and continuous training as an EU standard will be a good opportunity to reduce the discrepancy between the offer of higher education programs and the demands of the labor market. In this function, state institutions are offering jobseekers training programs after completing their studies and facilitating University-business cooperation. ("Kosovo - Country Strategy Paper 2017-21", ETF, 2017).

Today, a comprehensive approach to curriculum development is recommended, including teaching activities from the core and co-curricular curriculum, as well as learning activities. The main curricular activities (core curriculum) focus on a particular discipline (concepts, theories, etc.), while the co-curricular activities are supposed to include sports, music, dance and culture topics, etc. An appropriate combination of these two key elements, including the inclusiveness and quality of study programs, is believed to help produce graduates with balanced competencies (hard skills and soft skills) desired for the intellectual and professional market of the globalized world [22]. This is characteristic of the so-called "integrated curricula", models which are used more and more in world universities, especially at the level of basic university studies.

2.3. Competencies of Graduates

Defining competencies remains contentious. Evers et al. [23] identifies four key competencies: self-management, communication, task/people management, and adaptability. Hall [24] adds critical thinking, interpersonal skills, and digital literacy. The U.S. Department of Education [25] defines competency as the integration of skills, knowledge, and abilities required for task performance. Over the last decade, universities have shown growing interest in developing competence-based approaches and including generic competencies into their curricula [26]. For newly graduates' employment, possessing disciplinary knowledge taught on students' study field is not enough. Instead, employers are putting increasingly more emphasis on graduates' generic competencies such as communication skills and teamwork skills [27]. It has been recognized that graduates often feel that they have not gained enough generic skills during their university education [28]. The transition from graduation to employment is considered a useful pedagogical approach to promote the development of generic and specific competencies in order to improve the appropriate match between the study curriculum and the requirements of the labor market and to favor the career orientation and employment of students.

According to the study [29] recent studies have emphasized that these paths risk reproducing inequality among others due to the mismatch between the planning of didactic strategies and the competencies required by the labor market [30,31] and by guidance from career office and, finally, regional disparities in employment opportunities (Scandurra et al. [31], where significant regional disparities in European countries are highlighted [21]. Indeed, in some countries, young people who complete their education face difficulties in overcoming barriers to entering the labor market, stemming mainly from their need to acquire additional competences required by the labor market, often without proper support [33].

2.4. Definition of the Transitional Period from Graduation to Work

The definition of the transitional period from schooling to employment today goes beyond the traditional concept on the approach to the amount of employment and unemployment. ILO (International Labor Organization) studies are designed to measure the degree of ease or difficulty young people experience in finding and accessing decent work. Even further, it is not fully defined what can be called a decent job, but from all its definitions it appears that such a job can be what turns out to be productive; a job that generates adequate income and one that provides the employee with rights at work and social protection. Although there is clearly some consensus amongst stakeholders on the importance of identifying the work -readiness of their graduates, yet the same cannot really be said for which graduate attributes are most important [4,5,6,7].

Graduate work – readiness encompasses individuals' characteristics, attributes and skills, which are then collectively transformed into the human and social capital which meet the productivity demands of employers, and more broadly, the social and economic aspirations of their governments and societies [7]. Employers give different values to these components as indicators of the work - readiness [4,34,35,36]. The amount of employment does not necessarily determine the level of achievement of a given transition period from school to work. There are many other factors that make an activity work for young people. Informal work that with extended hours, work outside the profession and the lack of career prospects make a certain job discouraging and may have certain socio-economic consequences.

A "soft" transition from school to work, where the employee manages to secure a good and permanent job that provides security, job satisfaction and career development, can be considered a successful transition from schooling to employment. The concept of school-to-work transition is defined by the ILO as a young person's transition from finishing school to a first "career" or "regular" job. The interpretation of these terms is to some extent a subjective interpretation, which actually means the possibility of an individual's career development, and the duration has to do with the satisfaction of an employed individual with the time period of his work contract. The transition from school to work is divided into three main stages and these are when the person:

1) the transition has not "started yet" (all young people still in school or inactive, not intending to work); 2) is "in transition" (all unemployed, those who work but want to change jobs or return to education, as well as young people who are inactive and not in school but plan to work later and those who work with decent work deficits or in non-career or temporary work); or 3) "switches" to decent work, e.g. all young people employed in a permanent career or job, enjoying good working conditions and social protection. The process of finding a job after graduation in Kosovo is long. Some surveys show that the evaluation of university degrees by employers is relatively low, therefore this may be the reason that a large number of graduates with university education are unemployed. There is not much data regarding the duration of the time period from school to employment for the youth of the Republic of Kosovo. But the research done by UNDP [37], which refers to data from the Kosovo Statistics Agency and the Labor Force Survey done in 2014 by this agency, shows that in Kosovo the transition period from school at work there is a rather disturbing duration. According to this report, the average duration of unemployment is 10.4 years. Where, on a gender basis, the duration is 11.3 years for women and 10.1 years on average for men [38]. This is a rather long period of waiting for employment, which with the current dynamics of technological changes and the labor market, will certainly be accompanied by a marked loss of validity of the competences achieved during studies.

3. Materials and Methods

For a better and more accurate analysis of the results achieved, this study will use scientific methodology and the most proven methods so far in scientific studies. Based on the fact that the use of a greater number of methods usually leads to clearer and fairer conclusions, this paper will use adequate methods and techniques for this research. Through these methods, a detailed analysis of the data so far, a connection with the study topic and an analysis of the primary data found during this study will be made. In submitting, elaborating, verifying and giving the answer to combined qualitative and quantitative methods will be used to answer the research questions. The quantitative method will be used to evaluate and analyze the effects of a university study program based on competences, cooperation with employers with the labor market and increased employability of graduates. The study adopts a quantitative research methodology to investigate the measurable effects of university-industry cooperation on graduate employability and the transition period from graduation to employment. Quantitative methods are particularly effective for analyzing large datasets and identifying statistical relationships [39]. As noted by Neuman [40], this approach enables the assessment of how independent variables like institutional collaboration influence employment outcomes.

Using standardized surveys to gather data from diverse participants, the study employs regression and correlation analyses to determine the strength and direction of relationships among variables. Field [41] supports the use of regression in predicting outcomes, and in this study, it reveals that university-industry collaboration significantly boosts employment rates and reduces the time it takes for graduates to find jobs. In addition, correlation analysis was applied to explore the link between the validity of competencies and the duration of the transition period, revealing a statistically significant negative relationship, as emphasized by research study [42].

The longer the transition, the more likely that competencies lose their relevance. The research also uses a deductive approach, beginning with existing theories about employability and labor market alignment and testing them through empirical data. Robson and McCartan [43] affirm that deductive methods are ideal when validating theoretical assumptions using measurable evidence. Altogether, the quantitative methodology provides the rigor, objectivity, and statistical depth necessary to draw reliable conclusions relevant to educational and labor market reforms.

The quantitative approach is characterized by the study of several variables for a wider number of factors relevant to this study topic. From the methodological instruments, the following methods will be used:

a. The method of analysis and synthesis will be used for the logical presentation of research, problems and characteristics related to the way of defining competencies in a curriculum of university programs and the requirements that employers have for them in the labor market, as well as drawing final conclusions regarding the importance of this issue in Kosovo;

b. Inductive methods can be defined as a logical process of general presentation of the proposal based on the observation of a specific fact. Deductive methods can be defined as a logical process as a result of a conclusion from a premise or something that is known to be true. This research is deductive because theories exist in this area and conclusions will emerge as a result of the theories and results found by this study.

c. Survey and interview. The study is done using questionnaires or structured interviews in order to generalize from the sample to the population.

3.1. Statistical Methods

The analytical part of this paper will focus on the analysis of data on the matching/mismatching of the competences of a study program in Kosovo and those required by employers in the labor market. Also, we will analyze the effect of cooperation between HEIs and employers in raising the level of employment of graduates in Kosovo.

3.2. Regression Analysis

Regression analysis is a statistical tool that enables the identification of relationships between variables. It is required to ascertain the effect of one variable on another variable, for example, how much will the cooperation between HEIs and employers influence in the development of curricula, in increasing the employment of graduates. Statistical measurements attempt to determine the strength of the relationship between a dependent variable and a series of other independent variables.

3.3. Correlation

It would be possible to check whether some kind of correlation could exist between these two groups of factors. An analysis of variance will allow to differentiate between the two target groups in the study: Group 1 – Higher Education Institutions and Group 2 – employers. The average of each result, I will show the correlation and the significance of this correlation in specific scenarios. Each assumption would have its quantitative insight through surveys, secondary research data which would provide scenarios for hypothesis testing.

So, it will show whether or not there are differences between the groups or whether the variables are related to each other. The aim of this study is to present the impact of cooperation between universities and employers in shortening the period of graduation - employment and the duration of the validity of the competences achieved after graduation until the period of employment. For this purpose, HEIs, businesses and graduates were surveyed with three separate questionnaires. The questionnaire surveyed 582 businesses, 15 universities and 735 graduates in three different questionnaires, separate for each group. The survey was conducted during the period May 2022–October 2022.

To analyze the results of this research, some statistical tests were used. In the paper we will present the correlation test which shows the results of the correlation between the transition from graduation to employment and the validity of the competencies according to the perception of the graduates. The findings show that these variables are in a negative linear correlation among themselves and these findings have statistical significance, so the relationship between them is not random. The coefficient in the matrix has a negative direction, which is within expectations and supports the raised hypothesis. The variable of interest is the validity of the competencies and its relationship with the transition variable from graduation to employment, have a negative relationship with each other, which means that with the increase of the transition period graduation - employment, the validity of the competencies is lost. The coefficients in the matrix show the negative relationship between the transition period graduation - employment and the validity of competencies with r = - 0.22 and their significant statistical relationship with sig. 0.00<0.005 and multiple regression showing that in fact collaboration has a positive impact on both employment and shortening the graduation-employment period.

Table 1. Correlation for the transitional period and the validity of the competences.

	Validity of competencies	**Transition from graduation to employment**
Validity of competencies	1	-0.228***
Transition from graduation to employment	-0.228***	1

Source: author's calculation.

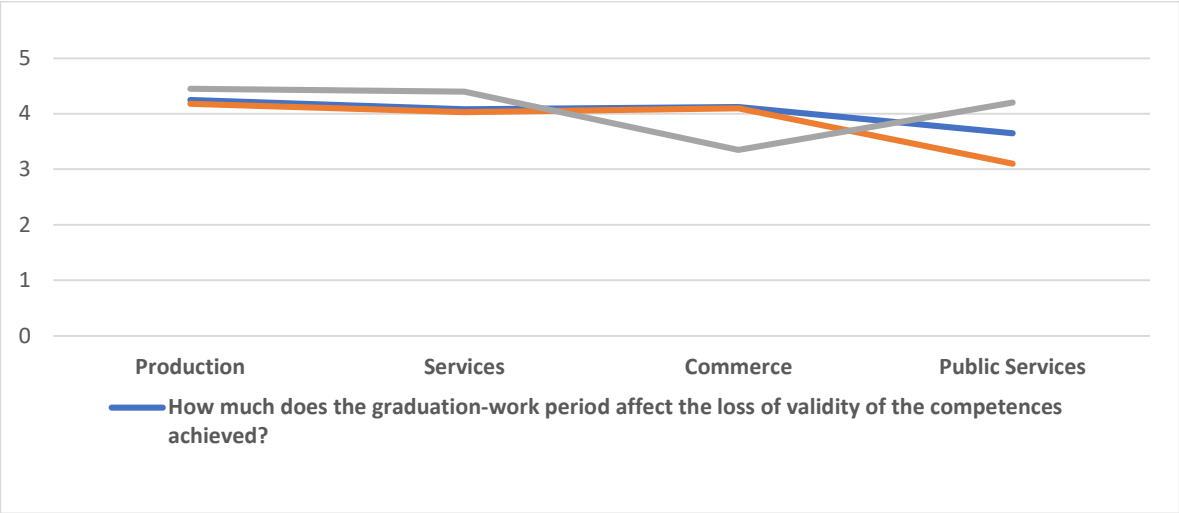
4. Results

4.1. Description of Results

Figure 1 presents the results for businesses' perception of the impact of the period from graduation to employment on the loss of validity of the competencies acquired during studies.

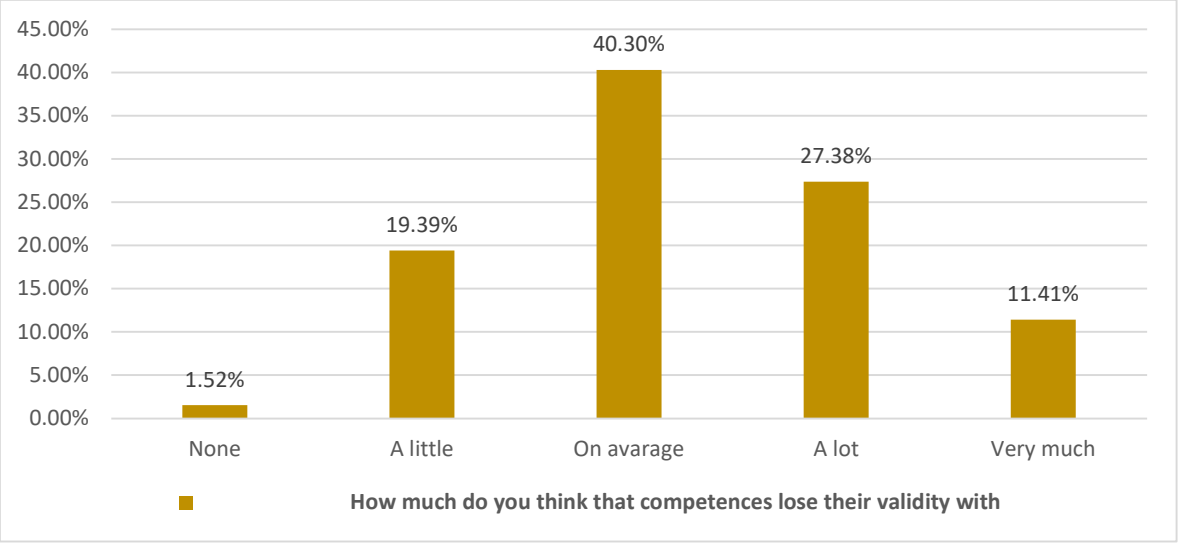
The respondents of all surveyed businesses agree "a lot" or "very much" that the extension of the transition period between graduation and employment of graduates affects the loss of the validity of

the competences achieved during studies, for their use in the workplace. On a scale of 1-5, this loss of validity is estimated with over 4, while with 4.36 the degree of this loss is perceived if this period is extended for more than 3 years. From Figure 1, it can be seen that businesses from the production and services sector are more convinced that this loss of competence validity occurs with the extension of the graduation-employment period. With 4.5 or between "a lot" and "very much" is the evaluation of the manufacturing companies for this loss of validity.



Source: Survey conducted by the author.

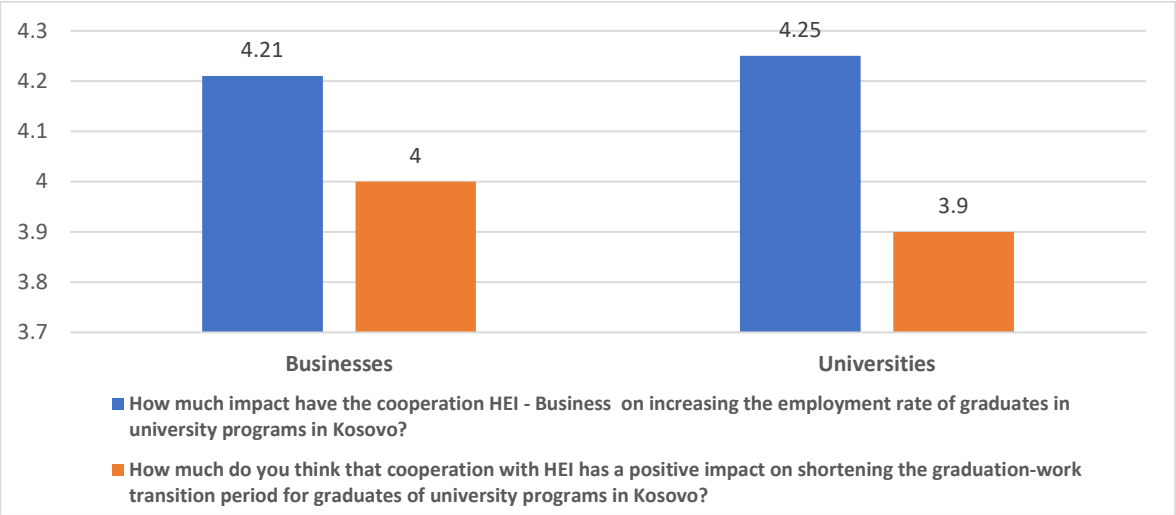
Figure 1. The impact of the graduation-employment period on the loss of competence validity according to the sector where the business operates.



Source: Survey conducted by the author.

Figure 2. Graduates' perception of the loss of competence validity with the prolongation of the graduation-employment period.

Figure 2 presents the perception of the graduates regarding the loss of validity of the competences achieved during studies with the prolongation of the time period from graduation to employment. Nearly 70% of them think that "on average" or "a lot" there is a negative relationship between the validity of competences and the time period – employment graduation.



Source: Survey conducted by the author.

Figure 3. Evaluation of universities and businesses for the impact of cooperation on increasing the employment rate and the transition period graduation - employment of graduates in Kosovo.

Cooperation between businesses and universities has been assessed as having a very high impact on increasing the employment rate and shortening the transition period from graduation to employment, both on the part of businesses and on the part of universities. For both of these effects, businesses have an assessment for a slightly higher impact, i.e. they answered with "enough" or "a lot", where for an evaluation scale coded with 1-5, their answers are above 4 (Figure 3).

4.2. Regression (OLS) for the Impact of the Graduation-Employment Transition on the Loss of Competence Validity - Econometrical Model for Businesses

The main independent variable in this model is the graduation-employment period, so we would like to know that by changing this indicator, how the dependent variable of perception affects the validity of competencies. Even in this model, in order to control for heterogeneous effects on the validity of competencies, e.g. if a part of the effect can be explained by gender or field of study, we used some control variables with the aim that the coefficient of influence of the transition from graduation to employment is as close to the truth as possible. The controlling variables included in this regression are: 1) Gender, of which a dummy for females is included in the model, while the coefficient for men remains at β_0 as a reference point; 2) Qualification from which two dummies are included in the model, one for master and one for "Other qualification", while the bachelor level still remains at β_0 as a reference point; 3) The type of university of which there is a dummy for private university in the model, while the coefficient for public university is found in β_0 as a reference point; 4) The field of study from which a vector for the field of study is included, leaving as a reference point only the discipline for which the field of study is not defined. The model explained above can be formally expressed as follows:

$$Y_{it}=\beta_0+\beta_1 TP_i+\beta_2 Female_i+\beta_3 Master_i+\beta_4 Other\_Qualif_i+\beta_5 Pr\_Uni_i+\theta' FY_i+\varepsilon_{it} \quad (1)$$

where:

β_0 is the constant, β_1 is the parameter of the variable of interest which will be calculated from the variable of the transition period, β_2 to β_5 are parameters that will be calculated from the control variables, θ' is the vector for the field of education and ε_i is the term of the error. The results of this

model are found in the regression table of the fifth hypothesis, related to the impact of the graduation-employment transition on the perception of the validity of the competencies by the graduates.

Table 2. Definition of variables for the model of the impact of the graduation-employment period on the validity of competencies.

Variables	Definition	Measurement level
	Dependent variables	
Validity of competencies	Graduates' perception of the loss of validity of competences with the prolongation of the graduation-employment period	Average: The average of the graduates' perception of the loss of validity of competences.
	Independent variables	
Transition period	Indicator showing the transition period in categories from 1 to more than 60 months.	Categorical: Eleven categories for the graduation-employment transition period.
Research	Research on the needs of the labor market by the universities, where the graduates have studied.	Binary: 1: if the universities review the programs; 0; if the universities do not review the programs
Female	Dummy for gender, females included in the regression table	Binary: 1: Female; 0: Male
Qualification	Two dummy variables for qualification level included in the regression table are Master and Bachelor	Dummy: Bachelor; Masters and Other.
University type	Dummy for type of university, private university included in the regression table	Binary: 1: Private University; 0: Public University
Field of study	Dummy for field of study	Dummy: Only in the case when the field is unknown is it left in the reference.

Source: author's calculation.

The multiple regression given in Table 3 attempts to explain the effect of the transitional period from graduation to employment on the loss of validity of the competencies that a graduate has achieved during studies.

Even in this model, a series of control variables are included in order to avoid the inflation of the transition coefficient due to the heterogeneity of the sample. The disciplines included in the regression are presented based on the fields defined by Erasmus+ ISCED Codes (F-2013), while the reference points whose coefficient is represented by the constant are: male gender with bachelor's qualification from public universities and unspecified discipline. The data from the above table show the negative relationship between the transition from graduation to employment and the perception of the validity of the competencies. The coefficient of the loss of the validity of the competences is 0.71, which means that the increase of the transition period for one unit, loses for 14.2% the validity of the competences achieved during university studies.

R Square equal to 63% shows that this part of the variation in the loss of competence validity is explained by the transition period from graduation to employment, while the remaining part is explained by other factors that were not observed in this research. While the F statistic with its value of F = 28.71 proves the significance of the model.

Table 3. Multiple regression results for the impact of the transition from graduation to employment on graduates' perception of the loss of competency validity.

Regressor	**Model Validity of competencies**	
	B	t statistics
(Constant)	3.811***	13.910
Transition from graduation to employment	-0.7132**	-2.174
Gender=Female	-0.007	-0.092
Qualification=Master	-1.493***	-16.792
Qualification=Other	-2.912***	-4.525
Private University	-0.082	-0.976
Discipline=Education	0.052	0.120
Discipline=Social science, Journalism and Information	0.064	0.427
Discipline=Natural Science, Mathematics and Statistics	0.094	0.745
Discipline=Information and Communication Technology	0.146	1.206
Discipline=Engineering, Manufacturing and Construction	0.287*	1.567
Discipline=Agriculture, Forestry, Fishery and Veterinary	0.019	0.074
Discipline=Health and Care	0.251	0.998
Discipline=Services	0.258	0.438
F-statistics	28.713***	
R Square	0.638	

Notes: T stats; * significant in level 10%, ** significant in level 5% and *** significant in level 1%. Source: author's calculation.

4.3. Validity of Competencies

According to research by Cedefop [44] competences and learning outcomes have validity if a package of them corresponds to a package of workplace performances. The validity of competences and learning outcomes is particularly contested when the graduation-employment period is longer. This is confirmed by the results of this paper. The research proves this issue and the figures in the part of the descriptive description best illustrate the impact of the graduation-employment period on the loss of validity of competencies. Also, it has been proven through statistical tests such as correlation and linear regression, presented in the tables above.

The correlation shows the negative relationship between the period of graduation - employment, while through regression the significance between these two variables has been shown and proved that with the extension of the time period of graduation - employment, the

validity of the competencies is lost in relation to the demands of the labor market for those competence.

There is a negative relationship between the transition period from school to work (unemployment among graduates) and the validity of the competences achieved in studies. This hypothesis is one of the hypotheses that directly expresses the dependent and independent variable. In this paper work, as can be seen in the table, the dependent variable is the perception of the graduate. The findings indicate the loss of validity of competences, while the period of transition from graduation to employment is independent.

5. Discussion

This study contributes to the theoretical understanding of employability by emphasizing the dynamic interplay between curriculum design, competency validity, and labor market demands. The negative linear correlation ($r = -0.228$) between the transition period and competency validity provides empirical support for the hypothesis that prolonged unemployment or underemployment erodes the relevance of graduates' skills. This finding resonates with Cedefop [44] assertion that competencies must correspond to workplace performances to remain valid. Future research could explore the mechanisms by which specific competencies degrade over time and how this varies across disciplines. The findings underscore the critical role of university-industry cooperation in shortening the transition period from graduation to employment and maintaining the relevance of graduates' competencies. However, this study extends the literature by empirically demonstrating the negative correlation between the transition period and competency validity, a relationship that has been theorized but less frequently quantified. The findings imply that at the company level, businesses should establish structured partnerships with universities—such as offering internships, guest lectures, and collaborative projects—to ensure graduates are equipped with industry-relevant skills, while at the directorate level, sectoral leadership should coordinate strategic initiatives and policies that institutionalize such cooperation across industries.

5.1. Implications

For higher education institutions (HEIs), the study underscores the necessity of integrating industry feedback into curriculum development. The results suggest that frequent revisions of study programs, informed by labor market research, can mitigate competency obsolescence. Employers, on the other hand, should actively engage with universities to articulate their needs, ensuring that graduates possess both hard and soft skills relevant to the workplace. Policymakers can leverage these insights to foster frameworks that incentivize university-industry collaboration, such as funding for joint research projects or internships. The societal benefits of reducing the graduation-to-employment transition are manifold. Shorter transition periods can alleviate youth unemployment, reduce economic inefficiencies, and enhance social stability. At the policy level, Kosovo's experience mirrors challenges faced by many developing economies seeking to maximize their human capital investment.

The alarming average 10.4-year transition period [37] - with even longer delays for female graduates - represents both a social and economic imperative for intervention. The study also highlights the gendered dimensions of unemployment in Kosovo, with women facing longer transition periods (11.3 years compared to 10.1 years for men). Addressing these disparities requires

targeted interventions, such as mentorship programs and policies promoting gender equality in the labor market. The practical implications are equally significant. For university administrators, our findings underscore the urgency of establishing durable mechanisms for industry input into curriculum development. The successful co-design model described by Bermejo et al. [20] in engineering education offers a potential template that could be adapted across disciplines.

5.2. Study Limitations and Future Research

While this study provides valuable insights, several limitations must be acknowledged. First, the data are cross-sectional, limiting the ability to infer causality. Longitudinal studies could better capture the temporal dynamics of competency degradation. Second, the sample is confined to Kosovo, which may limit the generalizability of findings to other regions with different economic and educational contexts. Third, the reliance on self-reported data introduces potential biases, such as social desirability or recall inaccuracies. Future studies could address these limitations by employing mixed-methods approaches to triangulate quantitative findings with qualitative insights from stakeholders. Additionally, comparative research across countries could identify contextual factors that influence the effectiveness of university-industry collaboration. Another promising direction is the exploration of digital tools, such as AI and predictive analytics [15,16], to dynamically align curricula with evolving labor market needs.

Finally, investigating the role of lifelong learning in maintaining competency validity could offer strategies for mitigating the obsolescence of skills over time.

6. Conclusions

The findings of this study highlight the critical role of university-industry cooperation in shortening the transition period from graduation to employment and maintaining the relevance of graduates' competencies. This study confirms a significant negative correlation between the duration of the transition from graduation to employment and the validity of graduates' competencies. The longer this period, the more likely it is that competencies acquired during university studies become outdated. In Kosovo, the prolonged average transition period—over 10 years—is alarming and demands urgent, strategic collaboration between universities, businesses, and government institutions. The research highlights university-industry cooperation as a crucial factor in aligning curricula with labor market needs and reducing graduate unemployment. Competency-based curriculum development, grounded in continuous labor market feedback, ensures that graduates are better prepared for immediate employment. The high dynamics of changes in the labor market and continuous technological changes make it difficult to define the appropriate competencies and conform to market demand. However, universities have a social responsibility to follow and support the careers of their graduates, therefore it is imperative that their university programs are such that they enable employment and the most successful career development.

It seems that intensive cooperation with businesses is the key factor in achieving this goal. In particular, cooperation in the definition and design of competencies and learning outcomes of a study program. In an increasingly competitive global market for higher education, Higher Education Institutions (HEIs) have agreed to listen to company managers more than ever before. As a result, HEIs have developed initiatives to adapt their curricula to industry requirements in order to

ensure that their graduates are more competitive and competent in the labor market and also to increase their competitiveness in the job market and international education. As a result of this interaction, new forms of curriculum development are emerging in developed countries, which is focused on finding the relationship between university education, the necessary competencies that graduates must have and the needs of the labor market, determining exactly one set of competencies that should be included in the relevant subjects.

This new competency-based approach is today one of the most discussed topics in curriculum development. In the contemporary economy and with a high dynamic of technological changes, today the labor market is becoming more and more complex. Therefore, business-university cooperation has become a necessity of the time. It is the responsibility and should be the concern of the universities the perspective of their graduates in the labor market. In particular, cooperation in the design of study program curricula would facilitate the easier acceptance of graduates in the labor market and shorten the transition period from graduation to employment. This is shown by the research done in the field of Economics of Education and the results of this paper. The definition and design of the competencies of a study program, through the cooperation between businesses and universities, would make them more competent in their workplace and more easily acceptable to work by businesses. A similar situation and need seems to exist in Kosovo. The results of this paper show that business-university cooperation is the necessary. This fact is supported by the data that the largest number of unemployed in Kosovo are young people and that Kosovo is the eighth country in the world with the number of students per capita.

Employers today require their employees to be able to multitask in their workplace. This request made it even more challenging for universities to design a study program. Studies to date suggest that the best solution is to design curricula based on competencies and learning outcomes. The Bologna system supports this opinion, allowing the division of competencies into generic and specific, within a university program. Such a program gives a graduate more employment opportunities and flexibility in further education.

This study analyzes, examines the connection between the offer of higher education and the demands of the labor market in Kosovo. In Kosovo, but also in the Western Balkans, there is very little literature that analyzes and deals with the issue of developing study programs based on the connection and cooperation between employers and their needs in the labor market, on the one hand, and HEIs on the other.

In this paper we will focus on the analysis of policies and factors that make it possible to promote a better cooperation between HEIs and employers in the development of programs and curricula of these programs, necessary and in accordance with the requirements of the labor market. With special emphasis on the best definition of competences and learning outcomes, in order to better define the knowledge, skills and abilities that graduates should have and which will match the requirements in the labor market. HEIs in Kosovo are faced with many challenges, while the most essential is finding a method and model of how to clearly and accurately define the necessary competencies of a study program and which will be fully in accordance with the requirements of the labor market for a graduate. From the findings of this paper, we can conclude that:

1) For Policymakers

Incentivize university-industry cooperation through national funding schemes for joint curriculum development, internships, and research projects.

Mandate regular curriculum reviews linked to labor market data and skills forecasting.

Address gender disparities in employment transition through targeted programs supporting female graduates, including mentoring and inclusive hiring policies.

National Competency Frameworks to develop standardized competency frameworks in collaboration with employers and HEIs to ensure curricula meet evolving labor market demands.

2) For Higher Education Institutions (HEIs)

Develop curricula in collaboration with industry to ensure relevance and adaptability to evolving job requirements.

Integrate soft and hard skill development through interdisciplinary and project-based learning.

Establish career services and tracking mechanisms to monitor graduate employment outcomes and adapt academic offerings accordingly.

Frequent Program Reviews for regularly update curricula based on labor market research and employer feedback to prevent competency obsolescence.

3) For Industry

Participate actively in curriculum design and delivery by offering internships, guest lectures, and capstone project mentoring.

Provide timely feedback on graduate performance to help HEIs adjust learning outcomes.

Support continuing education and upskilling for recent graduates to prevent skill obsolescence during transition periods.

By strengthening institutional collaboration and aligning academic programs with real-world demands, Kosovo and similar economies can substantially reduce youth unemployment, improve workforce readiness, and ensure that higher education fulfills its role in sustainable economic development.

Contributions: Avdimetaj K.: introduction, theoretical framework, discussion, data and conclusion; and Marmullaku B.: statistical methods, methodology, correlation, regression (OLS) and results. Both authors reviewed the manuscript structural.

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

References

[1] Belasen, A. T., & Rufer, R. (2007, August). Building a competency-based MBA from the ground up: Curriculum design and program delivery [Conference session]. Academy of Management Proceedings, 2007(1), 1–6. https://doi.org/10.5465/ambpp.2007.26508154

[2] Berge, Z., de Verneil, M., Berge, N., Davis, L., & Smith, D. (2002). The increasing scope of training and development competency. Benchmarking: An International Journal, 9(1), 43–61. https://doi.org/10.1108/14635770210418579

[3] Nabi, G. R. (2003). Graduate employment and underemployment: Opportunity for skill use and career experiences amongst recent business graduates. Education + Training, 45(7), 371–382. https://doi.org/10.1108/00400910310499947

[4] Bridgstock, R. (2009). The graduate attributes we've overlooked: Enhancing graduate employability through career management skills. Higher Education Research & Development, 28(1), 31–44. https://doi.org/10.1080/07294360802444347

[5] Holmes, L. (2013). Competing perspectives on graduate employability: Possession, position or process? Studies in Higher Education, 38(4), 538–554. https://doi.org/10.1080/03075079.2011.587140

[6] Daniels, J., & Brooker, J. (2014). Student identity development in higher education: Implications for graduate attributes and work–readiness. Educational Research, 56(1), 65–76. https://doi.org/10.1080/00131881.2013.874157

[7] Nankervis, A., Prikshat, V., & Dhakal, S. (2019). Mapping stakeholders of graduate work-readiness (GWR). In S., Dhakal, V., Prikshat, A., Nankervis, & J., Burgess (Eds.). The transition from graduation to work (pp. 31–42). Springer. https://doi.org/10.1007/978-981-13-0974-8_3

[8] Peyton, J. W. R. (1998). Teaching and learning in medical practice. Rickmansworth: Manticore Europe Ltd.

[9] Shaikhah, A., Sarmad, N. A., & Wafi, A. (2010, June). The effect of education and training on competency [Conference session]. European and Mediterranean Conference on Information Systems, Abu Dhabi, United Arab Emirates.

[10] Winterton, J. (2009). Competence across Europe: Highest common factor or lowest common denominator? Journal of European Industrial Training, 33(8/9), 681–700. https://doi.org/10.1108/03090590910993571

[11] McClelland, D. C. (1988). Human motivation. Cambridge University Press.

[12] Athey, T. R., & Orth, M. S. (1999). Emerging competency methods for the future. Human Resource Management, 38(3), 215–225. https://doi.org/10.1002/(SICI)1099-050X(199923)38:3<215::AID-HRM4>3.0.CO;2-W

[13] Edwards, M., Sánchez-Ruiz, L. M., & Sánchez-Díaz, C. (2009, October). Achieving competence-based curriculum in engineering education in Spain [Conference session]. Proceedings of the IEEE, 97(10), 1727–1736. https://doi.org/10.1109/JPROC.2009.2026064

[14] Maneejuk, P., & Yamaka, W. (2021). The impact of higher education on economic growth in ASEAN-5. Sustainability, 13(2), 520. https://doi.org/10.3390/su13020520

[15] Huang, M. H., & Rust, R. T. (2018). Artificial intelligence in service. Journal of Service Research, 21(2), 155–172. https://doi.org/10.1177/1094670517752459

[16] Raman, R., & Pramod, D. (2022). The role of predictive analytics to explain the employability of management graduates. Benchmarking: An International Journal, 29(8), 2378–2396. https://doi.org/10.1108/BIJ-08-2021-0444

[17] Blankenau, W. F., Simpson, N. B., & Tomljanovich, M. (2007). Public education expenditures, taxation, and growth: Linking data to theory. American Economic Review, 97(2), 393–397. https://doi.org/10.1257/aer.97.2.393

[18] O'Neill, G., & Galvin, A. (2011). UCD Inclusive Assessment Project. University College Dublin. http://www.ucd.ie/teaching/projects/choiceofassessmentmethods

[19] O'Neill, G., & McMahon, T. (2005). Student-centered learning. In Emerging issues in university learning and teaching (pp. 27–36). AISHE

[20] Bermejo, M. A. V., Eynian, M., Malmskold, L., & Scotti, A. (2021). University–industry collaboration in curriculum design and delivery: A model and its application in manufacturing engineering courses. Industry and Higher Education, 36(5), 615–622. https://doi.org/10.1177/09504222211064204

[21] Mezhoudi, N., Alghamdi, R., Aljunaid, R., Krichna, G., & Düştegör, D. (2023). Employability prediction: A survey of current approaches, research challenges and applications. Journal of Ambient Intelligence and Humanized Computing, 14(3), 1489–1505. https://doi.org/10.1007/s12652-021-03276-9

[22] Khan, M. A., & Law, L. S. (2015). An integrative approach to curriculum development in higher education in the USA: A theoretical framework. International Education Studies, 8(3), 66–76. https://doi.org/10.5539/ies.v8n3p66

[23] Evers, F. T., Rush, J. C., & Berdrow, I. (1998). The Bases of Competence. Skills for Lifelong Learning and Employability. Jossey-Bass Publishers, 350 Sansome Street, San Francisco, CA 94104.

[24] Hall, S. (2006). Cultural studies and its theoretical legacies. In Stuart Hall (pp. 272–285). Routledge.

[25] U.S. Department of Education, National Center for Education Statistics (NCES). (2002). Statistical data and reports on education in the United States. https://nces.ed.gov/

[26] Fallows, S., & Steven, C. (2000). Building employability skills into the higher education curriculum: A university-wide initiative. Education + Training, 42(2), 75–83. https://doi.org/10.1108/00400910010331620

[27] Nguyen, T. (2008). Information, role models and perceived returns to education: Experimental evidence from Madagascar [Unpublished manuscript]. Department of Economics, Harvard University.

[28] Andrews, J., & Higson, H. (2008). Graduate employability, "soft skills" versus "hard skills" business knowledge: A European study. Higher Education in Europe, 33(4), 411–422. https://doi.org/10.1080/03797720802522627

[29] Pinna, G., & Pitzalis, M. (2020). Tra scuola e lavoro. L'implementazione dell'Alternanza Scuola Lavoro tra diseguaglianze scolastiche e sociali. Scuola Democratica, 11(1), 17–35. https://doi.org/10.12828/96793

[30] Capsada-Munsech, Q., & Valiente, O. (2020). Sub-National Variation of Skill Formation Regimes: A Comparative Analysis of Skill Mismatch Across 18 European Regions. European Education, 52(2), 166–179. https://doi.org/10.1080/10564934.2020.1723421

[31] Scandurra, R., Cefalo, R., & Kazepov, Y. (2021). School-to-work outcomes during the Great Recession, is the regional scale relevant for young people's life chances? Journal of Youth Studies, 24(4), 441–465. https://doi.org/10.1080/13676261.2020.1742299

[32] Cefalo, R., Scandurra, R., & Kazepov, Y. (2024). Territorial configurations of school-to-work outcomes in Europe. Politics and Governance, 12. https://doi.org/10.17645/pag.7441

[33] Caroleo, F. E., Rocca, A., Neagu, G., & Keranova, D. (2022). NEETs and the process of transition from school to the labor market: A comparative analysis of Italy, Romania, and Bulgaria. Youth & Society, 54(2_suppl), 109S–129S. https://doi.org/10.1177/0044118X211056360

[34] Caballero, C., Walker, A., & Fuller-Tyszkiewicz, M. (2011). The Work Readiness Scale (WRS): Developing a measure to assess work readiness in college graduates. Journal of Teaching and Learning for Graduate Employability, 2(2), 41–54. https://doi.org/10.21153/jtlge2011vol2no1art552

[35] Cavanagh, J., Burston, M., Southcombe, A., & Bartram, T. (2015). Contributing to a graduate-centred understanding of work readiness: An exploratory study of Australian undergraduate students' perceptions of their employability. The International Journal of Management Education, 13(3), 278–288. https://doi.org/10.1016/j.ijme.2015.07.002

[36] Wye, C. K., & Lim, Y. M. (2009). Perception differential between employers and undergraduates on importance of employability skills. International Education Studies, 2(1), 95–105. https://doi.org/10.5539/ies.v2n1p95

[37] United Nations Development Programmer (UNDP). (2016). Kosovo human development report. https://hdr.undp.org/system/files/documents//kosovo-human-development-report-2016-en.pdf

[38] Kosovo Agency of Statistics. (2014). Higher education statistics report. https://askdata.rks-gov.net/pxweb/sq/ASKdata/

[39] Creswell, J. W. (2014). Research design: Qualitative, quantitative, and mixed methods approach (4th ed.). SAGE Publications.

[40] Neuman, W. L. (2014). Social research methods: Qualitative and quantitative approaches (7th ed.). Pearson Education Limited.

[41] Field, A. (2013). Discovering statistics using IBM SPSS statistics (4th ed.). SAGE Publications.

[42] Bryman, A. (2016). Social research methods (5th ed.). Oxford University Press.

[43] Robson, C., & McCartan, K. (2016). Real world research: A resource for users of social research methods in applied settings (4th ed.). Wiley.

[44] Cedefop. (2012). Curriculum reform in Europe: The impact of learning outcomes [Cedefop research paper, No. 29]. Publications Office. https://www.cedefop.europa.eu/EN/Files/5529_en.pdf

(Executive Editor: Yan Li)