



From University to Employment:

*Higher Education Provision and Labour Market Needs
in Bosnia and Herzegovina*

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From University to Employment:

*Higher Education Provision and Labour Market Needs
in Bosnia and Herzegovina*

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Foreword

Higher education systems in the Western Balkans are facing serious challenges. Growing levels of student enrolment throughout the region are straining the limited resources of public universities. At the same time, the number of private institutions has been increasing rapidly.

Importantly, more needs to be done to ensure that higher education qualifications match labour market needs. Many young people in the region are unemployed – and a number of them have higher education diplomas. This suggests that employers do not hold university degrees in very high esteem.

Whatever the field of study, third-level education is a means of sharpening our intellect and therefore valuable in its own right. However, it should also prepare us for the world of work, and enable us to lead independent lives as confident, engaged citizens. Universities and other higher education institutions need to adapt and modernise to deliver. In rapidly changing job markets, higher education systems should provide graduates with relevant skills and competences. This is not only about finding employment after graduation, but also about being able to adapt to future labour market needs and adjust to career changes.

We all know that a country's human resources are an integral part of its wealth. We say so on many occasions, especially when addressing young people in graduation ceremonies, or in political speeches. Unfortunately, when it comes to following these words with action and giving education the relevance and funding it deserves, we all too often fall short. This is something we have to change.

The skills and qualifications gained in university should help us build our lives and secure our societies' prosperity, competitiveness and progress. This study examines the link between higher education provision and labour market opportunities in the Western Balkans. It also looks at the obstacles facing graduates looking for work and the relevance of their skills for employers. The study is part of the on-going regional policy dialogue under the *Western Balkans Platform on Education and Training*. I am pleased to see that Ministers for Education have been supporting and engaging in this dialogue since the European Commission launched it in 2012.

I hope that the findings of the country reports in this study will contribute to more evidence-based policy-making in each country's higher education and labour sectors. The region's young people deserve nothing less.

Tibor Navracsics
European Commissioner for Education, Culture, Youth and Sport

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List of abbreviations

BA	Bachelor's degree
BHAS	Bosnia and Herzegovina Agency for Statistics
BiH	Bosnia and Herzegovina
Cedefop	European Centre for the Development of Vocational Training
CV	Curriculum vitae
ECTS	European Credit Transfer System
EHEA	European Higher Education Area
EQF	European Qualifications Framework
EU	European Union
FBiH	Federation of Bosnia and Herzegovina
FDI	Foreign Direct Investment
FIS	Federation of Bosnia and Herzegovina Institute of Statistics
GDP	Gross Domestic Product
HE	Higher education
HEA	Agency for Development of Higher Education and Quality Assurance
HEAARS	Higher Education Accreditation Agency of Republika Srpska
HEI	Higher education institution
HSS	Humanities and Social Sciences
ICT	Information and Communication Technology
ILO	International Labour Organization
IMF	International Monetary Fund
MA	Master's degree
NEET	Not in education, employment or training
NGO	Non-governmental organisation
OECD	Organisation for Economic Co-Operation and Development
PES	Public Employment Services
PhD	Doctor of Philosophy
R&D	Research and development
RS	Republika Srpska
RSIS	Republika Srpska Institute for Statistics
SME	Small and medium sized enterprises
STEM	Science, Technology, Engineering And Mathematics
UBC	University-business collaboration

Executive summary

This country report analyses higher education (HE) provision and labour market opportunities in Bosnia and Herzegovina by looking into four inter-related issues: the provision of HE, current labour market conditions for graduates, the challenges graduates face during the transition from HE to employment, and the type of skill gaps and skill mismatches that employers face when recruiting young graduates. The report concludes with recommendations on measures needed to ensure the right mix of skilled graduates to support robust economic growth in the future, support graduate job search, and encourage employers to create more graduate jobs and take on more skilled graduates.

The data used in the study was collected from March to August 2015. It includes two large-scale surveys: one among recent HE graduates (graduate survey - 774 respondents) and one among organisations that employ HE graduates (employer survey - 153 respondents). Interviews were carried out with management staff of higher education institutions (HEIs), ministries, employers' associations, and trade unions. A focus group was also carried with Erasmus Mundus alumni. The project has also assembled a unique database that includes details of most study programmes offered by HEIs in recent years¹.

Main findings

The governance of the HE system in Bosnia and Herzegovina is highly decentralised with a low level of regulation. Ministries and departments of education at entity and district levels hold responsibilities for education policies. Within the Federation of Bosnia and Herzegovina, responsibility is further delegated to 10 cantonal ministries of education. At the state level, the Ministry of Civil Affairs is responsible for coordination of entity education policies and the definition of strategies at international level. Altogether, 14 institutions are involved in shaping and coordinating higher education policies, an arrangement that hinders the reform of the HE system. Institutions at various levels of governance are responsible for HE accreditation, and not all higher education institutions have yet been fully accredited.

Teaching methods continue to rely on rote learning and out-dated curricula, and there is a lack of practice-oriented education. Corruption plays a significantly negative role in the HE system where admissions and exams can sometimes be fraudulently obtained, and also in the labour market where personal connections and nepotism often influence recruitment decisions. The graduate survey shows that several factors can improve the satisfaction of graduates with the education they received, including better professors, having work experience or internship during their studies, and being more often taught in small class groups rather than in large lecture halls. More than two thirds of graduate respondents consider that better teaching methods would have significantly improved their job prospects after graduation.

The HE system produces too many graduates relative to the number of jobs available. Although the unemployment rate of all graduates is below the average for the labour force, the unemployment rate of recent graduates who gained their qualification since 2010 is estimated to be about 39%. Too many students graduate in a narrow range of subjects such as *Social Science, Journalism & Information*, which accounted for 28% of all completions in 2013-14. There is an oversupply of graduates from this study field on

¹ Further details about the methodologies and data used in this study can be found in the Annex.

the labour market, as well as from the broad study fields of *Health & Welfare* and *Education*. Even though economic growth will create more graduate jobs in the future, oversupply in these and other study fields will continue unless appropriate action is taken. Should the governments adopt an industrial policy that gives greater emphasis to high technology value-added sectors, shortages of HE graduates would be likely to emerge in *Business, Administration & Law* and *Information & Communication Technologies*. Therefore, even though the HEI system produces an overall surplus of graduates, shortages in some study fields may be a constraint on future economic growth and competitiveness.

In recent years, graduate employment has increased rapidly in the *Manufacturing* and *Information & Communication Technologies* sectors. The HE system will need to equip graduates with the right skills to sustain this private sector growth. Small and medium sized employers have a more intensive demand for graduates than larger firms, and these can be expected to make a key contribution to graduate jobs in the future. Current labour market policies are focused on reducing the cost of labour to employers and on eliminating rigidities in the hiring and firing process, but labour market policy should also focus on creating additional high-skill high-wage jobs in these growth sectors.

Graduates face many difficulties in their search for work not least of which is the limited availability of jobs, especially in the private sector. This is not helped by a lack of cooperation between HEIs and the business sector over curriculum reform and recruitment, even though employers consider that greater cooperation would help them to hire graduates with appropriate skills. This suggests a role for public policy to support better cooperation between HEIs and employers in order to ease graduates' transition to the labour market.

Employers are relatively dissatisfied with the skills of HE graduates. They identify large skill gaps among their graduate recruits in interactive skills, such as organisational skills, analytical and problem-solving skills and decision-making skills as well as cognitive skills such as sector specific and foreign language skills. In most HEIs teaching methods emphasise rote learning rather than modern student-centred approaches. In response to these skill gaps, many employers provide additional training to their graduate recruits. Employers often prefer graduates with work experience. The graduate survey shows that 30% of graduates received no work experience during their period of studies and 34% received only "a little" work experience. Government initiatives to introduce internships in the final year of study have largely failed due to lack of interest from private employers who have been reluctant to offer internships to final year students.

Among graduates that do find a job, many have a job is not well matched to their field of study (64% of graduates) or level of qualification (53% of graduates). Being in a well-matched job is important for job retention. A variety of factors predispose a graduate to finding a job that is well matched including being a budget funded student, following a study programme in which problem solving and creative thinking teaching methods are used intensively, having had an internship or a work placement, following a study programme that teaches sector specific vocational skills, and receiving assistance to find a job from the HEI. The field of study is also an influential factor with the highest degree of mismatch (over-qualification) among graduates who studied *Social Science, Journalism & Information*. At the same time, many graduates encountered difficulty finding a well-matched job due to the poor economic situation.

Policy recommendations

Higher education

1. The **quality of education** in HEIs in Bosnia and Herzegovina should be improved. Curricula should be modernised, and teaching methods should be reformed to promote a student-centred approach and more interactive learning. Applied knowledge and critical thinking skills should be the core focus of teaching. The Ministries of Education should organise training sessions on innovative and interactive teaching methods. A greater focus on practical training is needed, such as a period of internship, which could be arranged in consultation with local employers. A national programme to financially support HEIs in recruiting international staff could be considered. A more harmonised approach to improved quality of HE should be adopted, pushing the standards towards a common higher education provision.
2. Ministries of education should adopt a strong and clear stance on **graduate employability** through a stricter enrolment policy, using scholarships to encourage enrolment in fields of study where shortages may emerge in the future such as *Business, Administration & Law* and *Natural Sciences, Mathematics & Statistics*. The number of scholarships should be increased for students in these fields of study and decreased in less employable fields such as *Social Science, Journalism & Information* following the practice in the Republika Srpska. Overall quotas for entry into such fields should be reduced. HEIs should provide more information to potential applicants on the likely labour market demand for various study programmes.
3. Steps should be taken to **improve the completion rates** of students who enrol in study programmes. This could be done by limiting repeat examinations and making the provision of scholarships conditional on completing studies on time. Students who fail to complete on time should be given additional support and remedial classes. Students who successfully complete their study programme within a given year could be given a partial discount on their tuition fee for the subsequent academic year to motivate on-time completion. HEIs should publish the completion rates of their degree courses.
4. **Improvements to the quality assurance system** are needed. The promotion of teaching staff could be linked to student evaluations, attainment, and completion rates. Professors whose quality of teaching is judged unsatisfactory through student and peer assessment should be required to attend refresher courses on teaching methods. In this regard, a greater effort should also be made to attract experts educated abroad into BiH academia. External peer-reviews should be conducted for both public and private HEIs, thus ensuring equal treatment. Institutions should be assessed according to the quality of their teaching and ranked scores should be published.
5. In order to **stem corruption at HEIs**, relevant institutions should strengthen inspections, ensure compliance with assessment and grading regulations, including monitoring of exams held by teachers, and expand the power of ethics committees. The validity of student examinations should be controlled by rules enforced by an independent body.
6. HEIs should provide **better information and career guidance to students**, to assist them in finding a well-matched job. Graduated students should have

continued access to the HEI career guidance services for up to one year after graduation. Systems for tracing students after graduation should be strengthened where they already exist, and established at HEIs where they do not.

Labour market

1. A **renewed industrial policy** is needed to better link foreign investors to suppliers such as domestic SMEs that employ graduates (especially in the *Manufacturing* and *ICT* sectors). This would generate an increased demand for skilled labour, stimulate prospective students to choose subjects in high demand, and support the high-level skills that will be required to underpin future competitiveness and growth.
2. **More cooperation between employers and HEIs** is needed, with employers participating in the relevant HEI councils for curriculum design and recruitment issues. HEIs could be required to offer an internship semester in collaboration with local employers. Employers could receive incentives to provide work experience placements to students, with HEIs providing quality assurance. This could be done within the context of a broader strategy to improve university-business collaboration.
3. **Graduate entrepreneurship** should be encouraged through the creation of a government-sponsored Graduate Entrepreneur Start-up Fund that would be used to support the creation of new enterprises by HE graduates with adequate training and mentoring support. This could be directed towards high technology employers, with significant growth potential.
4. The **effectiveness of public employment services** should be improved through better organisation and more information about services offered. The range of active labour market policies should be better focused on recent graduates. Training schemes should be provided to help companies, especially knowledge-intensive SMEs, which lack resources to fund such schemes. Medium sized employers may be a priority target group among this type of employer, since the prospects for growth of graduate employers among this group seem particularly favourable.

1 Introduction

Bosnia and Herzegovina (BiH) was severely affected by the global economic crisis, with a deep recession in 2009 and a double dip recession in 2012. Growth is currently forecast at around 3% for 2016 with an annual growth rate fluctuating between 3% and 4% over the next five years (IMF, 2015). This rather optimistic forecast will, however, only be attained if the competitiveness of the economy can be improved. Living standards in the country are low with per capita GDP of €3,641 (compared to an average of €4,410 for the rest of the Western Balkan region)² and a high rate of unemployment. Economic development has been largely based upon the remittances that migrant workers (and persons displaced as a result of the 1992-95 war) send back home to their families. These remittances have pushed reservation wages well above productivity levels, as many within the labour market are willing to forego low-paid jobs for which there is limited competition. In the future, BiH will need to focus on upgrading domestic production capacities and upskilling the labour force to raise labour productivity and industrial competitiveness. In pursuing such a strategy, the higher education (HE) sector will have a critical role to play in supplying skilled graduate workers to the economy. Since only 19% of the population aged 30-34 hold a graduate degree, compared to 38% in the EU, there is still some way to go.³ At the same time, the government will need to introduce a smart industrial policy to ensure that there are suitable high value-added jobs available for highly skilled graduate workers in the private sector.

Parallel to the limited economic growth over the last decade, graduate unemployment has remained high. This represents a waste of human resources and risks a depletion of human capital. As this study shows, for those graduates who find employment, many are placed in jobs below their level of qualifications (vertical mismatch). Among those with jobs at the right level of qualifications, many are placed in jobs unrelated to their field of study (horizontal mismatch). At the same time, employers complain about serious skill gaps in growing and dynamic sectors of the economy, and that new graduate recruits have not been properly prepared at their higher education institution (HEI) for the world of work.

This report is based on a research project that provides new evidence on the mix of qualifications provided by the HE sector and the students who obtain them, the difficulties and opportunities facing graduates and their employers in the labour market, a forecast of the demand for graduates in the near future, the nature of skill mismatches and skill gaps, and concludes with recommendations on measures needed to ensure a relevant supply of skilled graduates who will be needed to support economic growth in the future. The report is divided into six sections. Section 2 maps the structure of HE provision; Section 3 reviews the experience of graduates on the labour market, and provides a forecast of expected future demand for graduates by sector; Section 4 considers the obstacles facing graduates in their transition to the labour market and the difficulties facing employers in recruiting new graduates; Section 5 analyses the extent and nature of skill mismatches. Section 6 concludes with a summary of the research findings and a set of related policy recommendations. A special database recording basic data on HE provision was created for this study. In addition, two online surveys of recent graduates and of the organisations that employ graduates were carried out. Details about the methodologies and data used in the study can be found in the Annex.

² Based on data from Eurostat variable code [cpc_ecnagd].

³ Data from Eurostat variable code [cpc_pseduc].

2 Mapping the provision of higher education

In 2014, public expenditure on education amounted to 4.8% of GDP (BHAS, 2015a). The Federation of Bosnia and Herzegovina (FBiH) spent 1.2% of GDP on HE, of which 73% was public expenditure and 26% was private expenditure (with some expenditure by international organisations) (FIS, 2015a, 2015b).⁴ The Republika Srpska spent 1.25% of GDP on HE of which 65.6% was public expenditure and 33% was private expenditure (also with some expenditure by international organisations) (RSIS, 2015a, 2015b).⁵ The HE sector is among the weakest in the region, with falling student numbers, relatively high student-teacher ratios⁶, and a relatively small portion of the population obtaining graduate degrees. For example, the number of registered Bachelor students in 2014 was 25 per 1,000 population, the lowest in the Western Balkans.⁷ Guidance from the European Commission urges the government to tackle the deficiencies in the education system by prioritising measures based on a mapping of skills gaps taking into account the needs of industry, especially SMEs, and to harmonise legislation and standards related to education at state, entity level, and cantonal levels.⁸ This section takes stock of the situation in the HE system, and analyses study programmes, qualifications offered by HEIs, and the profile of students. It investigates quality issues, from accreditation procedures to teaching methods. Last, we present a brief summary of the latest HE policy developments and gaps.

2.1 Profile of higher education institutions

BiH signed the Bologna Declaration in 2003, and a new state level Framework Law on Higher Education in Bosnia and Herzegovina was adopted in 2007. This law defined the status of HEIs as *Univerzitet* (universities) or *Visoka škola* (professional colleges). A university organises teaching and research activities and provides academic degrees in all three cycles, and must offer a minimum of five study programmes in at least three different subject areas. A college provides degrees of the first cycle in at least one study programme and one subject area. In addition, there are Academies and Religious Faculties. After a period of HEI “boom” between 2004 and 2008, when most private HEIs were established, the introduction of new regulations led to a slowdown in the entry of new HEIs. Consequently, only three HEIs have been established in the last three years: one university in Brčko, one in Goražde, and one college in Kiseljak.

There are now 47 HEIs in BiH of which 18 are accredited institutions and 29 are not yet accredited (12 HEIs are in the process of accreditation).⁹ Of the accredited HEIs, 10 are located in FBiH, and eight in Republika Srpska. The largest HEI is the University of Sarajevo, a public university comprising 30 Faculties with more than 34,000 registered students (over a quarter of all registered students). Two of the largest private HEIs are the International University of Sarajevo, founded in 2003, and the International Burch

⁴ The Statistical releases of the FBiH Institute for Statistics FIS (2015a, 2015b) show that total expenditure on education is 5% of GDP and that 24% of this is spent on HE.

⁵ The Statistical releases of the RS Institute for Statistics RSIS (2015a, 2015b) show that total expenditure on education is 4.4% of GDP and that 28.4% of this is spent on HE.

⁶ In 2013, BiH had the lowest student-teacher ratio in higher education in the Western Balkans, at just 12.3 students per teacher (UNESCO, 2016).

⁷ From Eurostat data on the number of Bachelor students [cpc_pseduc] and total population [cpc_psdemo].

⁸ Joint conclusions of the Economic and Financial Dialogue between the EU and the Western Balkans and Turkey Economic and Financial Affairs Council meeting Brussels, 12 May 2015, cited in European Commission (2015b).

⁹ A full list is available at BiH Higher Education Development and Quality Assurance Agency, http://hea.gov.ba/akreditacija_vsu. Of the accredited HEIs, 8 are public and 10 are private.

University, founded in 2008, both of which were created through Turkish investments. Other HEIs have received Turkish investment, with academics either coming from Turkey or having previously worked at Turkish private HEIs. The strong links to HEIs in Turkey are reflected in the pattern of international credit mobility of the Erasmus+ programme where 37% of all mobilities to and from BiH requested in 2016, involve Turkish HEIs¹⁰.

Table 1: Accredited HEIs and faculties by ownership, 2016

	HEIs	Faculties	Number of HEIs per 100,000 inhabitants (regional average)	Number of faculties per 100,000 inhabitants (regional average)
Total number of HEIs ¹¹	47	120	1.2 (1.3)	3.1 (3.2)
Of which: Public	10	52	0.3 (0.5)	1.4 (1.7)
Private	37	68	1.0 (0.8)	1.8 (1.5)

Source: HE Provision database

The 2007 Framework Law introduced three cycles of studies and the corresponding European Credit Transfer System (ECTS) credits. Bachelor studies provide 180 or 240 ECTS (for three or four year programmes, respectively), Master studies either 60 or 120 ECTS and PhD studies provide 180 ECTS. Therefore, after completing Bachelor and Master studies a student ought to have a total of 300 ECTS. Students can study on a full-time, part-time or distance learning basis. Sometimes both models of HE studies (3+2 and 4+1) are used within an HEI. This complicates student progression as those who finished a 3-year Bachelor degree and wish to continue studying at a different HEI that only offers a 1-year Master's degree will have to complete an additional year of studies to obtain the necessary ECTS credits.

Table 2: Study programmes by type of ownership and degree level, 2014-2015

	Number of study programmes	Percentage of study programmes
Ownership of HEI		
Private	136	20.5%
Public	527	79.5%
Total	663	100.0%
Level of qualification		
Diploma	31	4.7%
Bachelor	359	54.1%
Master	185	27.9%
Doctoral	88	13.3%
Total	663	100.0%

Source: HE provision database created for this study. Note: The database covers seven private and five public HEIs in BiH.

Table 2 provides information on study programmes offered by the largest public and private HEIs in BiH.¹² While the coverage is not complete, it is likely that it provides a good representation of study programmes in the HE sector. Public HEIs provide the

¹⁰ According to EU statistics on Erasmus+, of the total 3,232 exchange proposals submitted for the 2016 Call, 1,208 applications involved HEIs in Turkey; less interest was shown for exchanges with EU member states: e.g. Spain 389, Germany 223, France 76, and UK 44.

¹¹ The Centre for Information and Recognition of Degrees (www.cip.gov.ba) states that there are an additional three HEIs that are not active but remain on their books.

¹² The project database covers 5 public HEIs (out of 10) and 7 private HEIs (out of 37). Although coverage is not complete, the database includes the largest HEIs in BiH.

majority of study programmes. The distribution of study programmes across fields of study is shown in Table 3.

Table 3: Study programmes by broad field of study, 2015

Field of study	Number of study programmes	Proportion of study programmes
01 Education	80	12.1%
02 Arts & Humanities	169	25.5%
03 Social Sciences, Journalism & Information	91	13.7%
04 Business, Administration & Law	35	5.3%
05 Natural Sciences, Mathematics & Statistics	63	9.5%
06 Information & Communication Technologies (ICTs)	26	3.9%
07 Engineering, Manufacturing & Construction	98	14.8%
08 Agriculture, Forestry, Fisheries & Veterinary	14	2.1%
09 Health & Welfare	60	9.0%
10 Services	27	4.1%
Total	663	100.0%
<i>HSS subjects (02+03+04)</i>	295	44.5%
<i>STEM subjects (05+06+07)</i>	187	28.2%

Source: HE provision database. Note: The database covers seven private and five public HEIs in BiH.

2.2 Students

Under the BiH Framework Law on Higher Education, students who have completed four years of secondary education¹³ and who pass an entrance exam may enter an HEI. For Bachelor studies, the median annual fee is €770 at public HEI and €1,400 at private HEI, and at Master level the respective fees are €770 and €1,530.¹⁴ The median fee for a vocational diploma at a public HEI is €770 while private HEIs charge €1,020. Studying for a Doctoral degree is more expensive at public HEIs (€1,800) compared to private HEIs (€1,500). Average annual expenditure per student in BiH is around €1,700, compared to an average of €8,500 in the EU-28.¹⁵ Given this, the fees charged by private HEIs broadly reflect the average cost of education per student, while the fees charged at public HEIs imply a cost-sharing element between entities, cantons and students. A limited number of scholarships are available for students who perform especially well in the entrance examination. The graduate survey shows that 23% of students received a scholarship to support their Bachelor studies. Students from grammar and technical schools were more likely to receive a scholarship than students from vocational schools.¹⁶ Almost two thirds (63%) of those who received a scholarship came from grammar schools, while only 7% of graduates who studied for a vocational diploma received state scholarship.¹⁷ The graduate survey shows that the ratio between the tuition fee that graduates would be willing to pay and the actual fee paid (what we might call the “value for money ratio”) is highest for Bachelor degrees at 78% (77% at public HEIs and 90% at private HEIs) and lowest for Master degrees at 74% (73% at a public HEI and 82% at

¹³ Secondary education is offered at the end of compulsory education, usually at the age of 15. It consists of selective grammar schools, technical schools and vocational schools. In addition to four-year programmes, vocational schools also offer three-year and two-year programmes, which do not provide a route to a HEI.

¹⁴ These data are derived from the project’s HE provision database.

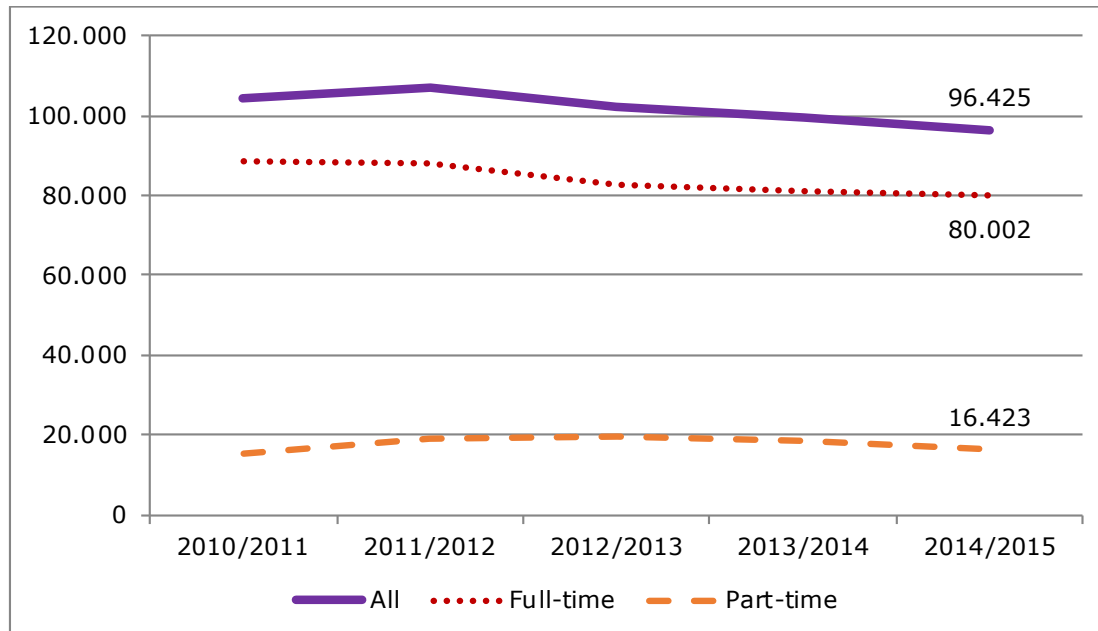
¹⁵ Expenditure per student in BiH is calculated by the authors from FIS (2015b) RSIS (2015b) BHAS (2015a)

¹⁶ Over one quarter (26%) of students from grammar or technical schools received a scholarship compared to just 17% of students from vocational schools (significant at 10% level (Chi-square =4.8.p=0.089).

¹⁷ According to the project’s HE provision database.

private HEIs). This suggests that public HEIs provide lower value for money at both Bachelor level and Master level compared to private HEIs.¹⁸ Overall, the value for money provided by Bosnian HEIs is rather high compared to elsewhere in the region.¹⁹

Figure 1: Total number of students registered in undergraduate studies, 2010 – 2015



Source: BHAS First Release, Education Statistics, various years, Sarajevo: BiH Agency for Statistics.

The number of undergraduate students registered in the first cycle of studies at HEIs has steadily fallen over the last five years (see Figure 1), reflecting demographic trends due to an ageing population and migration of potential students to other countries. More than 90% of all students are registered at public HEIs. In the 2015-16 academic year, 35,166 students were registered to study at the University of Sarajevo, i.e. 48% of all students in FBiH (FIS, 2015c), and 15,535 students were registered to study at the University of Banja Luka, i.e. 41% of all students in Republika Srpska (RSIS, 2015c).

Table 4: Students enrolling and completing studies each year, 2012-15

	Enrolment			Completion		
	2012-13	2013-14	2014-15	2012-13	2013-14	2014-15
Total number of students	34,463	36,900	33,008	8,778	9,117	9,199
Diploma	234	203	148	761	719	504
Bachelor	28,003	30,127	26,839	6,564	6,618	6,689
Master	5,607	5,997	5,447	1,235	1,479	1,768
Doctoral	619	573	574	218	301	238
Note: 1 st year Diploma	34,178	34,739	35,883	18,618	16,351	15,974

¹⁸ The difference in value for money at Bachelor level is statistically significant at the 10% level (t-statistic = 2.02, p=0.055, N=189), while the difference in value for money at Master level is not statistically significant (t-statistic = 0.693, p=0.49, N=233).

¹⁹ For the Western Balkan region as a whole, value for money at HEIs is 68% for Bachelor degrees, and 65% for Master degrees. Low value for money is found in EU countries too. In the UK, for example, three out of ten students think the academic experience in HE is poor value (Department for Business Information and Skills, 2016).

and Bachelor students recorded by the BiH Agency for Statistics						
Coverage of Diploma and Bachelor enrolments by project database	82.6%	87.3%	75.2%	39.3%	44.9%	45.0%
Proportion of students in public and private HEIs						
% public HEIs	93%	91%	94%	83%	83%	84%
% private HEIs	7%	9%	6%	17%	17%	17%

Source: HE provision database and "Education Statistics", Sarajevo: Agency for Statistics of Bosnia and Herzegovina, various years. Note: The database covers seven private and five public HEIs in BiH. Due to missing data for some HEIs and study programmes, the data are not fully reliable.

Table 4 presents data on the number of students who enrolled each year and the number who completed their studies over the period 2012-14.²⁰ Comparison is made with the information provided by the BiH Agency for Statistics, which covers all accredited and non-accredited HEIs. In comparison with the Agency data, the project database covers about 80% all student enrolments, and 40% of completions.²¹ On average, HEIs enrol 88 students into each study programme. The University of Banka Luka enrolls a large number of students into some of its Bachelor courses. For example, in 2014-15 academic year, the university admitted 3,195 to study Law, 1,507 students to study Economics and Business Management, and 1,068 to study English Language and Literature. Less than half of these students ever complete their studies.²²

Completion of studies is an important element of a successful higher education system, and a high level of student dropout is a waste of resources. The completion rate on one-year Master programmes in the 2013-14 academic year was 46%, and the completion rate on two-year Master programmes in 2012-14 was 62%.²³ The completion rate was higher at private HEIs for the one-year Master programme and higher at public HEIs for the two-year Master programme. For Bachelor degrees, it is only possible to calculate the completion *ratio* and not the completion *rate* as the data in the HE provision database do not span a sufficient number of years. As long as the number of students entering the system is not rising too fast, this can be a good proxy for the completion rate. In the 2014-15 academic year, 35,883 Diploma and Bachelor students began their studies at HEIs, while only 15,974 completed their studies (see Table 4), giving a completion ratio of 45%, while the completion ratio in 2012-13 was 54% and in 2013-2014 was 47%, giving an average over the three academic years of 49%. The average completion *ratios* for Bachelor programmes, and the completion *rates* for one-year Master programmes, are similar to the lowest completion rate in the EU, which is found in Hungary at 48% (Eurydice, 2015), while the completion rates on two-year Master programmes are more similar to, although below, the average completion rate in the OECD countries, which was 68% in 2013.²⁴

²⁰ The number of students completing under the pre-Bologna system has steadily declined, while the number graduating with Bologna compliant degrees increased to 87% in 2014. It seems likely that from 2016 onwards all graduates will be completing Bologna compliant study programmes.

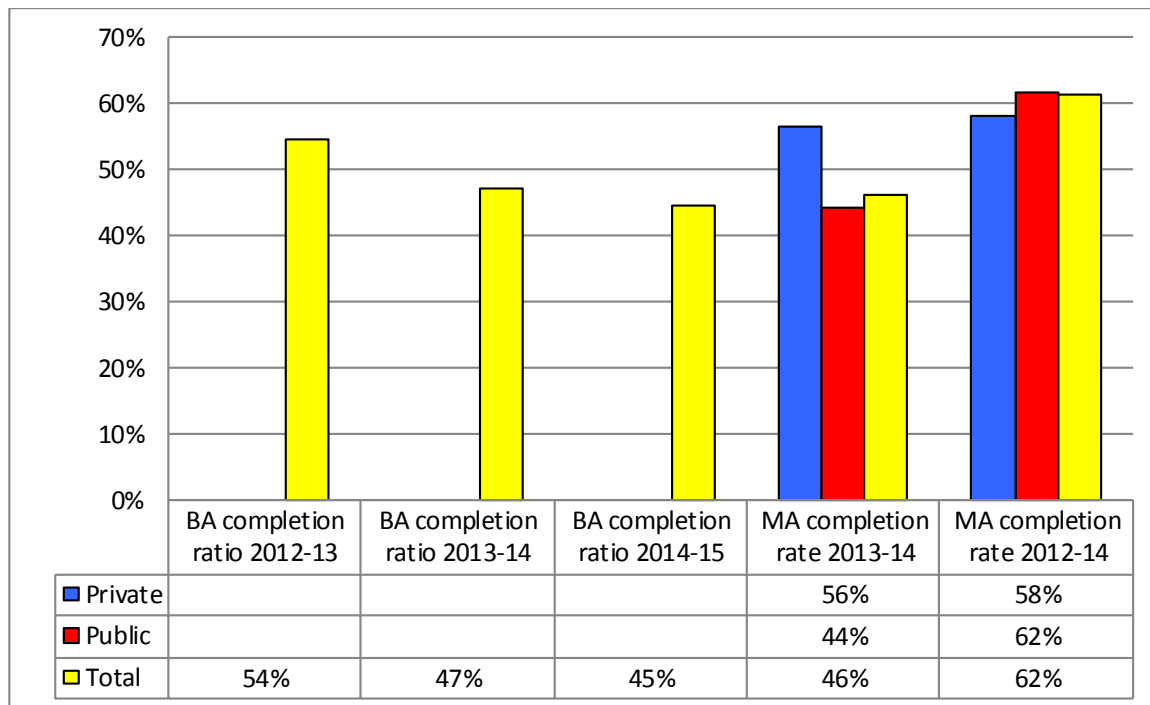
²¹ The difference arises because the project database covers only accredited institutions, while the Agency data cover all HEIs whether accredited or not.

²² Data are from the project's HE provision database.

²³ Completion rates are calculated from the HE provision database for two cohorts following two-year Master programmes. They are calculated as the ratio of the number of graduates completing studies in year "t" divided by the number of students who enrolled in year "t-x", where "x" is the duration of the study programme. This method of calculating completion rates, known as the "cross section" method.

²⁴ See OECD (2013) *Education at a Glance*, and the data appendix available at: <http://dx.doi.org/10.1787/888932848495>,

Figure 2: Completion ratios and completion rates, 2012-15

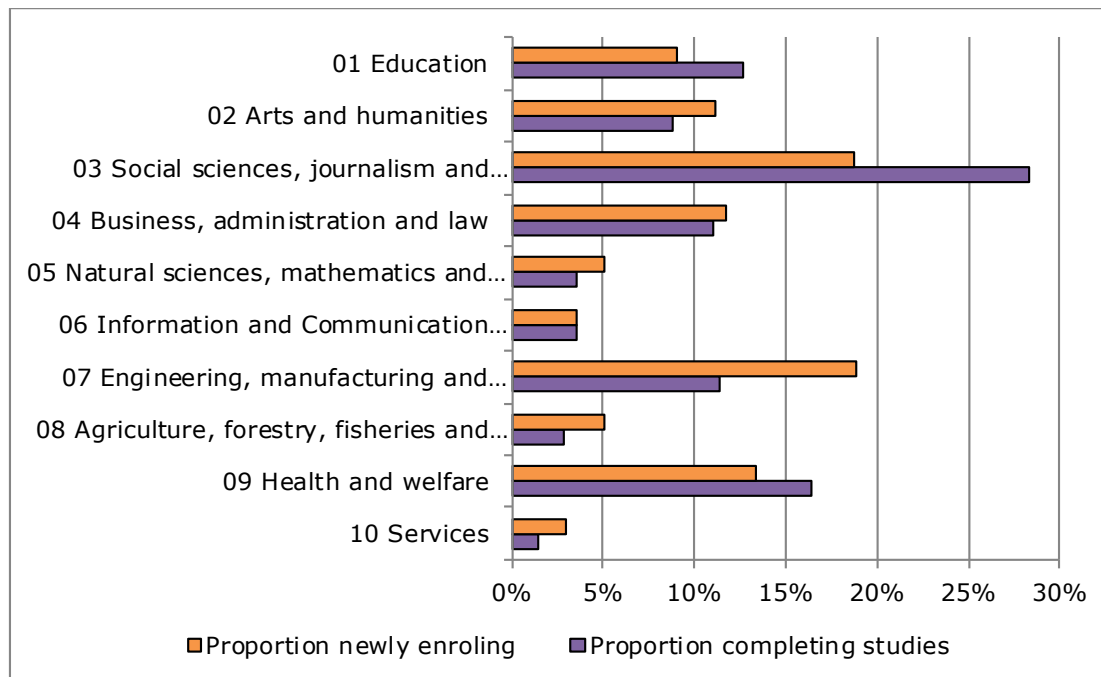


Source: HE provision database and Table 4 above (for BA completion ratios). Note: BA data are completion ratios MA data are completion rates for which study programmes with completion rates above 100% are excluded.

The relatively low completion ratios at Bachelor degree level and on one-year Master programmes are a cause for concern. Part of the reason may be the high level of drop out from studies. It is estimated that about 13% of students drop out of studies each year (World Bank, 2015). One reason for the high dropout rate may be the tuition fees that all but the best students at public HEIs must pay. Another factor is the practice of allowing students to repeat exams over a number of years until the student eventually passes the exam. This can be profitable for HEIs that charge additional fees for repeat exams and have little incentive to change the practice. It is estimated that about 24% of students repeat an academic year (World Bank, 2015). Consequently it took the average student seven years to complete a 4-year degree under the pre-Bologna system. There is little evidence that such practices have changed following the introduction of the Bologna principles. There is also a tendency for some young people to enrol at an HEI in order to claim social benefits while looking for a job. Such students are not highly motivated to study, and often drop out at some point.

Another issue is the impact of corruption on the completion process, which may even artificially raise the completion rates. A Transparency International report has shown that about one in seven HE staff believe that there is an almost even number of "earned" and "unearned" diplomas, and that most diplomas are not awarded on the basis of a student's knowledge. Almost one in four students have had a personal experience with corruption involving a payment to pass an exam or being asked to do so (Transparency international, 2011). Non-monetary forms of corruption include passing exams on the basis of personal connections and having influential parents (Sabic - El-Rayess, 2012). In addition to corrupt influences in order to pass an exam, other forms of corruption include the purchase of books as a prerequisite for taking exams; favouritism of the children of university employees; violation of the rules that ensure that students have completed the course obligations necessary to take exams; and the manipulation of university entrance exams (Transparency international, 2011: 190).

Figure 3: Proportion of students newly enrolling and completing studies by field of study (2013-14) (%)



Source: HE provision database. Note: The database covers seven private and five public HEIs in BiH.

Figure 3 shows the proportion of students who enrol in, and complete, different broad fields of study. In the 2013-14 academic year, 42% of students enrolled and 48% completed their studies in HSS subjects (ISCED²⁵ 02+03+04). At the same time, 28% enrolled and 18% completed studies in STEM subjects (ISCED 05+06+07). These data can be compared to the situation in the EU-28 where 25% of all graduates hold STEM qualifications (Cedefop, 2015). In this perspective, a rather low proportion of STEM graduates are produced by the HE system in Bosnia and Herzegovina. As in the EU, shortages of such graduates are likely to emerge in the future, especially in the fields of *Natural Sciences, Mathematics & Statistics* (see Figure 8 below) unless more students can be persuaded to take up these fields of study. It is notable that only 4% of students completed studies in *Natural Science, Mathematics & Statistics* and only 4% in *Information & Communication Technologies*. In contrast 16% completed studies in *Health & Welfare* subjects. The larger proportion of completions in comparison to enrolments in HSS subjects is likely due to the lower drop out rate in these subjects compared to STEM subjects such as Engineering. This indicates a need for a fundamental rethink into the nature of HE provision, since the transition to an export-led and high value-added economy would require a greater output of graduates with qualifications in STEM subjects that are most relevant to private sector employers in competitive industries.

2.3 Quality

There are widespread concerns about the quality of education provided by HEIs. Professors often lack the capacity to deliver high quality education, and have limitations in their potential for delivering relevant practical and laboratory-based classes due to both out-dated equipment and their lack of knowledge regarding equipment currently in

²⁵ The International Standard Classification of Education (ISCED) developed by developed by UNESCO. See: *ISCED Fields of Education and Training (ISCED-F 2013)*, Montreal: UNESCO Institute of Statistics, 2013.

use in the labour market, particularly in regard to ICT-reliant methods. There has also been a lack of progress made in the process of accreditation and in developing quality assurance systems (World Bank, 2015: 94). The survey cited in the previous section shows that 56% of students consider corruption to be a widespread phenomenon in higher education in BiH (Transparency International, 2011), with a negative impact on the quality of the education provided. There is therefore still a long way to go to improve the quality of the HE system.

2.3.1 Accreditation

Quality assurance is a key mechanism through which governments can encourage HEIs to enhance the employability of their graduates. The Agency for Development of Higher Education and Quality Assurance (HEA) was established in 2008.²⁶ It is responsible for defining criteria for the accreditation of HEIs, quality assurance, restructuring study programmes, and making recommendations on the founding and closing of HEIs.²⁷ Republika Srpska has its own accreditation agency (the Higher Education Accreditation Agency of Republika Srpska - HEAARS), which is responsible for the external evaluation and accreditation of HEIs. Some study programmes are accredited at the cantonal or entity level and in Brčko district. However, progress has been slow. The HE system is under strong political influence, which defines the speed of the reform and the content of reform policies and there is a lack of effective coordination and cooperation among different levels of government. Due to differences in regulations, clarity of procedures is weak, and lines of responsibility are unclear which cause problems and delays (Agency for Quality Assurance and Accreditation Austria, 2011).

The first HEIs were accredited in 2013. Midway through 2015, 18 HEIs had been accredited, with 9 further HEIs on the waiting list (HEA, 2015). The lack of accreditation of several HEIs in BiH has severe implications relating to the validity of degrees and has consequences for graduates' success in the labour market and for the HE system's inclusion in the European Higher Education Area. The process of referencing qualifications against the EQF has not yet taken place, and the state accreditation agency is not listed in EQAR, the European Quality Assurance Register for Higher Education (EHEA, 2015).

Lastly, the fragmentation of the HE system at the cantonal level is a serious challenge in FBiH. The opening of new private universities is not consistently regulated, since some cantons do not have education legislation, leaving room for setting up new universities without any quality assurance process. This has a negative impact on the quality of teaching. For example, there has been a case of a private university in Canton Sarajevo – a canton with strict rules - which has had its licence withdrawn due to a violation of the law and forbidden to operate. The university involved, the International University Philip Noel-Baker, simply relocated in 2009 from Sarajevo to Posusje in West Herzegovina Canton where such legislation does not exist.

²⁶ The Centre for Information and Recognition of Qualifications in Higher Education was established at the same time.

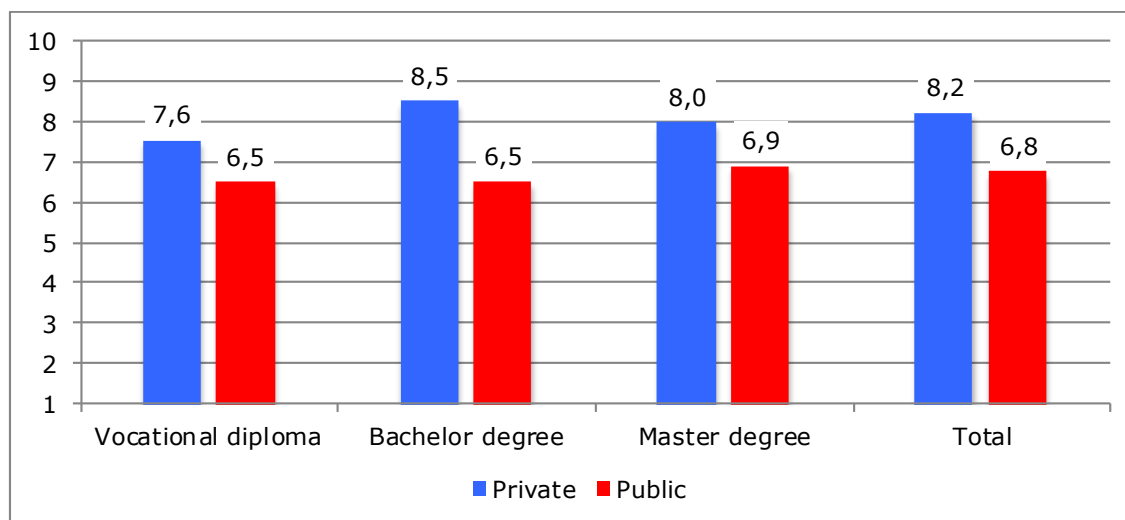
²⁷ The Agency is responsible for: 1) defining criteria for the accreditation of higher education institutions; 2) setting norms for minimum standards in the field of higher education; 3) defining criteria for the selection of local and international experts in charge of appraisal, quality review and recommendations; 4) providing recommendations to relevant ministries on criteria and standards for the establishment and closure of HE institutions; and 5) restructuring of study programmes.

2.3.2 Programme evaluation

Curricula at private HEIs tend to be more in line with international trends and local needs compared to those at public HEIs, where academic staff often resist changes to established teaching methods. Private HEIs tend to be institutionally more flexible in adopting changes to curricula. Still, the public's overall perception of private HEIs is negative. Widespread media coverage of several failures in establishing good private HEIs has cast a negative image over all of them. They are considered to be "second choice institutions, of lower quality than public ones, driven mainly by profit and not oriented toward the public good" (Branković, 2014). The public HEIs are more accepted because of their prestige and tradition, a perception that is partly backed up by international university rankings. For BiH, public HEIs occupy the top two places in the global ranking of universities, followed by two private HEIs.²⁸ The top public HEI, the University of Sarajevo has a world ranking of 1,820th position (116th position in Central and Eastern Europe – CEE), while the top private HEI, the International University of Sarajevo is placed in 3,463rd position globally (246th in CEE). The University of Banja Luka is ranked in 4,596th position globally (345th in CEE). However, these rankings are only indirectly connected to teaching quality, as the metrics are mainly research-based. Most professors from public HEIs teach at one or more private HEIs at the same time (Transparency International, 2011).

However, graduates who studied at private HEIs tend to be more satisfied with the quality of the education that they received than graduates from public HEIs across all levels and types of degree (see Figure 4). The overall difference in satisfaction with quality is around 14 percentage points, with even larger differences for Bachelor studies. The results may be surprising, as private HEIs tend to have a worse reputation than public HEIs.

Figure 4: Satisfaction with quality of education at public and private HEIs



Source: Graduate survey. Note: Satisfaction with quality is assessed in response to the question "How satisfied are you with the quality of the education you received?" on a scale of 1-10 where 1 = "very dissatisfied" to 10 = "very satisfied"; overall difference between scores for public and private HEIs are significant at 1% level.

²⁸ The data is taken from the Spain-based "Webometrics Ranking of World Universities", an initiative of the Cybermetrics Lab, a research group belonging to the Consejo Superior de Investigaciones Científicas (CSIC), the largest public research body in Spain. It should be noted that the methodology includes only publicly available web links data and does not rank specifically on teaching quality. See "Webometrics Ranking of World Universities", <http://www.webometrics.info/en>.

It may be that students who attended private HEIs have different experience or expectations than those that attend public HEIs. In order to explore this hypothesis a regression model has been developed to identify whether such additional possible determinants of graduate satisfaction with their HEI studies have an effect, and if so whether it is these alternative factors that are responsible for the observed differences.

Table 5: Regression model for graduate satisfaction with quality of education

	Coefficient	t-statistic
Internship or work experience	0.768***	4.813
Classes in small groups	0.757***	4.982
Information & communication technologies (ICT)	-0.962***	-2.797
Specialist degree	1.185***	3.063
Master degree	0.271*	1.782
Public HEI	-1.350***	-4.406
Above average performance	0.869***	5.864
Constant	6.748***	19.918
<i>Adjusted R-Squared = 0.186; F= 21.85***; N=639</i>		

Source: Graduate survey. Note: Significance level ***=1%; * = 10%. Model estimated using SPSS with backward elimination.

The regression analysis shows that several factors determine graduate satisfaction with the quality of the education they received (see Table 5). Several factors have a positive impact on satisfaction including whether the graduate had experienced internship or other form of work experience during studies, whether teaching methods involved classes in small groups and whether study performance was above average. Graduates with a Specialist degree were substantially more satisfied than graduates whose highest degree was at Bachelor level, while Master degree graduates also experienced a better quality of education than Bachelor graduates although the difference is relatively small at 0.3 percentage points. Graduates who studied *Information and Communication Technologies (ICT)* have a lower level of satisfaction with quality of their education (compared to those who studied *Social Sciences, Journalism and Information* – the baseline study field for this analysis), a finding that may raise concerns that *ICT* study programmes do not provide HE students with a sufficient quality of education to meet the needs of the labour market. Even when these factors are taken into account, the ownership status of the HEI still has a significant influence on perceived satisfaction with HE quality. The results indicate that graduates who studied at public HEIs have a level of satisfaction with their education that is lower than those who studied at private HEIs.²⁹ It should be emphasised that this difference can be offset by public HEIs by offering internship or work experience and by more frequent use of teaching to small class groups.

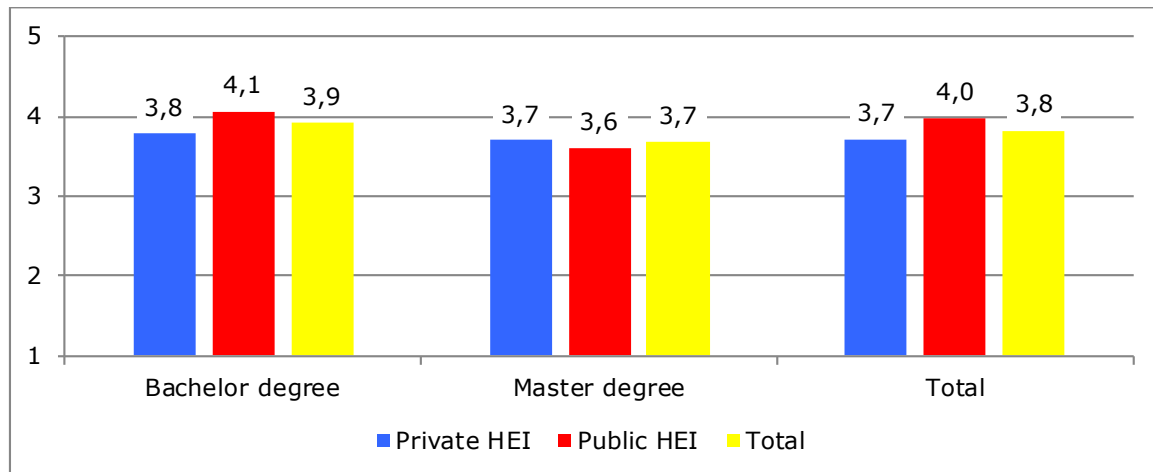
2.3.3 Teaching methods

It is often stated that HEIs in post-socialist countries are not sufficiently flexible to respond to labour market changes through curricula reform and the adoption of new teaching methods (Sondergaard and Murthi 2012). This is because many HEIs practice unchanged modes of teaching, relying heavily on rote learning, and use out-dated curricula, with few opportunities to apply their knowledge (Sabic El-Rayess, 2012). Most university staff were educated in the previous century with few acquiring experience or obtaining PhD degrees abroad. In addition, relatively few lecturers and professors are interested in improving their teaching practices or curricula, because it would require

²⁹ The percentage difference is found by dividing the coefficient on the [1,0] dummy variable "Public HEI" by the constant term. In this case the percentage difference = $-0.846/5.192=0.163$.

additional work and there are few incentives for improvement. These opinions are supported by the graduate survey from which we find that more than two thirds (70%) of respondents consider that better teaching methods would have improved their job prospects after graduation either “a lot” or “very much”.

Figure 5: Whether better teaching methods would have improved job prospects



Source: Graduate survey. Note: The question asked was “Regarding the study programme for your LAST degree obtained, to what extent would better teaching methods at your higher education institution have improved your job prospects after graduation? (1=not at all, 2= a little, 3= some; 4=much, 5= very much). Overall difference between scores for public and private HEIs for are significant at 5% level.

Not only are graduates from public HEI less satisfied with the quality of education they received than graduates from private HEIs, they also more often think that better teaching methods would have helped them find a job (see Figure 5).³⁰ Teaching methods in private HEIs are seen as more relevant and better tailored for equipping graduates with the right skills for the labour market. The differences in perception between graduates from private and public HEIs are largest for Master degrees and less so for vocational degrees. Overall, graduates from all institutions and degrees types tend to think that there is much room for improvement of teaching methods – especially in comparison with EU countries, as showed our findings from a focus group (see Box 1).

Box 1: Comparing studying in Bosnia and Herzegovina with the EU: findings from a focus group

Bosnian Erasmus Mundus alumni in our focus group spent part of their HE studies in the EU. They flagged a number of issues that were found in EU HEIs and deemed as positive features largely missing in Bosnian HEIs. First, they highlighted how students have a more central role in EU HE systems: the learning process emerges as a two-way process whereby there is more interaction between professors and students and where critical thinking is more encouraged. On the contrary, they found that the approach in Bosnian HEIs over emphasised rote learning. Furthermore, the learning experience was often enhanced in EU countries thanks to better equipment (e.g. laboratories), which also allowed for more practice-oriented teaching. They also flagged how the learning experience could benefit from more interaction with industry (e.g. through industry representatives delivering some lectures).

Source: Focus group report, BiH.

³⁰ Although relatively small in absolute size at just six percentage points, the difference in means between public and private HEIs is statistically significant ($F= 6.123, p<0.05, N=380$).

Corruption also has a negative impact on teaching methods. Students are “no longer taught that hard work equates with achievement and instead are being trained in and adapting to the complex workings of widespread corruption” (Sabir El-Rayess, 2012). Corruption also affects the employment and promotion of teaching staff.

2.4 Policy developments and gaps

BiH has one of the most complex HE systems in Europe. According to the Constitution, responsibilities for education policies are delegated to entity levels. Within the FBiH, responsibility is further delegated to 10 Cantonal Ministries of Education³¹ coordinated through the Federal Ministry of Education and Science. In practice however, only six of these have public universities on their territory, and most private HEIs are based in Sarajevo or Banja Luka. In the Republika Srpska, HE policy is the responsibility of the Ministry of Education and Culture, and in Brčko District it is the responsibility of the Department of Education. At the state level, the Ministry of Civil Affairs is responsible for coordination of entity education policies, and the definition of strategies at the international level. Altogether, 14 institutions are involved in shaping and coordinating HE policies. This arrangement hinders the reform of the HE system.

The system-wide reform of the HE sector began with the adoption of the Framework Law on Higher Education in 2007, with corresponding laws on Higher Education adopted in Brčko District (2009), in Republika Srpska (2011), and in the cantons of FBiH between 2009 and 2012. HE reform has involved changes in governance of HE institutions. International actors have supported HE reform, while national stakeholders have stressed that they are devoted to modernising the HE system in BiH and bringing it closer to European standards. The European Commission and Council of Europe have supported the integration of the universities as legal entities composed of different faculties in accordance with the Bologna Process. The programme has been progressing slowly, mainly due to the resistance of faculties to become part of an integrated university which would imply giving up their autonomous status (Branković, 2013). However, the programme has been successful in the Republika Srpska where the University of Banja Luka has been operating as a single legal entity with integrated Faculties since 2008.

At the state level, HE policies are coordinated by the Department of Education of the Ministry of Civil Affairs of Bosnia and Herzegovina, which has prioritised the accreditation, funding and infrastructure of higher education. The Strategy on Education Development 2008-2015 (Council of Ministers, 2008) analysed overall education sector development, focusing on short-, mid- and long-term priorities in financing, policy development, and infrastructure. Some of the Strategy’s objectives have been realised. While the Strategy defines priorities for each institution directly responsible for a certain field within HE, educational development is not significantly elaborated. The document “Priorities of Higher Education for the Period 2016-2026” was adopted by the Council of Ministers. The priorities include the harmonisation of laws on HE with the Framework Law; strengthening institutional autonomy of HEIs; introducing of new ways of HE financing; strengthening the BiH Rectors Conference as the highest advisory academic body in BiH

³¹ These are the Ministry of Education, Science, Sports and Culture of the Una-Sana Canton, Ministry of Education, Science, Sports and Culture of the Posavina Canton, Ministry of Education, Science, Culture and Sports of Tuzla Canton, Ministry of Education, Culture and Sports of Zenica-Doboj Canton, Ministry of Education, Science, Culture and Sport of the Bosnia-Podrinje Canton, Ministry of Education, Science, Sports and Culture of the Central Bosnia Canton, Ministry of Education, Science, Sports and Culture of the Herzegovina-Neretva Canton, Ministry of Education, Science, Culture and Sports of the West Herzegovina Canton, Ministry of Education and Science of the Sarajevo Canton and the Ministry of Education, Science, Culture and Sports of the Herzegbosnia Canton.

by including private HEIs as new members; strengthening research and innovation, paying particular attention to the necessity to base teachers' salaries not exclusively on the number of teaching hours; and strengthening the connection between higher education and the labour market.

Despite legal reforms and the development of a strategy for HE development, BiH needs to develop a stronger framework of accountability and regulation that provides incentives for improvements in teaching methods and quality control of HEIs across entities. In its 2015 Progress Report, the European Commission recommended that the BiH governments should tackle deficiencies in the training and education systems by prioritising measures based on mapping skill gaps taking into account the needs of industry, especially SMEs. In addition, the Commission proposed harmonising legislation and standards related to education and training at state and entity level, as well as at cantonal level, since educational competences in FBiH are at cantonal level (European Commission, 2015a: 46-47).

3 Mapping graduate labour markets

BiH has a highly devolved form of government, has created a complex policy making process, with many key decisions on employment policy devolved to the entities and cantons (Efendić and Hadžiahmetović, 2015). The economy suffered a recession in 2009 in the wake of the global economic crisis and has struggled to recover, with adverse effects on employment (Domljan, 2013). Since 2014 economic growth has picked up, but private investment, including foreign investment remains relatively low at 17.6% of GDP (IMF 2015).

This section maps the graduate labour market in BiH on the basis of official data, the findings from our survey of HE graduates who have graduated since 2010, and our survey of employers who employ HE graduates. The next section identifies the difficulties faced by graduates in finding a job, the distribution of graduates by sector and by the size of the enterprise or organisation in which they are employed. Section 3.2 analyses emerging opportunities for graduate employment and provides a forecast of the demand for graduates in 2018 in relation to current levels of supply by field of study. Section 3.3 identifies policy developments and gaps in relation to the graduate labour market.

3.1 Difficulties facing graduates in finding a job

In 2015, there were 145,000 HE graduates in employment, accounting for 17% of all employees (20% in FBiH and 14% in Republika Srpska) (BHAS 2015b, LFS). This is far below the position in the EU-28, where 33.3% of employees have a graduate qualification.³² Given the relatively small number of graduate level jobs available, it is not surprising that the approximately 16,000 graduates who enter the labour market each year face severe difficulties in finding a job. Having a job in the public sector is seen as highly desirable due to relatively high wages, job security and low levels of workload and responsibility. It is not surprising therefore that in 2014, some 17,000 candidates applied for just 280 vacancies in a single branch of the civil service in FBiH. There is also a large informal economy mainly involving less educated people, supported by poorly targeted welfare benefits and underpinned by a high level of remittances that raises the reservation wage (Krstić and Sanfey, 2006).

³² Eurostat online data variable code [lfsq_egaed].

Table 6: Unemployment and employment rates, 2012-14 (%)

	BiH, Total			BiH, HE graduates			Western Balkans	EU-28, total	EU-28, graduates
	2013	2014	2015	2013	2014	2015	2014	2015	2015
Unemployment rate	27.5	27.5	27.7	16.9	19.3	18.4	24.2	9.4	5.6
Employment rate	31.6	31.7	31.9	61.1	59.5	n/a	48.6	58.1	76.9

Source: BiH Agency of Statistics (BHAS) Labour Force Surveys 2011-2014 and Eurostat online data (Western Balkans unweighted averages). Note: Rates for BiH are for age group 15+ and for EU28 are for 15-74 year olds.

In 2015, the employment rate was extremely low at just 32%, and 28% of the labour force was unemployed (see Table 6). The youth unemployment rate for 15-24 year olds was exceptionally high at 62% (65% in FBiH; 57% in RS) (BHAS, 2015b); for comparison, the youth unemployment rate in the EU-28 in 2015 was 20%, with the highest in Greece at 49%. Labour market indicators in BiH are generally better for HE graduates than others. In 2015, the unemployment rate of HE graduates was 18%. HE graduates are therefore less likely to be unemployed than others (BHAS, 2015a).³³ However, in comparative perspective, HE graduates in BiH face a relatively difficult labour market situation with an unemployment rate three and a half times as high as in the EU-28. From the graduate survey we estimate the unemployment rate of *recent* HE graduates to be 38.6%, even higher than the overall unemployment rate (but lower than the general youth unemployment rate).

3.1.1 Graduate employment by size of employer

The opportunity for HE graduates to find a job differs across employers of different size in terms of the number of employees. The distribution of graduate employment by employer size group can be identified from the employer survey, which received 153 responses from employers of all sizes, ranging from micro (employing fewer than 10 workers) to large (employing 250 or more).³⁴

Table 7: Graduate employment by employer size groups

	Distribution of employers in sample	Distribution of graduate employees	Average number of graduate employees	Median number of graduate employees	Density of graduate employment per employer
Micro	24.2%	4.2%	2.0	2	46.8%
Small	34.8%	17.4%	5.8	4	24.2%
Medium	31.1%	31.8%	11.8	10	11.7%
Large	9.8%	46.6%	54.7	25	8.8%
Total	100%	100%	11.6	5	24.3%

Source: Employer survey. Note: Micro employers are defined as those with fewer than 10 employees; small employers from 10 to 49; medium sized employers from 50 to 249; large employers with 250 or more. This is in accordance with the Eurostat definition of employer size groups.

³³ There are noticeable differences between the entities, with slightly higher levels of graduate unemployment and long-term unemployment in Republika Srpska compared to the Federation of BiH.

³⁴ Further details about the employer survey methodology can be found in the Annex.

Table 7 shows the average number of graduate employees in each size group among organisations that employ graduates. In the sample, small and medium sized employers (SMEs) employ about one half of all graduate employees. The density of graduate employment (the ratio of graduate employees to all employees) is inversely related to size. Among micro employers, on average almost one half of their respondents are graduates; conversely, among large employers less than one tenth of respondents are graduates. Thus, although micro firms do not employ more than a small fraction of graduate employees overall, those that do, tend to have a large demand for such employees. Since these may be the fast growth firms of the future, policy-makers who wish to expand graduate employment opportunities should not neglect them. Having said this, it is among the SMEs and large employers where the bulk of the future demand for graduates is likely to emerge.

Most of the growth in employment has taken place among a relatively small proportion of employers. The employer survey reveals that 80% of all jobs created in the past three years have been created by just 15% of employers. Similarly, 80% of graduate jobs created have been created by just 23% of employers. This structure of employment dynamics is typical in market economies (Acs and Mueller, 2008; OECD 2009). The fast-growth employers involved are sometimes called “gazelles”.³⁵ The survey reveals that 15% of employers are gazelles. One third (35%) of the gazelles had been micro-businesses three years before the survey was carried out and one half (53%) had been SMEs. One respondent had started out as a small enterprise with 20 employees and had become a medium sized enterprise by 2015, with 100 employees. Comparing the size of gazelles with other employers shows that gazelles on average employ significantly fewer employees than non-gazelles, indicating that gazelles are predominantly micro businesses or SMEs.³⁶ However, unlike other countries in the region, there is no evidence that the gazelles on average employ proportionately more graduates than slower growing organisations.³⁷

3.1.2 Graduate employment by sector

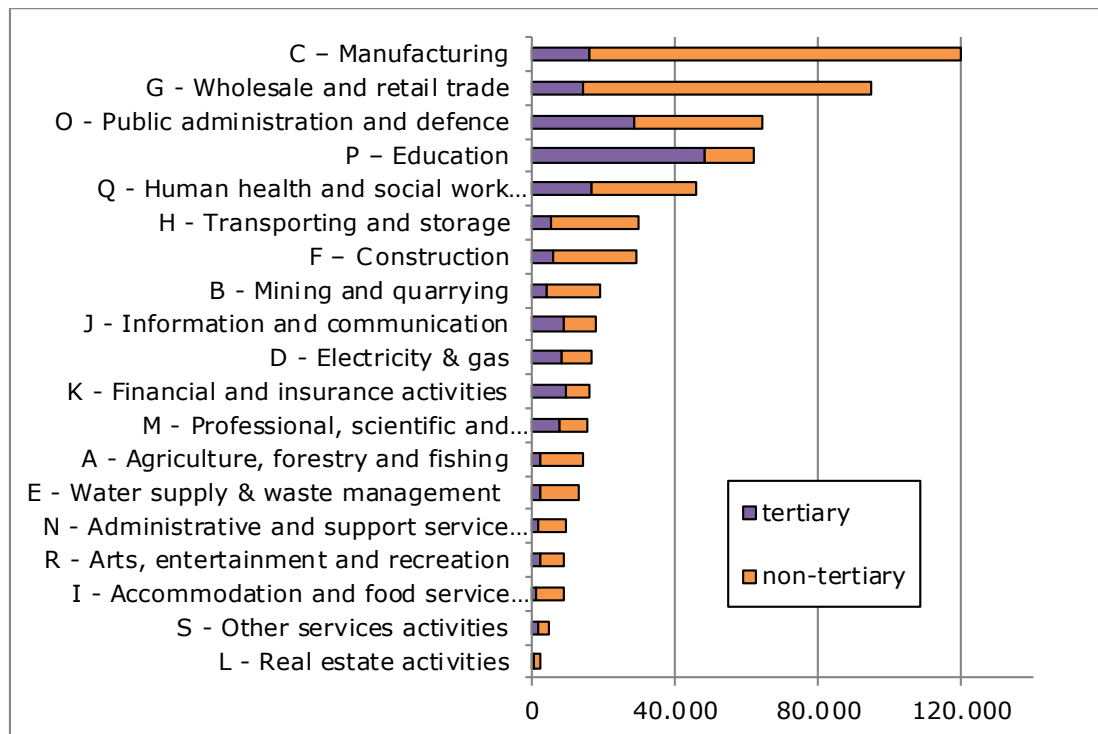
The opportunity for graduates to find a job differs across sectors and across employers of different size. Most graduates are employed in relatively few sectors.

³⁵ The definition of a gazelle, given by Eurostat, is a company that has been formed within the past three years and is expanding employment by at least 20% per annum over those three years. In Hungary, for example, about 1% businesses in the industrial sector that employ between 5 and 9 employees fall into this category as do 0.45% of businesses with 10 or more employees (Eurostat, variable {eip_pop3}).

³⁶ A t-test of differences in means between gazelles and non-gazelles give a t-statistic of 2.33, $p=0.022$, $N=113$).

³⁷ The density of graduate employment is not significantly different between the two types of employers (t-statistic=0.089, $p=0.93$, $N=113$).

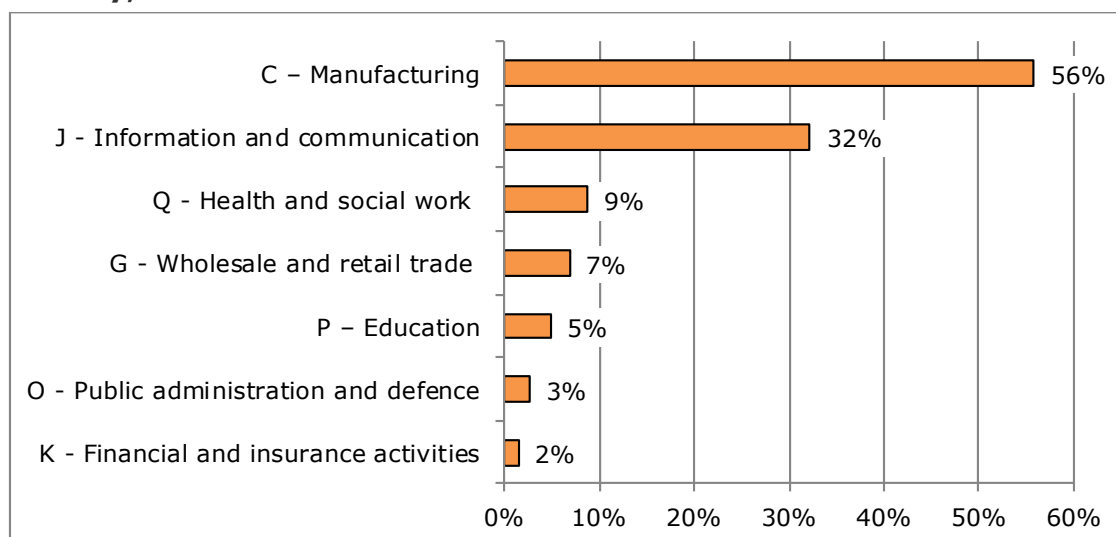
Figure 6: Graduate and non-graduate employment by sector of activity, 2014



Source: Data received from BHAS based on Labour Force Survey 2014.

While almost half of all employees are found in *Manufacturing, Wholesale & Retail Trade* and *Public Administration*, more than half of HE graduates are found in *Education, Public Administration* and *Health & Social Work* activities. Sectors also differ markedly in the share of graduates they employ (see Figure 6). There are relatively few graduates working in the *Manufacturing* sector (13% of all employees), while 79% of all employees in *Education* sector are HE graduates, as are 45% of employees in *Public Administration*.

Figure 7: Annual % change in graduate employment in major sectors of activity, 2013-14



Source: BiH Labour Force Survey. Note: The sectors shown account for over 75% of graduate employment.

Recent years have seen a substantial increase in demand for graduates in the *Manufacturing* and *ICT* sectors due to a fast recovery in these sectors following the worst effects of the recent economic crisis. The production of consumer durables increased by 43% in the year up to May 2015, while the production of intermediate goods increased by 18.6%, of energy by 8.6%, of capital goods by 3.3%. Manufacturing output as a whole increased by 9.1%, with especially high increases in the repair and installation of machinery and the manufacture of chemicals, set off by declines in transport equipment and textile production.³⁸

The employer survey shows that there are also differences in the rate of growth of employment between high technology enterprises and other types of employers. While the average overall rate of job growth in high technology firms over the three years prior to the survey was 25.6% per annum, for all other types of employers the average growth rate was 7.7% per annum.³⁹ Medium sized employers account for the highest rate of growth of graduate employees, with an average growth rate over the three years of 19.3% compared to around 8% per annum for other firm size groups.⁴⁰

3.2 Forecast of future demand for graduates

In order to identify likely future demand and supply for HEI graduates, forecasts are needed to predict future changes in labour market needs. Policy makers can use such forecasts to adjust education strategies, or as an early warning of impending change.⁴¹ In this section we set out our forecasts of the likely demand for HEI graduates by field of study in the period up to 2018. The analysis is carried out on the demand side, projecting forward the annual change in demand for graduate labour on the basis of existing information on graduate employment by sector of economic activity taken from national labour force surveys. The methodology of the forecast follows that of Cedefop (2010), which involves identifying "expansion demand" and "replacement demand". Expansion demand is the extra demand arising from economic growth, while replacement demand is that arising from retirement and migration. Expansion demand is estimated on the basis of estimates of economic growth up to 2018, using GDP forecasts from the IMF World Economic Outlook database.⁴² The forecast for the growth of graduate employment (employment of HE graduates) is made on the basis of assumed employment elasticity with respect to GDP equal to unity.⁴³ The replacement demand uses a standard estimate of the retirement rate based on the assumption of a 40-year working life, giving a baseline 2.5% retirement rate, and an estimation of net migration using Eurostat data.⁴⁴

³⁸ BiH Agency for Statistics online data.

³⁹ The difference in growth rates between the two types of employers is statistically significant at 5% level ($F=5.43$, $p=0.022$).

⁴⁰ The difference in growth rates between the two types of employers is statistically significant at 5% level ($F=2.88$, $p=0.040$).

⁴¹ It should be noted that all forecasts are by their nature imprecise and subject to revision as circumstances change. It has been said that every forecast is inevitably incorrect. Nevertheless a forecast provides a framework for policy makers to use as a benchmark against which to make their own judgments and decisions.

⁴² The same rate of expansion demand is applied to each sector. Labour Force Survey data are not sufficiently robust to identify differential growth rates by sector, as they are sensitive to the base year used for calculation.

⁴³ This is a crucial assumption of the forecast. From a theoretical point of view, one would expect different factors to drive the employment elasticity. First, productivity growth would be expected to give rise to elasticity below 1. Second, skill-biased technical change would be expected to drive the employment elasticity above 1. The assumption of a unitary elasticity balances both these opposing influences, and is also broadly in line with the average of time-varying estimates.

⁴⁴ According to Eurostat data, the net migration rate from BiH is 0%, and so we do not adjust replacement demand for this factor. See Eurostat online data "Population change - Demographic balance and crude rates

Expansion demand and replacement demand are summed to give an overall estimate of the annual change in demand for graduates by sector.

Contrasting current levels of supply of graduates (as a benchmark) with the forecast increase in demand for graduates gives the projected levels of oversupply of graduates by field of study in 2018, assuming current levels of supply are held constant.⁴⁵ It should be emphasised that these are only estimated forecasts, and should be used only as a general guide to the likely direction of change vis à vis current levels of provision, and should not be taken as accurate for planning purposes.

Table 8: Annual growth of real GDP, total and graduate employment, 2014-18

	GDP growth (%)	Employment growth (%)	Graduate employment growth (%)
2015	2.1	1.9	2.1
2016	3.0	2.8	3.0
2017	3.5	3.3	3.5
2018	3.7	3.5	3.7

Source: Projections for GDP from IMF World Economic Outlook database, October 2015; Employment growth 2014 from CCEQ 2015 Q4; Employment growth forecasts from BiH Labour Force Surveys and author estimates.

Economic growth has been robust since 2015 and is expected to continue at a rate of around 3% over the next few years, although political instability may adversely affect this forecast. Growth in total employment is forecast to be below this trend due to expected productivity growth, but graduate employment growth is expected to be given a boost due to skill-biased technical progress, so is expected to match the overall rate of economic growth (see Table 9). On this basis, forecast total graduate employment is expected to be around 180,000 by 2018, an increase in almost 17,000 from the position in 2015, or around 6,000 each year. This increase is the expansion demand that results from the net increase in job openings for graduates. To obtain a forecast for the actual numbers of graduates that will be demanded from the HE system, we add the "replacement demand" arising from the retirement of currently employed graduates and other demographic reasons for which people leave the labour force. Applying this to our estimates of graduate employment, we derive an overall forecast of the annual increase in demand for graduates, which is the sum of expansion demand and replacement demand. Taking into account expansion and replacement demand, the total annual demand for new graduates is expected to increase from 7,400 in 2015 to almost 11,000 in 2018. These annual requirements for graduates are below the actual output of the HE system, so that each year the total number of graduates is in excess of the jobs available to employ them.

at national level" – variable code [demo_gind]. This estimate looks rather low, but we have used it for consistency of data sources.

⁴⁵ Oversupply is defined here as the difference between the supply of graduates that completed their studies in 2014, which is taken as a benchmark, and the projected demand for graduates in a future year (e.g. 2018). For policy purposes, it seems appropriate to measure oversupply in this way, so that policy makers may see the consequences of holding the HE output constant at current levels, and can then identify the changes that might be needed in the future to achieve a demand-supply balance.

Table 9: Forecast for expansion, replacement and total demand for new graduates by sector, 2015-18

Sector	Expansion				Replacement				Total demand			
	2015	2016	2017	2018	2015	2016	2017	2018	2015	2016	2017	2018
A	45	67	81	88	56	58	60	62	101	125	141	150
B	34	51	62	68	43	44	46	47	77	95	107	115
C	211	315	378	414	262	270	279	290	473	584	657	703
D	77	115	139	152	96	99	103	106	173	214	241	258
E	36	53	64	70	44	46	47	49	80	99	111	119
F	73	109	131	143	91	93	97	100	163	202	227	243
G	275	411	494	540	343	353	365	379	618	764	859	919
H	76	113	136	149	94	97	101	104	170	210	236	253
I	16	24	28	31	20	20	21	22	36	44	49	53
J	135	201	241	264	167	172	179	185	302	373	420	449
K	187	280	336	368	233	240	249	258	421	520	585	626
L	10	15	18	20	13	13	13	14	23	28	32	34
M	137	205	246	270	171	176	182	189	308	381	429	459
N	32	48	58	63	40	41	43	44	73	90	101	108
O	577	862	1,036	1,134	719	740	766	794	1,296	1,602	1,802	1,928
P	956	1,428	1,716	1,878	1,190	1,226	1,269	1,316	2,146	2,654	2,985	3,193
Q	313	468	562	615	390	402	416	431	703	869	978	1,046
R	37	55	66	72	46	47	49	51	83	102	115	123
S	27	40	48	53	33	34	35	37	60	74	83	89
Total	3,255	4,861	5,841	6,391	4,051	4,172	4,318	4,478	7,305	9,033	10,159	10,869

Source: Table 8, LFS data and an estimate of replacement demand for graduates. Note: C Manufacturing; D Electricity, gas, steam and air conditioning supply; E Water supply; F Construction; G Wholesale and retail trade; H Transportation and storage; I Accommodation and food service activities; J Information and communication; K Financial and insurance activities; M Professional, scientific and technical activities; O Public administration and defence, P Education; Q Health and social work activities, R Arts, entertainment and recreation; S Other services.

Change in the demand for graduates at sector level has implications for the pattern of recruitment that the HE system should anticipate. In order to address this issue we use the data from the graduate survey to estimate a transformation matrix that connects the sector in which graduates are employed to their field of study. This provides forecasts of the demand for graduates by field of study⁴⁶. This is contrasted with the supply of graduates, which we derive from the HE provision database.

⁴⁶ In order to obtain reliable estimates the entire graduate survey for the Western Balkan countries is used to create the transition matrix. This is justified on the grounds that the technological level in each country is rather similar and so it can be expected that an average measure of inputs of graduates per unit of output can be a good approximation to the country coefficients.

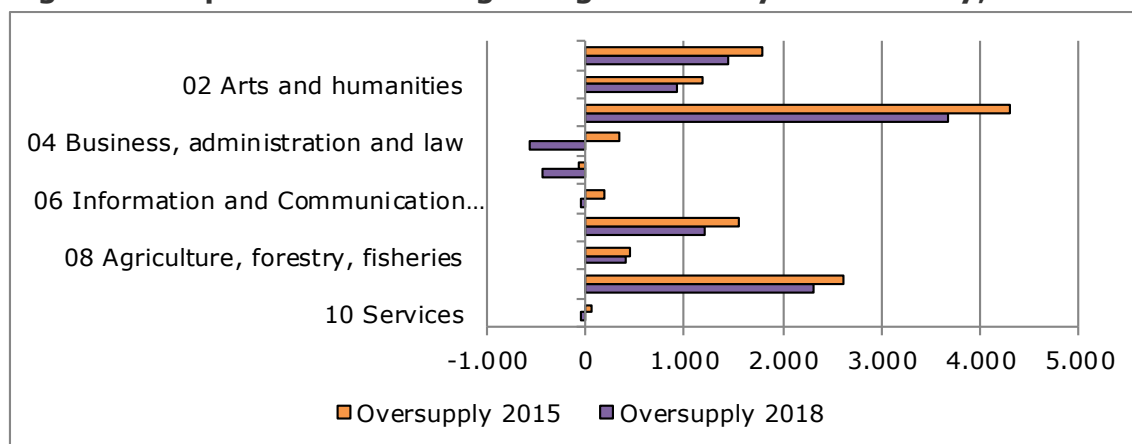
Table 10: Annual new demand and supply of graduates by field of study

Field of study	Demand				Supply	Surplus/Shortage
	2015	2016	2017	2018	2014	2018
01 Education	711	879	1,448	1,057	2,505	1,448
02 Arts & Humanities	549	678	922	816	1,738	922
03 Social Sciences, Journalism & Information	1,276	1,577	3,672	1,898	5,570	3,672
04 Business, Administration & Law	1,843	2,279	-565	2,743	2,177	-565
05 Natural Sciences, Mathematics & Statistics	754	932	-438	1,122	684	-438
06 Information & Communication Technologies	502	621	-49	747	699	-49
07 Engineering, Manufacturing & Construction	700	866	1,209	1,042	2,250	1,209
08 Agriculture, Forestry, Fisheries & Veterinary	119	148	399	178	577	399
09 Health & Welfare	630	779	2,306	937	3,243	2,306
10 Services	222	274	-58	330	272	-58
Total	7,305	9,033	8,846	10,869	19,715	8,846

Source: Author estimates based on Table 9 above, BiH Labour Force Survey data, project HE provision database, and BiH Agency for Statistics data on total number of graduate completions.

Table 11 shows the projected demand for graduates by field of study from 2015 to 2018 against the actual supply of graduates in 2014, which is used as a benchmark. In 2018 there is expected to be an overall oversupply of over 8,800 new graduates emerging from the HE sector (down from 12,400 in 2015, due to economic growth).⁴⁷ Total demand in each year is therefore expected to be below actual supply achieved in 2014. In addition, there are many unemployed graduates who are also competing on the labour market in addition to the new supply of graduates emanating annually from HEIs. If current levels of supply are held constant, the supply of graduates will be more than adequate to meet projected demand in 2018.

Figure 8: Surpluses and shortages of graduates by field of study, 2015 and 2018



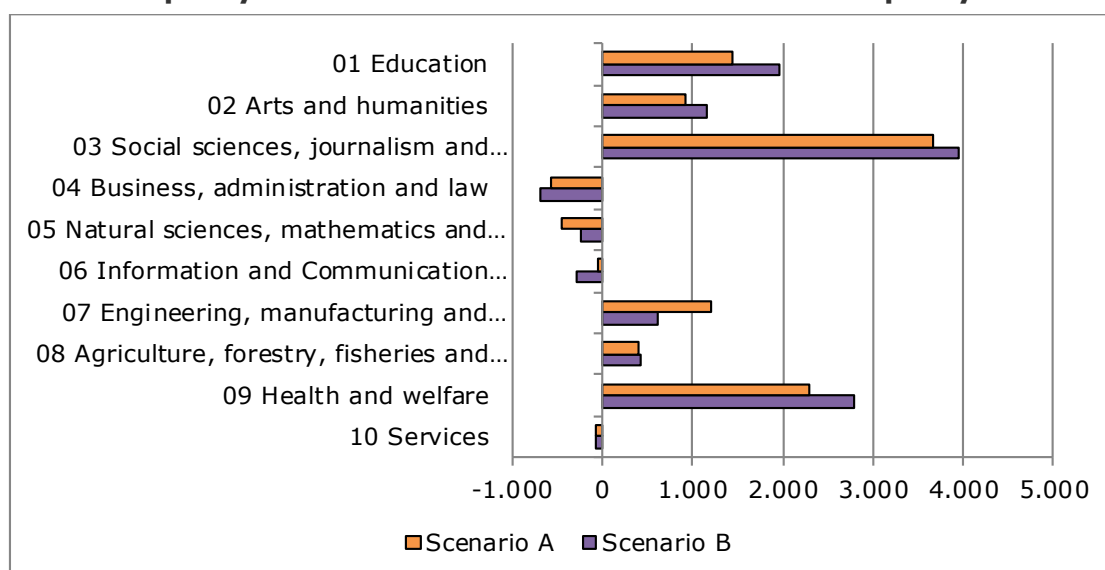
Source: Table 10. Note: Oversupply for 2015 and 2018 is calculated as the difference between supply of graduates from HE system in 2014 and forecast demand for HE graduates in 2015 and 2018 (i.e. the forecast scenario assumes stable annual supply).

⁴⁷ It is worth noting that this means that some 9,000 of the 16,000 graduates who are expected to graduate in 2015 will have been left without a job, assuming all vacancies are filled (i.e. 56% of graduates).

Figure 8 shows the gap between new supply and annual demand for graduates in the labour market in 2015 and the forecast for 2018. The projection by field of study for 2018 is intended to give a picture of what oversupply would look like if there were no change in supply patterns from current levels. In doing this, the analysis provides a guide as to where the HE system should look to make adjustments to achieve a better balance between supply and demand. The analysis reveals that there is expected to be a continuing and large oversupply of graduates in the broad fields of study *Education, Arts & Humanities, Social Sciences, Journalism & Information, Engineering, Manufacturing & Construction* and *Health & Welfare* in 2018. Current oversupply in most fields of study is expected to diminish over time. The largest emerging imbalances are skill shortages in the fields of *Business, Administration & Law*, and in *Natural Sciences, Mathematics & Statistics*. In the absence of further expansion in the number of students graduating in these fields of study, these skill shortages will increase over time. This suggests that it will be important to expand the supply of graduates in these fields in the future, while reducing supply from fields of study that are currently in large oversupply.

The above analysis is based upon the absence of structural change in the economy. If instead of the status quo (scenario A), we envisage an alternative industrial policy (scenario B) that supports a more rapid development of the knowledge intensive sectors, the forecast would be different. In order to gauge the magnitude of possible changes, we develop a scenario in which the *Manufacturing, Construction, Information & Communication* sector, and the *Professional, Scientific & Technical* sectors are supported by a range of measures that have and will lead to their growth at a rate of 10% per annum over the period up to 2018, the public sectors (Public Administration, Education and Health and Welfare) remain fixed at their initial level, while other sectors are assumed to expand at the same rate as in the base scenario A (while maintaining the same overall increase in the demand for graduates as would have occurred without the change in policy). The resulting change in our forecast for deficient demand (shortage) for graduates by field of study is presented in Figure 9.

Figure 9: Difference in oversupply of graduates in 2018 under scenario B with industrial policy relative to scenario A without industrial policy



Source: Table 10 and authors' estimates. Note: Scenario A represents the status quo; scenario B assumes rapid growth in manufacturing, ICT and professional and scientific sectors, and slower growth in other sectors. The horizontal bars shows the proportional change under scenario B compared to scenario A.

Under the industrial policy, the forecasted shortage of graduates in *Business, Administration & Law* and in *Information & Communication Technologies (ICT)* subjects increases⁴⁸, and the forecasted oversupply of graduates with qualifications in *Engineering, Manufacturing & Construction* diminishes. At the same time, the forecasted oversupply of graduates with HSS qualifications increases under the industrial policy. This hypothesis shows that if a new industrial policy that boosted growth in knowledge intensive industrial sectors were to be adopted, it might face constraints on the side of available skills produced by the HE system in certain fields of study, and would therefore require a change in the HE admissions policies to ensure that a sufficient supply of qualified graduates in appropriate subjects would be made available to support the changed demand for skilled labour. This example provides support for the idea that higher education policy should be closely integrated with economic policy and in particular with economic policies that seek to boost competitiveness and productivity of the BiH economy.

Box 2: Good practice example: Using scholarships to influence enrolment by field of study

The Republika Srpska spends about €1 million each year to finance student scholarships, out of a total higher education budget of €62 million. In 2015, the Republika Srpska introduced a reform of the scholarship system for HE graduates designed to incentivise more graduates to enrol in the STEM fields of study. The Ministry of Education and Culture announced that from the new academic year scholarships would no longer be provided for students enrolling in the first year of the first cycle studies in geography, ecology and environmental protection, journalism and communications, political science, sport, physical education, vocal and instrumental, musical and pedagogical theory, or journalism. The number of scholarships that will be offered for students following study programmes in the fields of law and economics will be reduced. The aim of the policy is to increase the number of students enrolled in natural sciences, engineering and technology departments, expertise which “can constitute a driving force of economic and social development of the Republic of Srpska”.

Source: Ministry of Education and Culture, 2015.

3.3 Policy developments and gaps

Much of the advice on labour market policy comes from international institutions. The World Bank argues that inflexible labour markets make it unprofitable for employers to hire workers in the private sector due to high hiring and redundancy costs. In a recent report, the World Bank has claimed that BiH has the most rigid labour market rules in the Western Balkans (World Bank, 2015: 78). Therefore, current labour market policies are focused on reducing the cost of labour to employers and on eliminating rigidities in the hiring and firing process. Unfortunately, they neglect the need to support the creation of additional high-skilled high-wage jobs for HE graduates.⁴⁹ The International Monetary Fund (IMF) has also been active in promoting labour market reforms as a condition of its loans to the government. For example, the IMF has required that policy makers should reduce disincentives for hiring and provide additional training for workers. The European

⁴⁸ Rather unexpectedly, the shortage of graduates with qualifications in Natural Sciences, Mathematics and Statistics diminishes in Scenario B. This is because of the large demand for these graduates in the *Education* sector, which is assumed to remain unchanged. Other main sources of demand for these graduates are in *Mining and Water Supply*, which are not part of the hypothesised industrial policy.

⁴⁹ Critics also suggest that the reform agenda neglects the social protection of workers and in summer 2015, the ILO started an initiative to improve the social protection for informal workers, but the effort is still to be translated into legislation and policy.

Commission, too, has recommended that the governments of BiH should introduce more flexibility in the process of collective wage bargaining and address disincentives to hiring, by reducing the “tax wedge”, i.e. the high level of social contributions related to wages (European Commission, 2015b: 71).

In response to this advice, in June 2015 BiH agreed with the international community on a reform agenda for the period 2015-2018. This aims to address rigidities in the labour market, particularly in the public sector and to introduce new labour laws that introduce more flexibility in the labour market. In line with this, Republika Srpska introduced measures to reduce social contributions from 33% to 31.6% of wages. In July 2015, the parliament of FBiH passed a new Labour Law (European Commission, 2015b), which was followed shortly thereafter by a new Labour Law of the Republika Srpska, which was signed on 29th December 2015, and published in the entity’s Official Gazette in mid-January 2016.⁵⁰ However, the Labour Law of FBiH was declared unconstitutional by the FBiH Constitutional Court on 17th February 2016, and was returned to the parliament. The law was re-issued (with amendments) on March 31st 2016.⁵¹

The BiH governments, with the support of the World Bank, have developed a Strategy for Strengthening Employment Offices’ Mediation Role, which proposes changing the focus of the employment bureaus from passive registration of unemployed (who do not necessarily actively look for a job but need to be registered in order to receive health insurance) to more active support for unemployed people in finding a (decent) jobs. An active labour market programme for young graduates was introduced in 2015 consisting of co-financing the first work experience, a retraining programme, and enterprise start-up support. In addition, the employment agencies participate in the “Youth Employment Project”, funded by the Swiss Development Agency, which targets unemployed people aged 16-30, although this is not specifically aimed at HE graduates.

In 2007, Republika Srpska introduced an apprenticeship programme for university graduates without any work experience that has continued in subsequent years (Djukić et al., 2012). The programme subsidises 70% of HE graduates’ salaries up to 600KM per month (in 2011) and 80% of the social contributions. The criteria for award of an apprenticeship subsidy included whether the graduate was employed in agriculture, processing or a service industry, the length of time spent in unemployment, location in an underdeveloped region, and disability. In 2011, 1,000 HE graduates were enrolled in the programme. A major deficiency of the programme has been its focus on apprenticeship in the public sector (mainly municipal administrations), with only one quarter of graduates hired as apprentices by private sector employers. Most of the graduates hired under the programme have a degree in Economics or Law, rather than science or engineering. The programme has also been criticised for its lack of transparency in the allocation of subsidised apprenticeships.

There are several policy gaps in the labour market affecting unemployed HE graduates. An increased budget and a better design of active labour market programmes are needed to address graduate unemployment. There is also a need to strengthen the role of public employment services to provide career guidance to young HE graduates that would ease their transition to the labour market.

⁵⁰ See Labour Law of the Republika Srpska, 2016. <https://advokat-prnjavorac.com/zakoni/Zakon-o-radu-Republike-Srpske-2016.pdf>.

⁵¹ See Labour Law of FBiH, 2016. <http://www.radiosarajevo.ba/novost/221189/ponovo-usvojen-zakon-o-radu-fbih>.

4 Transition from higher education to the labour market

Once HE students have completed their studies they face the challenge of making a successful transition to the labour market. An unsuccessful transition represents a waste of resources that BiH can ill afford. An initial period of unemployment or inactivity after leaving HEI can lead to a depreciation of the human capital built up over several years. An inability to find a job well matched to the field of study followed at HEI, or to the level of studies undertaken can reduce the return on investment (Robert, 2014). Indeed, the success of graduates' transition to the labour market is crucial for the improvement of economic competitiveness and for the future growth of the economy. However, the high unemployment rate of recent graduates suggests that they face major obstacles in their search for a job after leaving their HEI. This is not an absolute barrier, as employers will often prefer an overqualified recruit to a less qualified one. However, some HE graduates are reluctant to accept jobs that they feel are below what they deserve. We return to this issue in section 5 below.

HE graduates in BiH face a precarious transition to stable employment. The graduate survey provides detailed information on graduates' transition to work. Currently unemployed graduates have on average been unemployed for one year and two months. Yet on average they have also spent eleven months in employment, having taken eight months to find their first job. This is suggestive of a pattern of unstable attachment to the labour market that lasts for a considerable period of time after graduation. Currently employed graduates do not seem to fare much better. On average, they have spent two years and two months in employment. More than half (53%) have experienced at least one spell of unemployment, having taken on average eight months to find their first job after graduating from HEI and seven months to find their current job. These data reveal that the transition from higher education to the labour market is far from being a smooth process for many graduates.

In this section we explore the challenges facing both graduates and employers in the labour market. We begin by exploring the relations between HEIs and employers and emphasising the need for improved cooperation between them. In subsection 4.2 we examine the challenges facing graduates in the labour market including the lack of formal job-search assistance available. In subsection 4.3 we address the problem that employers face in taking on new graduate recruits including employers' dissatisfaction with the skills of new graduate recruits, the gaps they experience in graduates' skills, and their need to provide additional training to fill these gaps.

4.1 Limited cooperation between HEIs and employers

A major challenge facing HEIs is to develop cooperative relations with employers. Such cooperation is needed for the development of curricula, for placing students in companies for internships, for finding jobs for graduates, and for improving HEI career guidance. This issue is problematic in many countries including in the EU, where many countries are making efforts to improve university business cooperation. The most common forms of cooperation are in curriculum design, development and delivery; course development; exchange and mobility programmes; continuing education and lifelong learning; and entrepreneurial education (Healy, et al., 2012: 21).

In order to gauge the level of cooperation between HEIs and employers in BiH, the employer survey asked employers to indicate how frequently they discussed changes in study programmes with HEI representatives. The responses indicate that few companies discuss these issues with HEIs: almost one half of employers (46%) responded "never", a

similar proportion responded “rarely”, while less than one tenth (8%) responded “often”. When asked how frequently they cooperate with a HEI in the recruitment of graduates, almost two thirds (62%) responded “not at all”, or “a little”. These answers suggest that there is little cooperation between enterprises and HEIs.

However, when asked how much effect does cooperation over study programmes have on increasing the matching of HE graduates with their jobs; 47% responded “very much” or “a lot”, or “somewhat”, while in relation to cooperation over recruitment, 54% answered in the same way. This suggests that while employers believe that such cooperation would improve the outcome of the recruitment process, there are obstacles on both sides (i.e. both HEIs and employers) to taking cooperative action. This is a classical public policy problem, where private actors on their own are unable to achieve mutual benefit and a more efficient social outcome. There is therefore a strong case for the government to play the role of independent catalyst to support the development of cooperative relations to the benefit of both HEIs and employers.

In the EU, cooperation between employers and HEIs is fairly common. Employers participate in decision making or consultative bodies within HEIs in 22 countries, are actively involved in curriculum development in 19 countries and frequently participate in teaching in 15 countries (Eurydice, 2014: 67). Employer cooperation with HEIs is often facilitated through government support for university-business cooperation projects. Such cooperation projects could be a useful means for HEIs in BiH to contribute to the labour market success of the HEI graduates. There are already some examples of cooperation projects such as at the Visoka škola “Logos” in Mostar, and the University of Mostar’s Faculties of Economics, Medicine and Electro-engineering that can be drawn upon as good practice examples.

4.2 Challenges facing graduates on entering the labour market

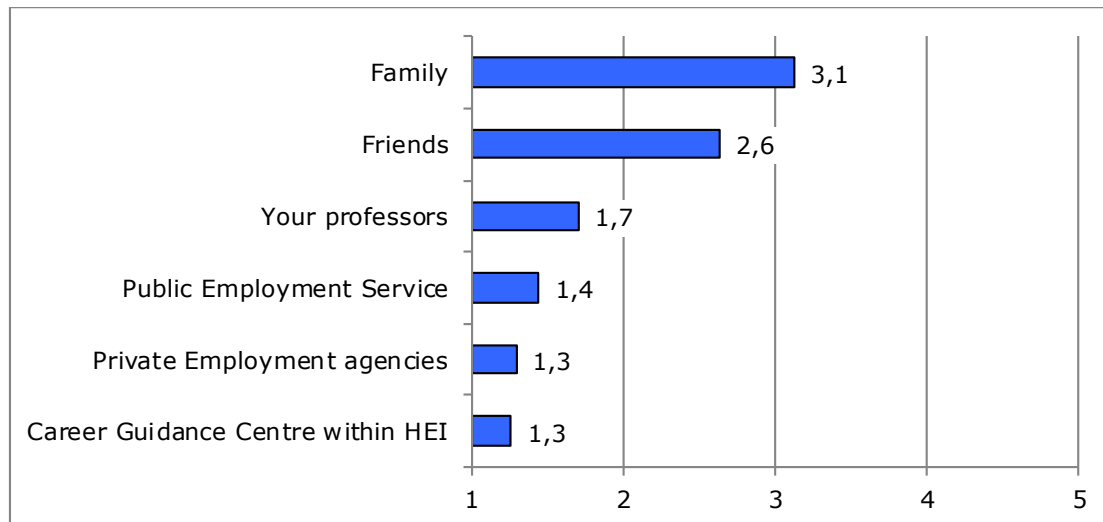
A key challenge facing graduates on entry to the labour market is the relative lack of assistance from the formal institutions such as career guidance services within HEIs and the public employment services (PES) outside HEIs. Due to this, graduates need to rely heavily on friends and family to find a suitable job, giving rise to charges of nepotism and corruption in the labour market. Another key challenge is the lack of work experience that many graduates have when they enter the labour market, which limits their job prospects. In this section we address these issues in turn. The findings reported in this section are largely based on the project’s graduate survey, which had 774 respondents in BiH.

4.2.1 Lack of assistance in finding a job

In a context of low demand for HE graduates in the private sector, the public sector has been a major provider of employment opportunities. Yet, employment in the public sector is affected by a lack of transparency over the recruitment process, which contributes to unfair competition on the labour market. Graduates can, in theory, rely on a transparent and level playing field by seeking employment through the PES of their respective entity or canton. However, the graduate survey shows that 88% of graduates receive “none” or only “a little” help from PES and that 93% of graduates receive “none” or only “a little” help from career guidance centres within HEIs. Since 2009, PES have tried to improve matters by implementing active labour market measures to co-finance employment and self-employment of young people without work experience and to support internship training of HE graduates. The highly decentralised administration in FBiH limits the services PES are able to provide in that entity. Some graduates turn to private

employment agencies, indicating the shortcomings of the PES, but these are often even less effective.

Figure 10: Help to find a job after graduation from alternative sources



Source: Graduate survey. Note: Responses are scored on a scale of 1-5, where 1="no assistance" and 5="very much assistance".

The graduate survey shows that family and friends provide the most important assistance to HE graduates in finding a job (see Figure 10). This reflects the commonly held view that nepotism plays an important role in graduate success on the labour market and that graduates who are less well connected have lower chances of finding a job, especially in the public sector. Career guidance is still underdeveloped in BiH.⁵² More effort should therefore be made to ensure that all graduates have full information about available jobs. Support should be provided on an equal basis for all job seekers so that they are hired on merit, irrespective of their connections or family ties. It is also important that secondary school graduates receive support in making informed choices about entry into HE study programmes, while the career guidance at HEIs should provide more support to students in their jobs application. Unfortunately, HEIs currently have little interest or incentive to ensure that their graduates succeed in finding a job. Private HEIs are more proactive than public HEIs in this respect and many use their own statistics on graduate employment in promotional literature.⁵³ To improve the situation, FBiH recently adopted the "Strategic Directions of Career Guidance in Federation of BiH 2015-2020".

Box 3: Good practice example – early intervention at secondary school level by the Employment Bureau in Mostar

The Employment Bureau in Mostar is one of the rare institutions in FBiH to initiate an orientation programme for secondary school students in their final year. The orientation aims to guide students into choosing a field of study that will give them good prospects for employment in the future. The programme is constantly evolving, as it is currently being developed via a trial and error (ad hoc) approach. In 2011, the

⁵² In almost all countries of the EU, career guidance is available in HEIs throughout the whole student lifecycle. It is typically open to all students and responds to individual demands (Eurydice, 2014).

⁵³ However, graduates from private HEIs report significantly more difficulty in finding a job due to the reputation of the institution they attended than do graduates from public HEIs ($p < 0.01$). This perception is influenced by the long tradition of public HEIs, their better infrastructure, and their more comprehensive coverage of subjects.

Employment Bureau engaged in school visits, an activity that soon turned out to be very time-consuming. In 2013, it began inviting both children and parents to workshops. It was noted that parents are an important part of this activity, as often their wish for their children to engage in a particular field of study does not take into account labour market needs. It was also noted that working directly with students and their parents instead of through the school system proved to be more effective (Branković N. et al., 2013).

4.2.2 Lack of prior work experience

The limited possibilities that students have to engage in internships or relevant work experience during their studies hinders their job search.⁵⁴ The graduate survey shows that 30% of HE graduates had no work experience during their period of studies and 34% gained only “a little” work experience. Employers frequently complain about the skills of HE graduates, emphasising their lack of work experience, practical knowledge and even lack of motivation to find a job.⁵⁵ The employer survey shows that 27% of employers attach “a lot” or “very much” importance to previous work experience when making a decision to recruit a new graduate. This is a persistent challenge that cannot be easily addressed, since relatively few private firms are able or willing to offer internships that would provide relevant work experience. Having some work experience is important for HE graduates’ labour market outcomes in BiH. The graduate survey shows that 63% of respondents who had “a lot” of work experience held a job, compared to 50% of those without work experience ($p < 0.05$).⁵⁶ Work experience also supports the matching of qualifications to the job: while 80% of those who have “very much” work experience (or internship) hold a job that is well matched to their field of study (horizontal matching), only 52% of those with no work experience hold a well-matched job ($p < 0.05$).⁵⁷

Beyond work experience, employers have difficulty understanding the new system of degree recognition under the Bologna process. A more pro-active approach by the Centre for Information and Recognition of Qualifications in Higher Education could improve awareness about the new system of qualifications, as well as the finalisation of an appropriate Qualifications Framework of Bosnia and Herzegovina. HE graduates also experience a variety of obstacles to mobility across entities. For example, they can be obliged to pass new exams in order to take up a job in an entity different from the one where they have studied.⁵⁸ Geographical discrimination is therefore a political matter that harms labour mobility and job matching.

4.3 Employers’ challenges in taking on new graduates

Employers face several challenges in taking on new graduate recruits, including the inadequate skills of graduates and the training costs that are incurred as a consequence. Altogether, employers’ perspective of the quality of HE graduates and perception of skill gaps points to the rather low quality of higher education in BiH.⁵⁹ The findings reported in this section are largely based on the project’s employer survey, which had 153 respondents.

⁵⁴ Several European comparative studies have shown that students who participated in practical training before graduation are more likely to find jobs than those without relevant work experience (Eurydice, 2014: 69).

⁵⁵ Interviews, PES, 2015.

⁵⁶ Chi-square=15.6, $p=0.049$, $N=640$.

⁵⁷ Chi-square=13.3, $p=0.010$, $N=364$.

⁵⁸ Interviews, EU Delegation and Association of Employers, 2015.

⁵⁹ A recent World Bank report noted that: “The quality of instruction at public universities is below par due to a general lack of qualified professors in BH,” World Bank (2009: 29).

4.3.1 Dissatisfaction with skills of new graduates

The employer survey shows that employers on average score their satisfaction with the skills of their graduate employees at just 6.0 out of 10 (the maximum degree of satisfaction). Employers in the public sector and foreign private employers tend to be significantly more satisfied with the skills of their new graduate recruits than domestic employers, perhaps suggesting that the better graduates seek jobs with the former employers.⁶⁰ Employers in public administration and education sectors also show higher satisfaction with the skills of new recruits than employers in other sectors.⁶¹ However, the employer survey shows that over two thirds of employers (69%) believe that graduate employees bring “none”, only “a little” or just “some” added value in comparison with the skills of non-graduate employees. This finding underpins the view that it is too costly to continue to produce graduates with no or little added value compared to graduates from secondary education.

Many employers are of the opinion that graduates lack interactive skills: they are poor in planning and organisational skills, scoring just 3.28 (on a scale of 1 to 5, where 1 = no skill, and 5 = very much skill in the relevant dimension), and in foreign language skills (3.22) and decision making skills (3.18). Even the skill that scores best (sector-specific skills) scores only 3.63 on the scale. There are no significant differences in employers’ perceptions of graduates’ skills on the basis of employer size or technology level, suggesting that the generally low degree of satisfaction is found across the board and is a general phenomenon, rather than being restricted to one or other type of employer.

4.3.2 Graduate skill gaps

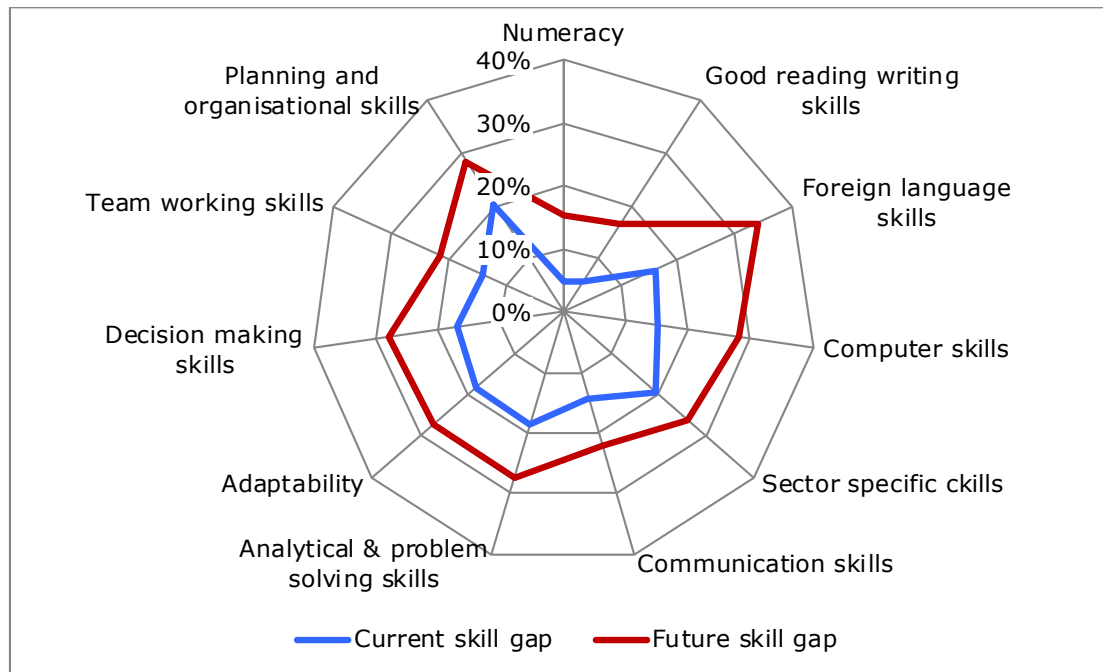
Even if they have studied the subjects that provide them with skills that are in high demand, HE graduates often lack the associated practical and interactive skills or competencies that employers expect, which entails a need for further training, as shown in the previous section. The curricula of many study programmes often fail to reflect the combination of skills that employers seek. It is also thought that HEIs equip students mainly with theoretical knowledge and that graduates lack both general and specific skills.

This study has examined graduate skill gaps through the employer survey, which measured cognitive and interactive skill gaps by asking employers about (i) the actual skills of their graduate employees along a range of skill dimensions and (ii) the level of skills they consider necessary to carry out the job. The difference between these two measures is the estimated skill gap. Reducing the skill gaps of graduates would increase their employability.

⁶⁰ The difference in means is significant at the 10% level.

⁶¹ The score for level of satisfaction with skills of new HE graduate recruits is 8.0 in both of these sectors.

Figure 11: Graduate skill gaps – current and future (%)



Source: Employer survey. Note: skill gaps are measured as the difference between actual and desired skills reported by employers, with the underlying scale of skill measurement set at 1 where the respective skill is not important and 5 where it is very important for the performance of the business.

Figure 11 shows graduate skill gaps as reported by employers. The data shows relatively high skill gaps in interactive skills/competencies such as planning and organisational skills, decision-making skills, analytical skills and adaptability. Among cognitive skills, there is a noticeably large gap in sector specific skills. All these type of skill gaps are expected to increase in the future (i.e. over the three years following the time of the survey up to 2018). The greatest expected increase in skill gaps is expected in foreign language skills. All this points to deficiencies in the quality of education, especially in relation to teaching interactive skills to HE graduates.

Teaching at HEIs often fails to provide the specific skills expected by employers. The out-dated teaching system also partly explains the large gaps in interactive skills. The importance of rote learning, and the low interaction in the classroom between the lecturer and the students, hinders their adaptability and the development of their professional skills. As put by an employer representative:

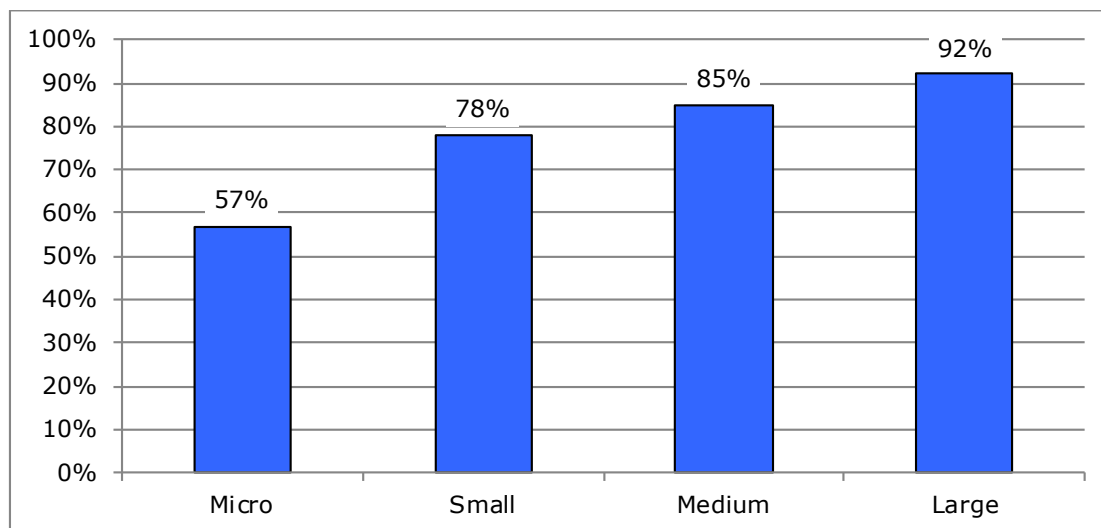
“The graduates generally lack in innovation, our formal education system is based mostly on theory and we are very good at this. However, the education right from the beginning in primary schools lacks in creativity, innovation and practical experience.” (Interview, Chamber of Commerce, 2015).

In this perspective it is worrying that HEIs and the entire education system do not equip their students with sufficient interactive skills, where the skills gaps are biggest. This is terribly important to remedy as future jobs are expected to involve precisely more non-routine, interactive skills (World Bank, 2015).

4.3.3 Training of new graduate employees

Employers throughout all key sectors complain that graduates need further training in order to perform tasks that should have been taught during studies. According to a report by the Agency for Employment of Bosnia and Herzegovina (2013), some 30% of employers have difficulties in finding appropriate workers for certain positions. In the private sector, this figure rises to 60%. In total, 44% of employers report a lack of practical experience as the major problem in finding adequate workers, followed by a lack of potential employees' interest in positions offered (16%) and dissatisfaction with remuneration offered (12%). A large proportion of employers report an interest in training their employees within the working environment (44%) or in supporting prequalification and additional qualification of their employees in some form of industry-based training centre (30%).

Figure 12: Formal training provided by employers by employment size group



Source: Employer survey. Note: differences are statistically significant at 5% level.

The employer survey shows that more than one quarter of employers attach “a lot” or “very much” importance to having previous work experience when making a decision to recruit a new graduate. The reason for this is that graduates with previous work experience are likely to have more relevant skills than those recruited straight from HEI. This conclusion is supported by the finding that 77% of employers provide formal training to their graduate employees, and 81% provide informal training. This is a similar proportion to that found in a previous study (World Bank, 2009).

The need that employers have to provide training to their graduate employees is related to the size of the employer. Large employers are significantly more likely than smaller employers to provide training to their graduate recruits, demonstrating not only the greater resources that such employers have but also the need for additional training beyond the education received at HEI. It is also notable that more than half of all micro enterprises employing HE graduates provided formal training (see Figure 12). Employers in high or medium high technology sectors are also significantly more likely to provide informal training to their graduate employees than employers with lower levels of technology. Over four fifths (82%) of employers in the former category provide formal and informal training, compared to two thirds (65%) of employers in the latter category. This suggests the importance of well-developed skills for high technology firms, and the need for such firms to provide additional training for new graduates.

4.4 Summary

The research reported above shows that both graduates and their employers have a difficult time in managing the transition from HEI to work. The main reasons for graduates having difficulty in finding a job include firstly the lack of available jobs and a higher education system that does not equip its graduates with relevant skills. The lack of cooperation between HEIs and employers over recruitment, the lack of formal career guidance services to support effective job search, lack of work experience, nepotism (especially in the public sector), and the poor perception of the quality of skills taught at private HEIs add to the problem. The low level of cooperation between HEIs and employers makes all of these factors worse than they need be. On the employer side, dissatisfaction with the skills of new graduate recruits and the need to provide additional training are factors that inhibit employers from taking on new graduates. The significant gaps in interactive skills (which are essential in high skill jobs) can be imparted to out-dated teaching methods.

5 Skill mismatch

Skill mismatch⁶² is widespread in market economies (McGuinness, 2006).⁶³ Skill mismatch is important for the economy as a whole as well as for the individuals concerned, since there is strong evidence that there is an inverse relationship between skill mismatch and productivity levels at the country level (McGowan and Andrews, 2015a). Thus, countries with a higher level of skill mismatch are expected to have a lower level of productivity and growth than countries with a lower level of skill mismatch, other factors being equal.

Skill mismatch has two dimensions. Horizontal skill mismatch refers to a situation in which an employee has a qualification in a field of study that is not required by the job held. Vertical skill mismatch refers to a situation in which an employee has a qualification either above or below the skill level necessary to carry out the job.

5.1 Horizontal mismatch

The graduate survey shows that 64% of graduates are in a job that is well matched to their field of study. Graduates with vocational diplomas and specialist diplomas are the best matched; 77% of the former and 80% of the latter report that their field of study is appropriate for the job held. Horizontal mismatching is partly at least a direct result of the huge number of graduates in study fields that are not needed in labour market.

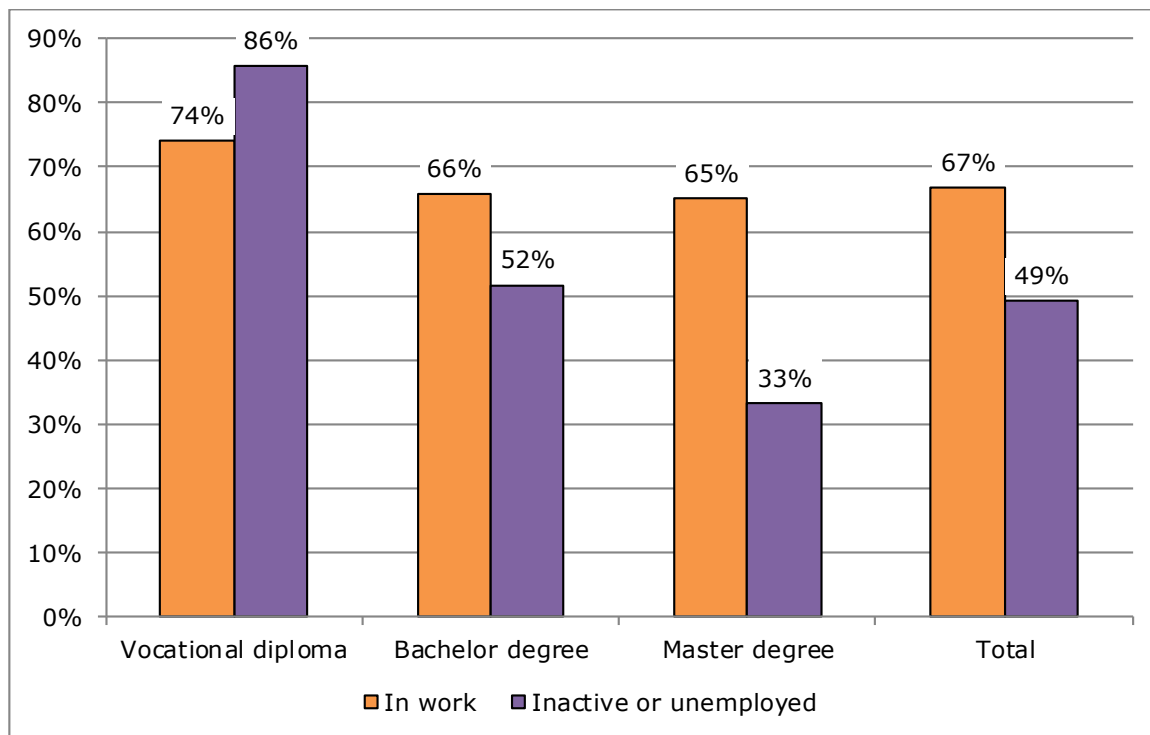
The extent to which graduates achieve horizontal matching is related to their labour force status and their degree level (see Figure 13). Only 49% of currently unemployed or inactive graduates were well matched in their previous job compared to 67% of currently employed graduates. Among Master degree holders the effect is even stronger. This

⁶² It should be noted that much of the discussion of skill mismatch is really framed within the context of "qualification mismatch". However, the term "skill mismatch" is commonly used throughout the literature, where "qualifications" is taken as a proxy for "skills". The OECD has recently begun to carry out skill surveys that get around this problem. In our graduate survey, for vertical mismatch we ask whether the qualifications of the graduate match the skills needed by the job, in order to pin down the "skill" aspect of the issue.

⁶³ Skill mismatch has two dimensions. Horizontal skill mismatch refers to a situation in which an employee has a qualification in a field of study that is not required by the job held. Vertical skill mismatch refers to a situation in which an employee has qualification either above or below the skill level necessary to carry out the job.

suggests that having a well-matched job is important for job retention, and that horizontal mismatch is a key risk factor in pushing new graduates into unemployment or inactivity. It is also notable that graduates with vocational diplomas oriented towards practical skills and labour market relevance achieve a better matching with their job than graduates with higher, but more “academic” qualifications.

Figure 13: Graduates with a horizontally well-matched job by degree level and labour force status (% within highest degree level)



Source: Graduate survey. Note: for unemployed respondents, matching refers to last job held.

A graduate’s success in finding a horizontally well-matched job has implications for the earnings that can be achieved. On average, graduates in horizontally well-matched jobs earn €576 per month compared to €457 for those in a job that is not well matched to their study programme at HEI.⁶⁴ In so far as earnings reflect productivity, this implies that horizontal matching is also important for business productivity and the competitiveness and growth of the economy.

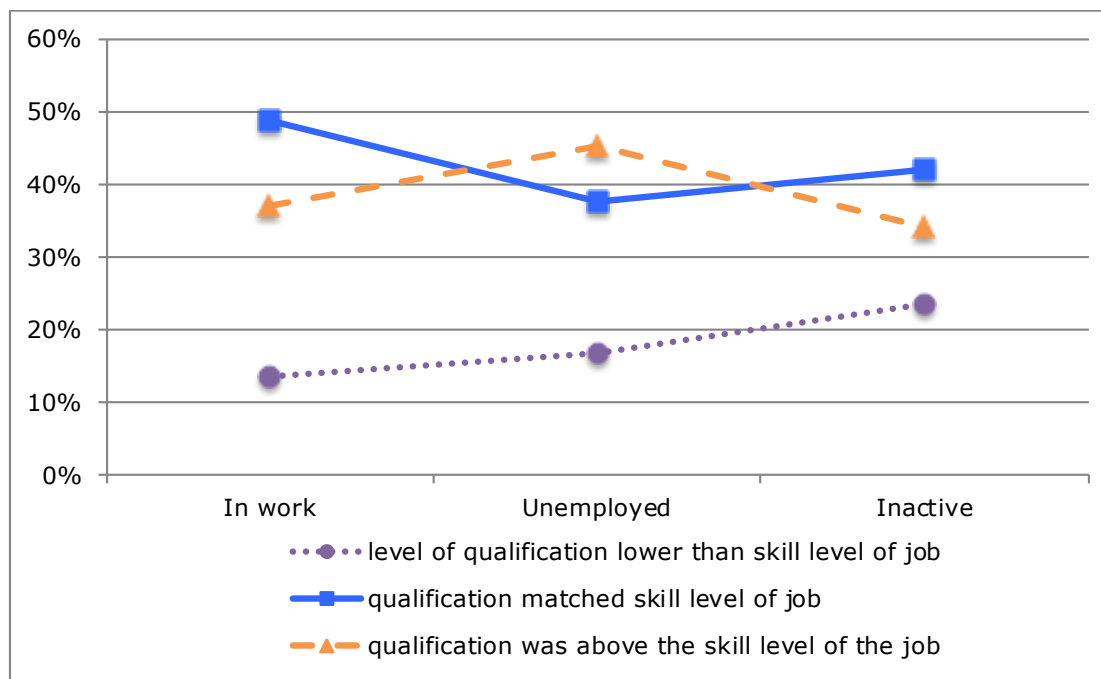
5.2 Vertical mismatch

The graduate survey shows that there is a high degree of vertical mismatch, with 53% of HE graduates reporting that their level of qualification is not matched to the skill requirements of the job they hold. This is far greater than the level of skill mismatch observed in the EU where according to the OECD Survey of Adult Skills the highest level of mismatch is in Italy at around 34% (McGowan and Andrews, 2015b). In BiH, 38% of graduates are over-qualified for the job they hold (or did hold if currently unemployed or inactive) and a further 15% is under-qualified, implying a lack of meritocratic hiring practices. Less than half (47%) of recent graduates hold a vertically well-matched job.

⁶⁴ The difference in mean earnings is significant at the 5% level ($F=4.42$, $p=0.036$, $N=282$). Median earnings are €500 in well-matched jobs compared to €400 in other jobs.

Having a well-matched job has implications for earnings. The graduate survey shows that graduates who are well matched have higher initial earnings than those who are mismatched, with median monthly earnings of €350, compared to €300 for both over-qualified and under-qualified graduates. The differences persist, but narrow somewhat, as graduates sort themselves into better-matched subsequent jobs. For the current job, well-matched graduates have median monthly earnings of €468, compared to €450 for over-qualified graduates and €385 for under-qualified graduates.⁶⁵ The initial difference in earnings may be a measure of the productivity gap between well-matched and poorly matched graduates, and therefore of the potential gain from ensuring that the matching process works more efficiently for HE graduates.

Figure 14: Vertical matching by labour force status (% within labour force status)



Source: Graduate survey. Note: differences between public and private HEIs are significant at 5% level; N=311.

Figure 14 shows that graduates who perceive that they are well matched by level of qualification are more likely to be in work than to be unemployed or inactive. Graduates who are overqualified are more likely to be unemployed than either employed or inactive. Graduates who are under-qualified are more likely to be inactive or unemployed than in employment. This implies that having a well-matched job is important for job retention, since a substantial number of those whose first job is mismatched subsequently become unemployed or fall into inactivity.

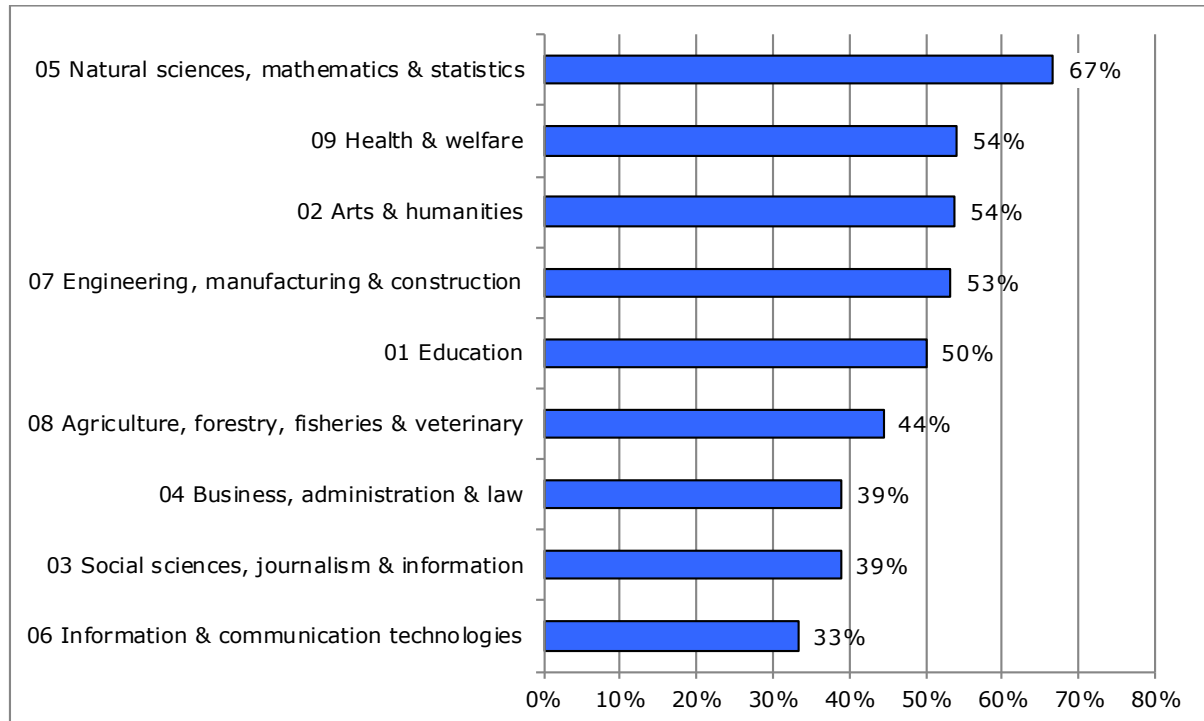
Various other factors have a significant influence over whether a graduate finds a well-matched job. The students who were budget funded at HEI have a significantly higher chance of finding a well-matched job than non-budget funded students ($p < 0.05$).⁶⁶ This is to be expected, since in conditions of an oversupply of recent graduates, employers can pick the most suitable candidate and they will probably select the brightest students

⁶⁵ Other studies of skill mismatch in transition countries also find a wage penalty associated with over-qualification, see e.g. Lamo and Messina (2010).

⁶⁶ The graduate survey shows that 52% of graduates who had been budget funded had a well-matched job, compared to 42% of graduates who had not been budget funded.

with the best results, although nepotism sometimes interferes with this logical selection process. Graduates who attended public HEIs are more likely to be well matched than graduates from private HEIs. Graduates from private HEIs have a higher risk of being over-qualified for their job ($p < 0.05$).⁶⁷

Figure 15: Proportion of vertically well-matched graduates by field of study



Source: Graduate survey.

Success in finding a vertically matched job is more likely for graduates who have qualified in some fields of study than in others. The degree of matching varies by field of study (see Figure 15). Graduates who studied *Natural Sciences, Mathematics & Statistics* subjects are more likely than others to find a vertically well-matched job, while graduates from *Social Science, Journalism & Information* and *ICT* fields of study are less likely to be well matched.

Teaching methods also have a significant influence on whether a graduate ends up in a well-matched job. More than half (54%) of graduates who reported that teaching involving problem solving and creative thinking are very useful for learning outcomes had a well-matched job, while only 29% of graduates who report that such methods are not useful had a well-matched job ($p < 0.05$).⁶⁸ Also, learning decision-making skills contributes strongly to achieving a well-matched job ($p < 0.1$)⁶⁹ as does learning computer skills ($p < 0.1$).⁷⁰ This may indicate that graduates with these skills are favoured by employers and have greater success in their job search than graduates who learn more traditional cognitive skills at their HEI.

⁶⁷ 57% of graduates who attended private HEIs were overqualified for their job, compared to 36% of those from a public HEI (Chi-square=6.00; $p = 0.05$; $N = 396$).

⁶⁸ Pearson Chi-square = 16.0; significance level = 0.043; $N = 309$.

⁶⁹ 52% of those with very good decision-making skills have a well matched job compared to just 24% with no computer skills (Chi-square=13.79; $p = 0.088$; $N = 391$).

⁷⁰ 41% of those with very good computer skills have a well matched job compared to just 32% with no computer skills (Chi-square=14.44; $p = 0.071$; $N = 390$).

The nature of the skills learned at HEI also affects success in finding a well-matched job. While over half (54%) of those who report that they mainly learned subject specific skills had a well-matched job, only one third (33%) of those who report they did not learn any subject specific skills had a well-matched job ($p < 0.05$).⁷¹ A similar finding relates to the use of internships or work placement in securing a well-matched job. While 64% of those who report that these were very useful for learning outcomes have a well-matched job, only 33% of those who report these methods are not at all useful have a well-matched job ($p < 0.05$).⁷² This indicates the usefulness of vocational education in achieving a good match on the labour market.

The assistance provided by the HEI in finding a job has a strong effect on the degree of vertical matching. While 62% of those who report that their HEI provided “very much” assistance in finding a job had a well-matched job, only 38% of those who report that their HEI provided no assistance in finding a job had a well-matched job ($p < 0.01$).⁷³ This reinforces the case for strengthening assistance by HEI career centres (see section 4.2.1.)

The economic situation experienced by graduates has a strong influence on their job match success. 60% of those who report that they experienced “no difficulty” in finding a job on account of the economic situation have a well-matched job, while only 39% of graduates who experienced “very much” difficulty in finding a job on account of the economic situation have a well-matched job. This supports the proposition that graduates who are in poor economic circumstances or who live in a part of the country that has been badly affected by economic recession are willing to take a job that is below their level of qualification, probably just to survive until a better job comes along in the future. Given the lack of mobility in BiH, this finding could reflect a geographic difference, as some regions have been harder hit by the recession than others. In recession-hit regions it may be expected that graduates would be disappointed with the jobs they find and that they are likely to be employed in a job that is below their level of qualification.

6 Conclusions and policy recommendations

The research reported above shows that the HE system in BiH produces too many graduates relative to the needs of the labour market, leading to a high graduate unemployment rate. Many students drop out of studies leading to a low completion rate. Of those students who do graduate many face the prospect of unemployment. Of those who do find a job, many are in jobs that are not matched to their field of study or their level of qualification, reducing their wages and job prospects in relation to graduates in well-matched jobs. With an overall completion ratio of 48%, an employment rate of recent graduates of 50% and a rate of (vertically) well-matched graduates of 47%, it could be said that the internal efficiency of the combined HE and labour market systems (the HELM system) is extremely low, at just 11%⁷⁴. In other words, of every hundred new students entering the system in any one year, it can be expected that only eleven will eventually graduate from the system and find a well-matched job. In order for HE system to make a better contribution to building human capital and to the competitiveness and growth of the BiH economy, significant reforms of the HE system

⁷¹ Pearson Chi-square = 16.44, $p = 0.036$, $N = 394$.

⁷² Pearson Chi-square = 18.9; significance level = 0.015; $N = 305$.

⁷³ Pearson Chi-square = 22.9; significance level = 0.003; $N = 391$.

⁷⁴ The efficiency of the HE-LM system can be assessed as the product of these three ratios: $0.48 \times 0.50 \times 0.47 = 0.11$.

and the graduate labour market are needed, and better cooperation between employers and HEIs should be encouraged.

6.1 The provision of higher education

The number of HEIs has increased over the last two decades in response to an increase in student demand especially in the 2000s as the economy recovered and new graduate level jobs were being created. There are now 47 HEIs in BiH, of which 10 are public and 37 are private HEIs. The country has 1.2 HEIs per 100,000 of the population, about the same as the regional average of 1.3. Every year around 35,000 students enrol in first cycle studies at 18 accredited HEIs and 29 non-accredited HEIs. In the 2013-14 academic year, 42% of students enrolled in Humanities, Social Science, Business, and Law (HSS) subjects, while 28% enrolled in Science, Technology, Engineering and Mathematics (STEM) subjects. About 16,000- 18,000 complete their studies each year. The annual ratio of completions to enrolments is relatively low, averaging just 48%. Possible explanations for this poor performance of the HE system include the tradition of re-taking examinations and the high dropout rate of students. Corruption over admissions and examinations may also affect enrolment and completion rates. Institutions at various levels of governance are responsible for HE accreditation; not all HEIs have yet been fully accredited. Quality standards vary due to the lack of comprehensive coverage of accreditation (some cantons do not have education legislation). Graduates who studied at private HEI are more satisfied with the quality of the education they received than graduates who studied at public HEIs. More than two thirds of graduate respondents consider that better teaching methods would have significantly improved their job prospects after graduation. Teaching methods continue to rely on rote learning and out-dated curricula, and there is a lack of practice-oriented education.

6.2 The graduate labour market

While HE graduates have lower unemployment rates and higher employment rates than less educated people, in 2015 recent HE graduates had a higher unemployment rate (39%) than the national average (28%). Overall, graduate unemployment rates are around three times higher than in the EU-28 (see Table 6 above). Graduates are disproportionately employed in the economic sectors of *Education, Public Administration and Health & Welfare*, and are under-represented in the *Manufacturing* sector. However, the number of graduates employed in *Manufacturing* has been increasing rapidly as the economy recovers from economic recession. On the labour market, there is a large oversupply of graduates from the broad study fields of *Social Science, Journalism & Information and Health & Welfare*. If future industrial policy succeeds in developing high technology and knowledge intensive industries, the demand for graduates in the *Business, Administration & Law* and in *Information & Communication Technologies* is expected to increase, but the broad pattern of oversupply in the fields of study listed above will not change much. Small and medium sized employers have a more intensive demand for graduates than larger firms, and these can be expected to make a key contribution to growth and competitiveness in the future. While current labour market policies are focused on reducing the cost of labour to employers and on eliminating rigidities in the hiring and firing process, graduate labour market policy should not neglect the need to support the creation of additional high-skilled high-wage jobs in growth sectors such as *Manufacturing and Information & Communication* sectors.

6.3 Transition from higher education to the labour market

HE graduates face many difficulties in making a successful transition to the labour market, not least of which is the low demand for skilled labour reflected in an oversupply of graduates. This gives rise to an intense competition for jobs and a willingness of many graduates to take a job that has a lower skill content than is warranted by their level of education. This is not helped by a relatively low level of cooperation between HEIs and employers, in relation to both curriculum reform and recruitment. Employers feel that greater cooperation would be beneficial in enabling them to hire graduates with appropriate skills that are better matched to the requirements of the jobs on offer. This suggests a role for public policy to support improved cooperation between HEIs and employers in order to ease graduates' transition to the labour market. Graduates rely heavily on their friends or family to assist in their job search, a factor that promotes clientelism and nepotism in graduate recruitment. In a competitive market, employers often prefer graduates with work experience, which handicaps graduates who have not had any work experience during their studies. The graduate survey shows that 30% of graduates received no work experience during their period of studies and 34% received only "a little" work experience. Government initiatives to introduce internships in the final year of study have largely failed due to lack of interest from private employers who have been reluctant to offer internships to final year students. Employers are relatively dissatisfied with the skills of HE graduates, and they identify large skill gaps among their graduate recruits especially in relation to interactive skills, which are neglected at most HEIs where teaching methods emphasise rote learning and neglect modern student centred approaches. In response to these skill gaps many employers provide additional training to their graduate recruits.

6.4 Skill mismatches

Among graduates that do find a job, many have a job that is not well matched to their field of study (64% of graduates) or level of qualification (53% of graduates). Being in a well-matched job (either horizontally or vertically) is important for job retention. A variety of factors predispose a graduate to finding a job that is well matched to the level of qualification, including being a budget funded student, following study programmes in which problem solving and creative thinking teaching methods were used intensively, attending a private HEI, having had an internship or a work placement, following a study programme that teaches sector specific vocational skills, and receiving assistance to find a job from the HEI. The field of study is also an influential factor, with the highest degree of mismatch (over-qualification) among graduates who studied *Social Science, Journalism & Information*. At the same time, many graduates encountered difficulty finding a well-matched job due to the poor economic situation.

6.5 Policy recommendations

As the conclusions set out above demonstrate, action is needed both on the part of HEIs and on the part of employers, government and public employment services to produce a more effective outcome for graduate job seekers. Governments at all levels have an important role to play in ensuring that necessary changes are properly supported. This is in line with the OECD skills strategy, which proposes that skills strategies should not only focus on improving the supply of skills through education and training systems, but also on stimulating the demand for high skills in the market and their utilization in the workplace (OECD, 2012; Valiente, 2015). The research findings reported above suggest a range of policy measures that should be implemented to improve the prospects for

graduates when they enter the labour market. The recommendations are presented in order of priority.

Higher education

1. **The quality of education in HEIs in Bosnia and Herzegovina should be improved.** Curricula should be modernised, and teaching methods should be reformed to promote a student-centred approach and more interactive learning. Applied knowledge and critical thinking skills should be the core focus of teaching, rather than memorisation of material from textbooks. The ministries of education should organise training sessions on innovative and interactive teaching methods. Professors should be encouraged to use more case studies, role-play examples and simulations in their teaching. A greater focus on practical training is needed, such as the introduction of a period of internship, which could be arranged in consultation with local employers. A national programme to financially support HEIs in recruiting international staff could be considered.
2. Ministries of education should adopt a strong and clear stance on graduate employability through a stricter enrolment policy, **using scholarships to encourage enrolment in fields of study that are likely to be in deficient supply in the future.** The number of scholarships should be increased for students in these fields of study, and decreased study fields in which there is an oversupply of graduates, following the practice in Republika Srpska. HEIs should provide more information to potential applicants on the likely labour market demand for various study programmes. This could be done through outreach programmes to local schools in partnership with public educational guidance services, as is currently performed through an existing Republika Srpska scheme.
3. Steps should be taken to **improve the completion rates** of students who enrol in study programmes by limiting repeat examinations and reducing drop out. Provision of scholarships should be conditional on completing studies on time. Students who fail to complete their course work on time should be given additional support and remedial classes. Students who successfully complete their study programme within a given year could be given a partial discount on their tuition fee for the subsequent academic year to motivate on-time completion. This could be subsidised by the government. HEIs should publish the completion rates of their students, not only for degree courses, but also for individual exams and modules. This information should be used to attract students and as a basis for funding decisions by the responsible institutions of the state.
4. **Improvements to the quality assurance system** are needed to enable the scrutiny of professors' work based on student evaluations. Professors whose quality of teaching is judged unsatisfactory through student and peer assessment should be required to attend specialised refresher courses on teaching methods. Publishing of assessment scores as public information could potentially create incentives for professors to achieve better results in teaching, working with students, and in research and publications. In this regard, a greater effort should also be made to attract experts educated abroad into BiH academia. The government should promote the internationalisation of HEIs with some financial rewards for acquiring international accreditations. External peer-reviews should be conducted for both public and private HEIs, thus ensuring equal treatment. Institutions should be assessed according to the quality of their teaching and the ranked scores should be published.

5. In order to **stem widespread corruption** at HEIs, policy-making institutions should strengthen inspections, introduce internal monitoring of compliance with assessment and grading regulations, including monitoring of exams held by teachers, and expanding the power of ethics committees. A protocol should be introduced through which professors' engagement at multiple institutions can be monitored and controlled. HEIs should make more transparent the criteria used for indexing publications, selecting and promoting teaching staff. The validity of student examinations should be controlled by rules enforced by an independent body.
6. HEIs should **provide better information and career guidance** to students to assist them in finding a well-matched job. Graduated students should have continued access to the HEI career guidance services for up to one year after graduation. Systems for tracing students after graduation should be strengthened where they exist already, and established at other HEIs. Tracer studies would provide information on the success rate of graduates in finding a job.

Labour market

1. A **renewed industrial policy** is needed to link foreign investors to suppliers such as domestic SMEs that employ graduates (especially in the *Manufacturing* and *ICT* sector). This might generate an increased demand for skilled labour, stimulate prospective students to choose subjects in high demand, and support the high-level skills that will be required to underpin future competitiveness and growth. Simultaneously, a broader policy framework for the promotion of greater levels of R&D expenditure by firms in BiH, which in itself might generate a greater level of demand for HE graduates, is needed in order to encourage growth and investment.
2. **More direct cooperation between employers and HEIs** is needed, for information-sharing and active participation in the relevant councils of the HEIs over curriculum design and recruitment issues. The relevant levels of government (Entity, Canton) should set up a framework for cooperation between HEIs and employers over curricula and recruitment. HEIs could offer an internship semester in collaboration with local employers, which might improve the matching of HE graduates to appropriate jobs. Employers and their representatives such as Chambers of Commerce should identify skill shortages in the labour market and publicise these to HEIs and to potential students about to embark upon HE studies. Employers could receive incentives to provide on-site training to HE students, with both HEIs and employers providing a quality assurance system. This would reinforce the trust that employers have in the HE system and motivate HEIs to be more responsive to the labour market. If HEIs are willing to institute placement schemes or set internship requirements as part of their degrees, a sufficient number of employers will need to be willing to offer such placements, and government subsidies and support would incentivise this. Sector skills councils, bringing together HEIs and employers, should be established. This should be done within the context of a broader government strategy to encourage improved university-business collaboration.
3. **Graduate entrepreneurship should be encouraged** through a government-sponsored Start-up Fund that would be used to support the creation of new enterprises by HE graduates with adequate training and mentoring support. This could also be directed towards fast-growth high-technology employers.

- 4. The effectiveness of public employment services could be improved** through better organisation and more information about services offered. Active labour market policies (e.g. training activities) should be better focused on recent graduates. Government should fund graduate training schemes at knowledge-intensive SMEs, which lack resources to fund such schemes. Medium-sized employers may be a priority target group among this type of employer, since the prospects for growth of graduate employees among this group seem particularly favourable.

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Annex – Methodological note

1. Higher education provision database

We collected data on existing study programmes in Bosnia and Herzegovina offered by both public and private HEIs. Records concerning the number of HEIs are subject to frequent change as HEIs that are licensed by their responsible ministry sometimes do not appear in the data base of the Centre for Information and Recognition of Qualifications in BiH (CIP), while those that are in this database may have ceased operations. Fully licensed and accredited HEIs ought to appear in the database of the Agency for Development of Higher Education and Quality Assurance in BiH (HEA) while offices for statistics have their own information and data. However, these sources are often contradictory. To create our HE Provision database we have mainly relied upon the list of institutions given in the HEA database, as it is the most stable source of information. We collected data on existing study programmes in Bosnia and Herzegovina offered by both public and private HEIs from all accredited and non-accredited HEIs that submitted their data to the project team (after all reminders).

Table A1: HEIs included in the HE provision database

Name of HEI	Ownership status
University of Banja Luka	Public
University of Mostar	Public
University of Sarajevo	Public
University of Tuzla	Public
University of Zenica	Public
Apeiron University in Banja Luka	Private
College of Business Assistance in Sokolac	Private
Communications College Kapa Fi in Banja Luka	Private
International Burch University Sarajevo	Private
International University of Sarajevo	Private
Prometej College Banja Luka	Private
University Singerija in Bijeljina	Private

Having analysed all sources, our final HE Provision database covers **12** HEIs and **663** study programmes. The database provides for *each study programme* several categories of data, e.g. name of HEI, name of faculty, name of qualification, level of qualification (Diploma's level, Bachelor's level, Master's level, field of study (ISCED classification), number of students beginning studies per year (since academic year 2012-2013), number of students completing studies per year (since academic year 2012-2013), total number of students enrolled in 2014-2015. A few HEIs failed to provide complete data on the number of students beginning or completing their studies.

2. Surveys

Two surveys were administered, one to recent HE graduates and the other to organisations located in Bosnia and Herzegovina that employ HE graduates among their workforce. These surveys were carried out from May to August 2015.

2.1. Graduate survey

The sample frame comprises recent graduates from Bosnia and Herzegovina HEIs who graduated from higher education since 2010. We designed an online survey questionnaire and managed it through the Qualtrics software platform. An online survey link was sent by a number of Bosnian HEIs (see list below) directly to their alumni contact lists. The graduate cohort of these HEIs comprises between 85% and 90% of the student population of BiH. Due to private data protection policies, most HEIs decided to send the survey link to students themselves, with only one HEI sending us the email addresses of their graduates directly. In the subsequent period, a number of reminders were sent to universities reminding them to send the link to graduates if they had not already done so. In order to increase the response rate, all relevant institutional stakeholders beside HEIs, including governmental ministries, were asked to publish the link to the survey upon their web sites, which they did.

Table A2: HEIs included in the survey

Name of HEI	Ownership status
University of Sarajevo	Public
University of Banja Luka	Public
University of Bihac	Public
University of Mostar	Public
International University of Sarajevo	Public
University of Tuzla	Public
University of Zenica	Public
University "Dzemal Bijedic", Mostar	Public
University of East Sarajevo	Public
American University of Bosnia and Herzegovina	Private
Banja Luka College, Banja Luka	Private
College "Logos centar", Mostar	Private
College "Primus", Gradiška	Private
Communications College Kapa Fi, Banja Luka	Private
Higher School for Service Business, Sokolac	Private
Independent University of Banja Luka	Private
International Burch University, Sarajevo	Private
Prometej College Banja Luka	Private
Sarajevo School of Science and Technology	Private
Slobomir P University, Bijeljina	Private
University of Business Administration, Banja Luka	Private
University Sinergija, Bijeljina	Private

The required sample size was assessed on the basis of the desired level of precision. Among other issues, we were interested in the experience of graduates from different types of HEI, public and private, and across three categories of labour force status: in work, unemployed, or inactive. We collected a total of **774** completed questionnaires (respondents who did not fit the sample frame were ruled out). This gave the desired degree of precision to the estimates.

The representativeness of the sample can be checked by comparing the distribution of the sample of graduates by field of study to the distribution of the underlying population of students by field of study as reported in the HE provision database. We compare the proportions of students who completed their degree in the three academic years from 2011-14 by field of study from the HE provision database, and compare this with the distribution of graduates by field of study from the graduate survey. We take the average over the three years, since the graduates in the graduate survey have completed their degrees at different points of time in the past. It can be seen that the representation of the sample is fairly close to that of the distribution of enrolments with a Pearson

correlation coefficient of +0.85. The distribution of respondents by broad field of study compared to the population distribution from the HEI database is shown in Table A3.

Table A3: Sample distribution (graduate survey) and population distribution of graduates (completions) by broad field of study

Broad field of study	Graduate survey (number)	Graduate survey (%)	HEI database (%)
01 Education	109	14.6%	13.8%
02 Arts & Humanities	95	12.8%	9.4%
03 Social Sciences, Journalism & Information	143	19.2%	28.0%
04 Business, Administration & Law	80	10.7%	10.8%
05 Natural Sciences, Mathematics & Statistics	29	3.9%	4.1%
06 Information & Communication Technologies (ICTs)	36	4.8%	3.7%
07 Engineering, Manufacturing & Construction	118	15.8%	9.9%
08 Agriculture, Forestry, Fisheries & Veterinary	52	7.0%	3.0%
09 Health & Welfare	79	10.6%	16.2%
10 Services	4	0.5%	1.1%
Total	745	100.0%	100.0%
Missing	29		
Total including missing values	774		

2.2. Employer survey

We designed a questionnaire that was implemented through a mix of online survey and phone interviews. The sample frame consisted of companies of all sizes located in Bosnia and Herzegovina and employing HE graduates. The first major problem was obtaining a database with employers' contact details. A number of institutions were contacted, including ministries of labour, statistical offices, associations of employers, agencies for employment and administrators of different EU-funded projects that had collected similar data within their activities. The process of data collection included numerous email and telephone calls. One EU-funded projects provided contact data for 4,000 employers in the country, which was used as a starting point. The second problem was the low response rate from employers. Therefore, PhD students were engaged to personally call employers and to visit them, in order to obtain a sufficient number of completed questionnaires. In order to increase the response rate to the employers' questionnaire, all relevant institutional stakeholders beside HEIs, including governmental ministries, were asked to publish the link to the survey upon their web sites, which they did. The online survey link was also forwarded by some key labour markets organisations (see Table A4).

Table A4: Organisations that distributed the employer survey

Institute for Employment of Republika Srpska
Institute for Employment of Federation of Bosnia and Herzegovina
Institute for Employment of Brcko District

Altogether we collected a total of **153** completed questionnaires. The sample was balanced: most of the employers surveyed were either micro enterprises (24%) or SMES

(66%), while large companies represented a minority (10%). The survey covered the various sectors of the economy, with the largest concentrations in manufacturing (33%).

Table A5: Comparison of population (all employers) and survey (graduate employers) distribution by size groups

	BHAS, 2014		Survey	
Micro and Small enterprises (0-49)	22,877	94.7%	79	58.5%
Medium sized enterprises (50-249)	1,083	4.5%	42	31.1%
Large enterprises (>=250)	188	0.8%	14	10.4%
Total	24,148	100.0%	135	100.0%

Source: Graduate survey and Bosnia and Herzegovina Agency for Statistics enterprise demography data.

Table A5 shows the distribution of the sample by employer size groups (small employers with 0-49; medium employers 50-249; large employers >= 250 employees). The distributions are rather different for two reasons. First, the survey sample was taken from employers who employ graduates, whereas the enterprise demography from BHAS shows the distribution of all enterprises whether or not they employ graduates. There is no available population distribution for the employers that employ graduates, and so the representativeness of the sample cannot be validated; nor can the sample be adjusted by any relevant weighting technique. Second, the sample was by design adjusted to ensure that we had a similar distribution of employers across all size groups (in the survey we also split the small employers into two groups – “micro” who employ less than 10 employees and small who employ between 10 and 49 employees (according to the Eurostat definition). This design was chosen to ensure that we had enough medium and large sized employers in the sample to make comparisons across size groups. For both these reasons we are unable to claim that the survey is representative of the population of employers who employ graduates. However, this does not preclude us from drawing inferences from within the sample about statistically significant differences between employer size categories for variables of interest (such as skill gaps). It does mean however, that care should be taken when interpreting the mean values of variables from the survey, since they may be subject to biases due to the potential over-representation of large and medium sized employers in the sample.

3. Interviews with key stakeholders

We carried out semi-structured interviews with **18** key stakeholders, with the aim to develop a comprehensive view on the causes of challenges for employers and HE graduates in the labour market. We identified stakeholders at three levels.

- **Policy-making stakeholders** (6 ministries, EU Delegation office)
- **Higher education stakeholders** (5 HEIs, Erasmus + Office, Erasmus alumni focus group)
- **Labour market stakeholders** (2 employers’ associations, 2 public employment service centres, 1 NGO)

We developed an interview guideline containing a set of questions for these semi-structured interviews. One group of questions were of a general nature and are posed to all stakeholders, to better confront their views on key issues. The second group of questions were specifically tailored to the various stakeholders, designed to explore further primarily issues within their specific competences. Local experts conducted the interviews and translate the transcripts into English.

We also carried out a focus group discussion with Erasmus Mundus alumni who had studied abroad, to gather their impressions of the contrasts between teaching methods used in their home and host countries.

4. Labour market data

We obtained labour force survey data at the federal and entity level for 2011-2014 from the Institute for Statistics of Federation Bosnia and Herzegovina, the Agency for Statistics of BiH and the Agency for Statistics of Republika Srpska. This provided information about the sectoral structure of graduate level employees for 2013, which were used as a base for the forecast for graduate employment by sector. The sectoral forecast was then converted into a forecast of demand for graduates by field of study using coefficients derived from the graduate survey.

The Labour Force Survey was also used to identify the relevant labour market key statistics for HE graduates (employment rate, unemployment rate), which could be compared to the statistics derived from the graduate survey relating to the employment rate and the unemployment rate of recent graduates.

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