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Low-Skilled Jobs and Student Jobs: Employers' Preferences in Slovakia and the Czech Republic

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and the Czech Republic**

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June 2015

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ABSTRACT

Low-Skilled Jobs and Student Jobs: Employers' Preferences in Slovakia and the Czech Republic*

Massification of tertiary education, growing share of student workers on labour market and consequently increased competition for low-skilled jobs gave rise to the theory of crowding out of the less educated workers. This paper contributes to better understanding of temporary skills-qualifications mismatch typical for student workers by analysing the preferences of employers in low-skilled jobs and student jobs. We take labour market demand perspective and carry out exploratory analysis of job offers posted online in Slovakia and the Czech Republic. The results show that the student labour market is quite diverse as student job offers can be found in low-skilled, but also medium-skilled positions. We also find that although student vacancies require, on average, fewer skills than non-student positions, there is strong correlation between formal sophistication of a job vacancy and the required minimum educational level, as well as required skills for both student and non-student positions. It appears that low-educated workers and student workers do not compete for the limited number of positions, but rather fill employers' demands for different types of hard (e.g. language skills) and soft (e.g. flexibility, adaptability) skills. These results support the complementarity view of the coexistence of student employment and low-skilled employment rather than the crowding out theory.

JEL Classification: J23, J21, J24, J63

Keywords: youth, students, employment, skills, vacancy, online, labor demand, Czech Republic, Slovakia

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1. Introduction

The massification of tertiary education across Europe is taking place alongside other structural processes and changes that increase job polarisation and competition for low-skilled jobs (Autor and Dorn, 2009; Kureková et al., 2013; Maselli, 2012). At the same time, the number of student workers has grown extensively. A fairly under-researched issue is to what extent the growing numbers of university students are replacing low-skilled workers in low-skilled jobs and whether there is competition between low-skilled youth and student youth in low-skilled occupations. This issue is important, not least because of the possible over-qualification of working students, which might have consequences for their labour market prospects (Bertrand-Cloodt et al. 2012; Quintini 2014; McGuinness et al. 2015a).

Two related perspectives regarding the growth of student employment can be identified in the literature (Eichhorst et al., 2013; Pollmann-Schult, 2005). The first is that students seek jobs for which they are overqualified due to the need to raise finance for their studies or in order to broaden their practical experience. This perspective is often associated with the precarious work in low-skilled occupations within the service sector, and growing competition further erodes the working conditions in these sectors. The second perspective focuses on the growth of the service sector, which creates demands for the general skills and flexible labour that students are particularly suited to supply (Curtis and Lucas, 2001). The jobs that are created in service sector are seen as unsuitable to traditional low-skilled workers, typically older and male, due to the poor job quality and security, low pay, and limited opportunities for advancement. These are particularly common in sectors such as retail or accommodation and food service. In terms of their attainability, in spite of low 'hard skill' requirements, the tasks performed in these jobs can be rather complex in terms of the 'soft skills' demanded, such as communication skills, trainability, flexibility, social skills and appearance (Autor et al., 2003; Brunello and Schlotter, 2011; Kureková et al., 2015; Maxwell, 2006).

While the underlying reasons for the expansion of student employment might vary, they are said to result in similar consequences on the labour market, i.e. a *crowding out* of the less educated workers, particularly the older ones (Sprender et al., 2007). Acceptance of the crowding out theory is far from universal, however. The crowding out notion assumes a finite number of jobs in the economy and a substitutability of skills across different types of workers. Critiques of this approach argue that jobs are created as a consequence of economic activity and are not finite. Furthermore, it has been argued that young and old workers are not necessarily substitutable, even in low-skilled jobs, due to different skill sets and preferences (Eichhorst et al., 2013). Empirically, it has been found that in the event of economic shock, like the Great Recession, it is the young, flexible workers who get replaced rather than the older ones, who are typically protected by labour market regulations (IMF, 2010) and that the employment of older workers increases, rather than hinders the employment opportunities of the younger generation (Gruber and Wise, 2010).

In general, however, existing academic literature offers only general findings about the student labour market and positions it in the low-skilled labour market segment and within flexible forms of contractual arrangements. This paper aims to fill this gap and studies the preferences of employers in low-skilled jobs and student jobs in order to better understand the temporary skills-qualifications

mismatch typical for student workers. We take labour market demand perspective and carry out exploratory analysis of job offers posted online and gathered by a major job portal in Slovakia and the Czech Republic, called *Profesia*.

Both countries are characterised by a rapid expansion of tertiary education following the regime change, high premiums on tertiary education, and relatively low shares of working students, especially those under 25 years of age (Annex, Table A1). At the same time, the countries differ in their labour market conditions: Slovakia has suffered high unemployment rates and has one of the highest youth unemployment rates in Europe. Despite high unemployment, employers in some sectors report recruitment difficulties, suggesting the existence of a labour market mismatch (Kureková, 2010). The Czech labour market performs better, however. We received vacancy data from 2009 to June 2014 that allows us to have a time perspective on some elements of the analysis, such as the possible role of economic crisis on the incidence of student employment.

The structure of the data enables us to study the characteristics of vacancies that we classify as ‘student jobs’ and compare them to ‘non-student’ jobs. Informed by the literature that has stressed a high incidence of temporary and part-time employment among youth (Curtis and Lucas, 2001; Eichhorst et al., 2013; Hall, 2010; O’Higgins, 2012; Quintini and Martin, 2006), we take a two-pronged approach to defining student jobs. We classify as student vacancies job offers directly aimed at students (based on educational requirements stated in the job offer and internship offers) as well as job offers based on flexible types of contracts – temporary or part-time contracts. We analyze basic characteristics of student jobs and look at the key differences between low-skilled student and non-student vacancies. We also evaluate any systematic differences in employers’ demand in student/non-student jobs between Slovakia and the Czech Republic.

Our work is original in providing a labour market demand perspective on the student job market using an innovative source of data. To our knowledge such an analysis, either of the student labour market or using this data approach, has not so far been conducted. Meanwhile, the use of online data, although not without caveats, is increasingly becoming recognised among a wider academic community (Askatas and Zimmermann, 2015; Edelman, 2012; Kureková et al., 2015; Sappleton, 2013).

This analysis is structured as follows. After literature review, we proceed to explain methodology and data. This is followed by an empirical section organised in three parts: a descriptive analysis of full sample of vacancies; a regression analysis of determinants of the ‘studentness’ of job offers; and a focused analysis of selected low-skilled positions to map the characteristics of the low-skilled segment of the labour market from the perspective of student employment. A conclusion brings the results together.

2. Literature review

2.1. Why do students work?

The number of student workers has grown extensively in recent decades (Baffoe-Bonnie and Golden, 2007; Häkkinen, 2006; Moreau and Leathwood, 2006). The share of working students varies significantly across countries. In general, however, higher education students are significantly more

likely to reconcile work and study, except for in countries with strong apprenticeship systems – Denmark, Germany, Austria, Germany and Netherlands (Quintini and Martin, 2014).

The growth of student employment has been attributed to different factors. One factor refers to the changes in the composition of aggregate labour supply shaped by the massification of secondary and then tertiary education, which has significantly improved the structure of the workforce in advanced economies. In addition to a better and more qualified supply of labour, the massification of tertiary education has in some countries been paralleled by decreasing government investment in higher education and the introduction of tuition fees. This has forced many students, especially from disadvantaged socio-economic backgrounds, to seek employment alongside their studies in order to finance their education (Beblavý et al., 2013; Curtis and Lucas, 2001; Hall, 2010, 2010; Moreau and Leathwood, 2006).

Fees are not the only reason for student work, however. Certain studies document the importance of work experience among employers' preferences, which increases the incentives for young people to seek practical experience during their studies (Kureková et al., 2015; Quintini and Martin, 2014). Other recent research argues that there could be complementarities, not only substitutability, between paid work and education (Beerkens et al., 2010; Hall, 2010). Against the generally declining time spent studying (Babcock and Marks, 2011; Baffoe-Bonnie and Golden, 2007), higher education wage and employment premiums continue to exist across countries (Little and Arthur, 2010). This suggests that the work-study shifts that have taken place might have been encouraged by changing expectations of the skill set that graduates bring to the labour market and are considered conducive to increased productivity and innovation.

The second perspective considers the issue of student work in the context of broader structural changes caused by technological change and the rise of the service sector, resulting in a significant reorganisation of labour demand. Specific segments of the growing service sector are characterised by a demand for general skills and flexible labour, both of which student workers can effectively fill (Curtis and Lucas, 2001). Researchers also forecast a skill polarisation between high and low-skilled occupations, i.e. an increase in employment at the extremes of the job-quality distribution. This has been accompanied by a process of displacement of low-skilled by more educated workers who are being pushed out of medium-level jobs (Autor and Dorn, 2009; Cedefop, 2008; Manning, 2004; Maselli, 2012; Mayer and Solga, 2008). At the same time, the skill requirements are rising within all occupational categories and skill levels, while the complexity of tasks required, even at the lower end of the skills distribution, is increasing (Autor et al., 2003; Brunello and Schlotter, 2011; Kureková et al., 2015; Levy and Murnane, 2005; Maxwell, 2006). It is particularly in the low-skilled service sector, including retail, hospitality, catering and personal services – that student workers are typically employed (Broadbridge and Swanson, 2005). This might lead to competition in the low-skilled segments of the labour market where young workers compete with older workers and the disadvantaged workforce, who typically take up employment in the low-skilled labour market segment (Maxwell, 2006; Solga, 2002).

2.2 Character of student employment: temporary, part-time, informal

Student employment and the employment of young workers has several specific features that in most countries systematically differentiate it from the employment of prime-age workers: temporary, part-time and informal employment (Hall, 2010; Quintini and Martin, 2006, 2014). In 2011, more than 40%

of young employees (age 15-24) in the EU were on temporary contracts, which was about three-times higher than for those aged 15-64 (Eichhorst et al., 2013). Young people tend to be overrepresented in temporary or part-time employment, especially in segmented labour markets (Curtis and Lucas, 2001). Hence, while there might not be trade-offs between the employment rates of older and younger workers, labour market segmentation might be leading to worse labour market conditions for young people due to difficulties entering the primary labour market. For example, in 2004 the incidence of temporary employment for young people one year after finishing school was particularly high in Spain, Portugal, Poland, Sweden, France and Finland, where the share exceeded 50% in all these countries (Quintini and Martin, 2006).

The incidence of temporary work among youth has risen during the crisis, becoming a dominant form of new employment contracts for young people in many EU countries (Eichhorst et al., 2013; O'Higgins, 2012). It has also been evidenced that the recent economic downturn hit young workers hardest, but to differing degrees in different countries (Eichhorst et al., 2013). The negative effects of the downturn on youth have been most marked in the countries with dual labour markets; with rigid employment protection for insiders (age-graded employment protection); with a lack of active labour market policies aimed at jobseeker advice and training; a large share of fixed-term contracts; large construction and manufacturing sectors; and the experience of a housing bubble (IMF, 2010).

Hazans (2011) finds that, *ceteris paribus*, the young, the low-educated, the elderly and persons with disabilities are more likely to work informally. Moreover, the dependent informality rate is inversely related to skills (measured by either schooling or occupation). This implies that competition between student workers and the low-educated might be pushed to informal segments of labour markets that might be harder to capture in the data. It also accentuates precarious environments in which student work might be performed in some sectors.

In addition to temporary employment, many young workers also work in part-time jobs. Yet considerable variation was observable across OECD countries in 2000s, broadly related to part-time employment levels in general. While less than 5% of employed youth one year after leaving school worked part-time in Hungary, the Czech Republic and Slovakia, the shares exceeded 30% in Denmark, the Netherlands and Sweden. The proportion of part-time workers was on average higher for women than for men. It is difficult to determine whether part-time employment is desirable for young people because in the countries with a high share of part-time work youth employment levels are high and unemployment levels low (Quintini and Martin, 2006).

Some studies suggest that not all student and graduate employment needs to be in temporary, part-time and precarious jobs. Research into the student employment and graduate labour market in the UK shows that there are openings for young workers across different sectors, including in highly skilled specialised sectors. The degree of skill substitutability and displacement among low-skilled workforce is very different across different types of occupations (Purcell et al., 2003, 2004; Purcell and Elias, 2003). The youth labour market is heterogeneous and there is a need for clear distinction between young people who are simply in the labour market and those who are combining education and employment (Canny, 2002).

2.3 Impact of working on students' labour market outcomes

Few studies analyse the issue of working students in a cross-country comparative perspective. Among the exceptions are Quintini and Manfredi (2009), who show that students who work and study at the same time have a greater likelihood of obtaining a favourable labour market outcome after graduation. However, this does not seem to be true for students who work outside their field of study (Quintini and Martin, 2014). Most studies analyse a single country or tend to focus on the link between working during studies and educational outcomes (Broadbridge and Swanson, 2006; Ford et al., 1995).

Strong negative effects on academic and career aspirations, as well as the likelihood of holding student leadership positions, being engaged in extracurricular activities, a higher incidence of dropout and poorer grades have been identified for students working a high number of hours in the US (DeSimone, 2008; McNeal, 1997). Dolton, Marcenaro, and Navarro (2001) investigate the allocation of student time between study and leisure using Spanish data (the Malaga University student time survey). They find that time spent in formal university study – lectures, classes, laboratory sessions – is positively and highly significantly related to student performance.

However, more recent research also considers the fact that there could be complementarities, not only substitutability, between paid work and education (Hall 2010; McGuinness et al. 2015b). Beerkens et al. (2010) analyse student employment in Estonia, where a high share of students work and find only a very small negative effect on academic performance. Moreover, employment parallel to study sends a signal to employers about the quality of the graduates who enter the labour market. Work experience during studies can support the development of a number of soft skills, including time management, a sense of responsibility, job-search skills or increased confidence (Baffoe-Bonnie and Golden, 2007; Guile and Griffiths, 2010; Häkkinen, 2006; Quintini and Martin, 2014). (Häkkinen, 2006) estimates the return to in-school work experience after graduation and at the beginning of the working career and finds that one additional year spent working yields a considerable increase in earnings one year after graduation, but the effect is decreasing and statistically insignificant in later years. However, it is likely that working increases the duration of study and taking this into account, the effect of work experience on earnings is much lower and statistically insignificant for all years. There are no statistically significant effects on employment probability if the selection bias in the experience acquisition is considered.

Finally, against the generally declining time spent on study (Babcock and Marks, 2011; Baffoe-Bonnie and Golden, 2007), higher education wage and employment premiums continue to exist across countries (Little and Arthur, 2010). This suggests that the work-study shifts that have taken place might have been encouraged by changing skill-set expectations that graduates bring to the labour market and are considered conducive to increased productivity and innovation.

2.4 Is there crowding out?

The debate about whether there is really competition for low-skilled jobs between youth/student workers and low-educated workers truly appears to be open (Eichhorst et al., 2013; Pollmann-Schult, 2005). On the one hand, there are views based on the job competition model and crowding-out hypothesis (lump-of-labour fallacy), which believe that job opportunities are limited and workers compete with each other. This view holds that demand for labour in the economy is fixed and needs to be divided among different groups (Eichhorst et al., 2013). In the context of broader structural

transformation, this creates an inherently competitive environment whereby employers fill positions with qualified workers that would otherwise have been filled with unqualified persons, because a higher qualification is associated with lower training costs and higher productivity (Pollmann-Schult, 2005; Thurow, 1975). This view has been reflected in policy application: especially in the 1970s and 1980s many countries responded to rising unemployment levels by decreasing labour supply and introducing generous early retirement schemes (Eichhorst et al., 2013; Vanhuyse, 2006).

However, the lump-of-labour theory is considered by many economists to be a fallacy. They argue that the economy is not static and labour demand should in the long run adjust to labour supply and its structure. Empirical evidence against the lump-of-labour approach has been pointing to a large growth in female employment in recent decades, parallel to the growth of general employment levels. It has also documented an increase in the employment of older workers that has generated additional opportunities for young people rather than decreased them (Gruber and Wise, 2010).

Another criticism levelled against the existence of crowding out between older and younger workers is the assumption that these groups are fully substitutable in terms of skills. Eichhorst et al. (2013) argue that young and older workers cannot easily substitute each other in most sectors of the economy, due to their different experience and skill profiles. While hard skills substitutability in low-skilled jobs might be easier than in more skilled jobs, students are often seen to possess a set of soft skills, attitudes and characteristics that differentiate them from other workers ready to take up positions in part-time and casual labour markets (Curtis and Lucas, 2001). For example, Lucas and Ralston (1997) found that employers perceive students as having attributes such as intelligence, personality, communication skills, compliance with instructions and trainability. Students are considered to be more flexible and not interested in full-time work or in acquiring long-term or secure employment due to their study constraints. In this way they fulfil employers' flexibility requirements in terms of tasks and time. A youth workforce might also be preferred in some retail, tourism, hospitality and catering sectors that try to attract younger clients and develop a youthful corporate image (Curtis and Lucas, 2001).

To date very few analyses are available of the proportion of student workers in low-skilled jobs, in particular. An intuitive approach to this task is to look at the segmentation of the low-skilled segment of labour market by age group (Dieckhoff and Steiber, 2012; Kureková et al., 2013). Maxwell (2006) analysing the Californian labour market in the early 2000s, finds that 45% of low-skilled individuals are under 30 years of age, compared to 34% in medium-skilled and 21% in high-skilled employment. Kureková et al. (2012) document varying shares of young workers in low-skilled jobs across the EU. They find that educational achievement seems not to matter when competition for jobs across age cohorts is concerned: the young are at greater risk of unemployment than the old, regardless of the level of education achieved.

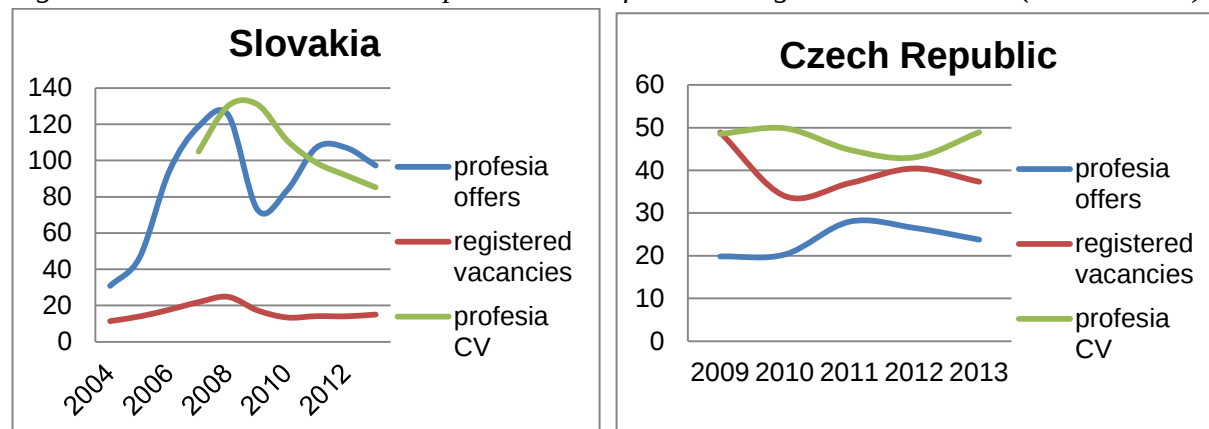
3. Methodology and data

3.1 Data source description and sample

Profesia is the largest private online job portal based in Slovakia (www.profesia.sk) and it runs job portal websites in the Czech Republic and Hungary. The portals collect both job vacancies and CVs, and operate related portals which gather information on wages. The company was established in 1997 and in Slovakia it holds about 80% of the market (Štefánik, 2012). The portal's dominance is

demonstrated by the fact that it is able to collect significantly more job offers than registered vacancies collected by the authorities (Figure 1). This is not the case in the Czech Republic, but the Czech portal has nevertheless collected thousands of vacancies that we are able to analyse.

Figure 1: Job vacancies and CVs posted on Profesia and registered vacancies (in thousands)



Source: Profesia and Eurostat

While the size of the data pool is remarkable, especially for Slovakia, such data also have their biases. These are partly related to the profile of internet users, who are typically young, and to the character of firms that advertise job vacancies. First, over 42% of portal visitors are aged less than 30 years. About 30% of visitors have attained tertiary education and close to half have secondary education with *maturita* (school leaving certificate). As our analysis focuses on the student labour market, we find these biases to be an asset because they suggest that a fair proportion of job-seekers are likely to be students (AIM Monitor, 2014).¹ Second, about 70% of firms posting ads between 2008 and 2014 belonged to small and medium-sized enterprises (based on the number of employees; Profesia data, undisplayed). This is important as the service industry, where most low-skilled and flexible employment is likely to concentrate, is primarily composed of SMEs. We have less data about the Czech data structure but the profile of CVs posted in 2014 suggests that the visitors are young (65% is below 35 years of age) and a similar percentage holds secondary education with or without leaving certificate (*maturita*) (Profesia data, undisplayed). A significant proportion of job advertisements are posted by professional recruitment agencies (41% in Slovakia and 59% in the Czech Republic). Recruitment agencies are more likely to target the less-skilled segment of labour market, which is the focus of our analysis (Keep and James, 2010).

We received the population of job advertisements gathered by the portal between 2009 and June 2014 (see Figure 1).² Unique observations are identified on the basis of a unique ID number ascribed automatically to a job vacancy through the portal's database system. The portal gathers data in a relational database composed of predefined fields. The fields include the required level of education, position name, type of contract, region where the work is advertised, required skills (language,

¹ A partial representativeness analysis based on EU-LFS data was conducted by (Štefánik, 2012), but he only focused on high-skilled segment. His key finding was that high-skilled segment Profesia data is roughly representative of the employed population as far as occupational groups are concerned, but clerks (ISCO 4) and service workers (ISCO5) are over-represented in both ads and CV data. He also found underrepresented vacancies in public sector.

² The total number of offers received was 512,216 in Slovakia and 129,833 in the Czech Republic.

computer or administrative), whether experience is required, and a range of salary (min-max) offered. Data is organised according to the portal's own classification system that employers are required to use when posting a job offer. Multiple categories in each field could be marked. This means that our N for different aspects of the analysis might vary.³ Employers can also fill in the 'prerequisites' field where the text of job advertisement is placed and it serves to specify other requirements and expectations related to job offers. The data structure is identical in both labour markets.

3.2 Defining and measuring student jobs

We take a twofold approach to identifying student jobs and use two different variables: a) required level of education and b) type of contract. This reflects different conceptual approaches to marking student job market.

First, the required level of education field includes the possibility to mark a vacancy as being suitable for high school students and university students. This approach is a direct way to mark a student vacancy. The selection of required level of education is non-exclusive in that several categories could have been marked by an advertising subject and in most vacancies this was also the case.⁴ We further consider as student jobs those that were clearly marked as student internships.

The second conceptual approach is based on identifying the student job market on the basis of the quality of contract offered. This decision was guided by empirical knowledge that stressed the high incidence of temporary and part-time employment among youth in Europe. We use the variable 'type of contract' and mark as a student job each vacancy that was offering employment on the basis of a flexible work contract, including temporary and part-time work, or on the basis of a 'work agreement'⁵ (temporary contractual contract without job security typical for the Slovak and Czech labour market). Similar to the education field, the type of contract could be marked non-exclusively and several categories could have been marked by an advertising subject.⁶

We work with three definitions and measurements of student jobs: definition 1 is the most comprehensive and includes both approaches; definition 2 is stricter and identifies jobs that are clearly aimed at students; and definition 3 considers job advertisements only on the basis of flexible contractual contracts – forms of temporary and part-time work (Table 2). Most results are presented for the first definition only, as we are interested in all offers that might be suitable for students. Moreover, the results for the separate definitions are in most instances very similar. We also observed considerable overlap between the second and the third definitions, and highlight where this was not the case.

³ While for skills the approach is less problematic as far as we analyse whether a certain skill was required for a particular job offer or not, for others (level of skills, sector and position) we have to work with different N than the number of job advertisements.

⁴ The categories are: 1-primary, 2-secondary school student, 3-secondary without leaving certificate, 4-secondary with leaving certificate, 5-university student, 6-higher professional education, 7-BA, 8-MA, 9-PhD

⁵ "Dohoda o vykonani prace"

⁶ The categories are: full-time employment, part-time employment, work on agreement (dohoda), and self-employment license (živnost')

Table 1: Defining and measuring student jobs

Definition	Measurement	Approach	Notation in empirical tables
Definition 1	Definition 2 or Definition 3	Complex identification	student job
			non-student job
Definition 2	Vacancies marked as for students in education variable and marked as student internships	Direct identification	jobs aimed at students
			jobs not aimed at students
Definition 3	Vacancies with flexible/unstable work contracts: shorter work time and ‘work agreement’	Identification through type of work contracts - temporary and part-time	flexible work contract
			traditional work contract

Table 2: Share of student jobs in total vacancies

		2009 %	2010 %	2011 %	2012 %	2013 %	2014 %	Total %
SK	Student job	11.5	12.8	14.4	17.8	20.0	20.4	16.2
	Jobs aimed at students	6.2	5.4	6.2	7.9	10.4	10.3	7.6
	Flexible work contract	9.5	11.4	12.4	14.7	15.2	15.6	13.2
	Total N (in thousands)	65 029	79 225	102103	102130	92 913	52 453	493 853
CZ	Student job	8.5	11.2	13.0	11.8	14.3	13.8	12.2
	Jobs aimed at students	4.6	5.2	6.0	4.9	7.4	7.7	5.9
	Flexible work contract	6.2	8.5	10.0	8.7	9.5	8.6	8.8
	Total N (in thousands)	16 789	19 583	27 567	25 365	23 570	13 167	126 041

The share of student jobs according to all three definitions is displayed in Table 3. While the vast majority of job offers are non-student vacancies - about 84% in Slovakia and 88% in the Czech Republic on average between 2009 and 2014, a clear growth trend in student job offers is evident over time. Importantly, this trend is driven both by the growth of directly student-targeted job offers (definition 2) as well as through the increase in offers based on flexible contractual contracts (definition 3). The growth has been especially steep in Slovakia: whereas in 2009 only about 12% of offers could be considered as suitable for students, by 2014 the share nearly doubled to 21%. The growth in the Czech Republic has been more modest and grew from 8.5% in 2009 to 14% in 2014 (Figure 2).

The top ten positions with the highest share of student-aimed offers for each definition are presented in Table 3. Regardless of the definition and in both countries, top ‘student’ job offers are very similar. In Slovakia, among all three definitions the highest share of student offers is observed for low-skilled positions in the entertainment industry (such as dancer, hostess, promoter, and animator). A high share of student job offers can be also found for auxiliary tasks (auxiliary worker, interviewer), but also for some low-skilled positions such as miner and cleaner. In the Czech Republic most of the positions are

also situated in the entertainment industry and in the beauty sector (masseur, stylist), while other positions are auxiliary and low-skilled (maid). However, some student-aimed positions demand a higher level of skills, such as broker, social worker or teacher. All in all, however, these positions are fairly marginal in terms of their numbers and represent only 0.7% of offers in Slovakia and 0.6% in the Czech Republic.

Figure 2: Growth of student jobs in Slovakia and the Czech Republic

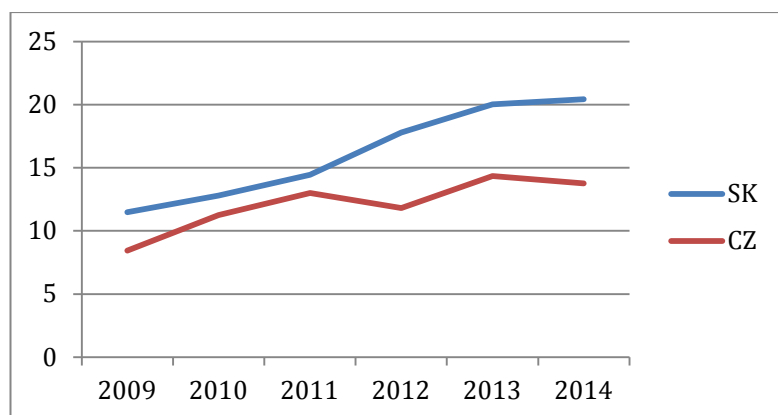


Table 3: Top 10 positions with the highest share of student offers

Slovakia

Definition 1			Definition 2			Definition 3		
Position	% student offers	N	Position	% student offers	N	Position	% student offers	N
Interviewer	94.1	794	Miner	83.5	176	Interviewer	87.9	794
Dancer	92.1	140	Interviewer	74.9	794	Hostess	83.7	995
Hostess	90.3	995	Dancer	73.6	140	Promoter	79.6	1,782
Miner	86.9	176	Hostess	60.7	995	Dancer	77.1	140
Promoter	81.8	1,782	Animator	57.7	428	Broker	72.1	183
Sports coach	77.0	261	Promoter	51.6	1,782	Sports coach	72.0	261
Animator	76.6	428	Sports coach	47.9	261	Cleaner	71.3	1,965
Broker	74.9	183	Lifeguard	47.0	100	Stylist	67.5	277
Cleaner	73.0	1,965	Teacher assistant	35.6	101	Auxiliary worker	65.1	8,442
Stylist	69.3	277	Auxiliary worker	34.6	8,442	Animator	58.6	428

Czech Republic

Definition 1			Definition 2			Definition 3		
Position	% student offers	N	Position	% student offers	N	Position	% student offers	N
Dancer	94.9	78	Dancer	78.2	78	Stylist	82.7	81
Stylist	84.0	81	Sports coach	64.4	59	Interviewer	78.7	61
Promoter	81.4	440	Animator	64.0	197	Promoter	76.4	440
Interviewer	78.7	61	Hostess	58.3	230	Dancer	74.4	78
Hostess	76.1	230	Interviewer	54.1	61	Sports coach	62.7	59
Animator	75.6	197	Social worker	47.0	83	Hostess	52.6	230
Sports coach	72.9	59	Orderly	42.3	104	Animator	49.2	197
Social worker	55.4	83	Masseur	41.1	112	Masseur	48.2	112
Teacher	54.1	207	Steward/Stewardess	38.2	220	Teacher	46.9	207
Orderly	53.9	104	Maid (Chambermaid)	37.8	709	Beautician	45.7	116

4. Empirical analysis of the ‘studentness’ of job offers

Our empirical analysis consists of a general descriptive analysis of a full sample of vacancies, logistic regression testing characteristics of student jobs across the three definitions and position/occupation-specific analysis where we focus on selected low- and medium-skilled occupations and analyse differences within these between student and non-student vacancies.

4.1 General descriptive analysis

The descriptive analysis aims to map key differences between student and non-student vacancies in order to identify what the expectations of employers are with respect to employing students and how they differ from general labour market demand. We look at sectoral composition, education requirements, occupational groups, required skills and experience, and salary conditions. We analyse pooled data for all the available years and do not differentiate the analysis in time. We also aim to provide comparative view for the two countries.

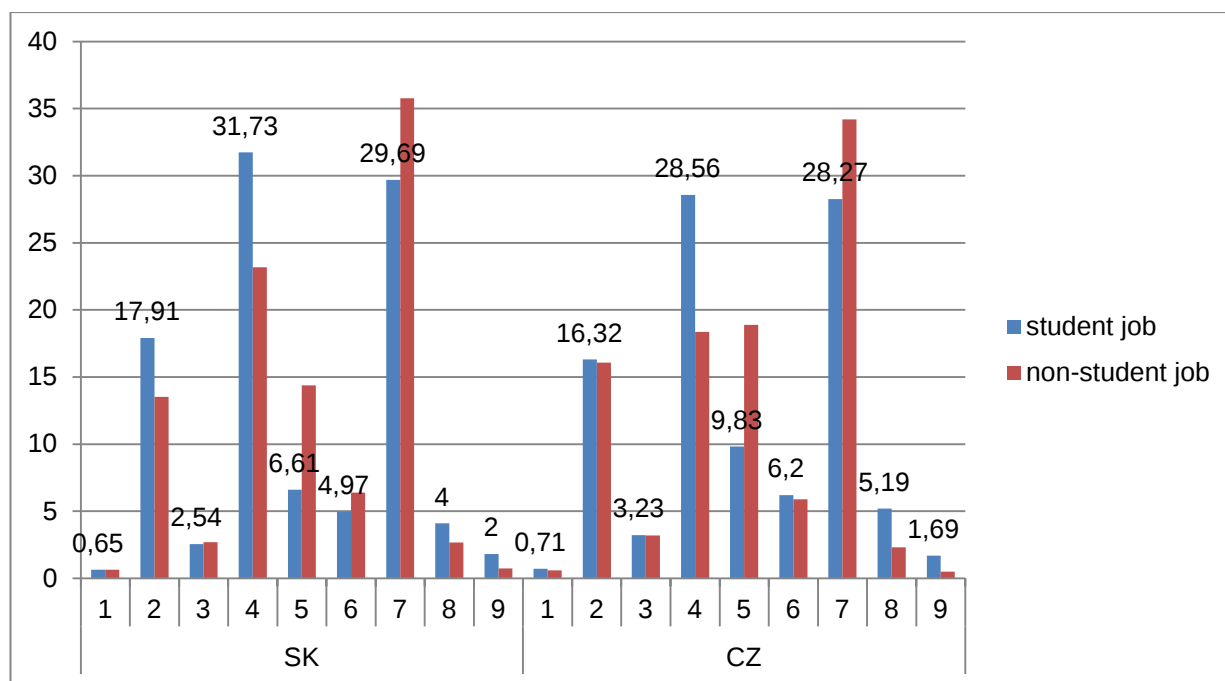
4.1.1 Sectoral distribution of student jobs⁷

The sectoral concentration of student jobs is in line with theoretical expectations. Most student job offers belong to traditional service sectors – wholesale, retail, the transport and hospitality industry and administrative services. In both countries, close to two-thirds of student job offers are related to

⁷ In the analysis of sectors we use a slightly different number of observations: 654,335 for Slovakia and 174,368 for the Czech Republic. This reflects the non-exclusive character of this field where, according to the portal's classification system, one position can belong to different sectors. We adapted the sectoral categorisation used by the portal to NACE Rev.2 classification.

vacancies in these sectors (Figure 3). Close to 18% of student job offers in Slovakia and 16% in the Czech Republic can be found in the manufacturing industry. In Slovakia student offers in this sector significantly exceed non-student offers. Student offers are most under-represented among vacancies in the information and communication sector. In the remaining sectors the results do not suggest that demand for students is concentrated very differently from the non-student offers.

Figure 3: Distribution of student and non-student job offers across sectors

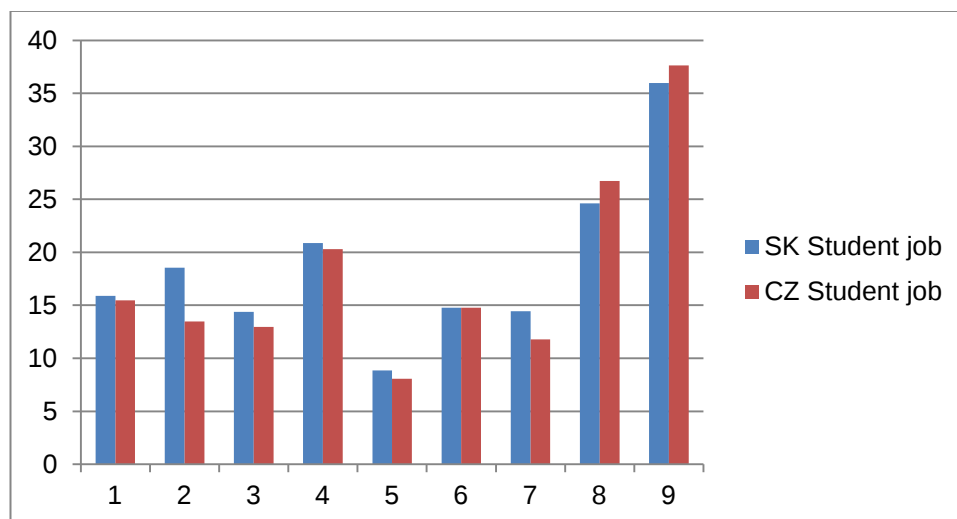


Note 1: Based on Definition 1.

Note 2: 1-Agriculture, forestry and fishing, 2-Mining and quarrying, other industry and manufacturing, 3-Construction, 4-Wholesale and retail trade, transportation and storage, accommodation and food service activities, 5-Information and communication, 6-Financial and insurance activities, 7-Professional, scientific, technical, administration and support service activities, 8-Public administration, defence, education, human health and social work activities, 9-Other services
Source: Authors based on Profesia classification of 'categories' (i.e. sectors)

A different way to evaluate the sectoral aspect of student job offers is to measure the share of student offers within respective sectors (Figure 4). Perhaps with the exception of the 'mining, industry and manufacturing' sector, the share of student job vacancies within sectors is fairly similar across countries. While in total only few vacancies in the analysed period appeared in 'other services' and 'public administration/social work' sectors, about one-third and one-quarter of these vacancies respectively have been student job offers. Wholesale and retail has the third highest share of student job offers – about 20%. This again supports the expectation that most of the student job market is positioned in services.

Figure 4: Share of student job offers within sectors



Note 1: Based on Definition 1.

Note 2: 1-Agriculture, forestry and fishing, 2-Mining and quarrying, other industry and manufacturing, 3-Construction, 4-Wholesale and retail trade, transportation and storage, accommodation and food service activities, 5-Information and communication, 6-Financial and insurance activities, 7-Professional, scientific, technical, administration and support service activities, 8-Public administration, defence, education, human health and social work activities, 9-Other services

Source: Authors based on Profesia classification of 'categories' (i.e. sectors)

4.1.2 Occupational groups⁸

Whether student jobs are concentrated in the low-skilled segment of labour market is an important question as it helps us to understand the degree of competition between student workers and low-skilled youth or low-skilled workers more generally. One way to tally this issue is to consider the occupational distribution of student job offers. We rely on the classification of vacancies developed by the portal (see Appendix, Table A2). While it is not directly comparable to any existing classification, it allows us to group vacancies into broad occupational categories marked by different levels of expected skills and qualifications, and to compare them across student and non-student job offers.

Table 5 presents the distribution of student and non-student offers across broad occupational groups for all three definitions of the student/non-student job. Relative to non-student offers, student offers regardless of the definition/measurement used are over-represented in the auxiliary workers category

⁸ Due to the possibility of the multiple assignment of positions to occupational groups by employers, we end up with a larger number of observations: 709,552 for Slovakia and 183,490 for the Czech Republic.

and under-represented in the managerial categories, which is generally in line with theoretical expectations. However, a significant share of student offers has been placed in job offers for medium-skilled positions, namely qualified labourers and non-technical workers but also administrative workers. This is generally the case in both countries. This implies that student workers' labour market is quite diverse with respect to broad occupational categories and the related skill demand regarding the opportunities. It clearly extends beyond the least skilled segment of the labour market where no qualifications or skills are needed.

Table 4: Distribution of student jobs across broad occupational groups

Country	Occupational group	Definition 1		Definition 2		Definition 3		Total
		student job	non-student job	jobs aimed at students	jobs not aimed at students	flexible work contract	Traditional work contract	
S K	Auxiliary workers	13.6	2.4	12.4	3.6	15.5	2.5	4.3
	Qualified labourers	26.8	13.7	22.4	15.3	29.4	13.8	15.8
	Administrative worker	15.6	11.8	19.0	11.9	15.2	12.1	12.5
	Qualified technical worker	12.0	24.7	13.4	23.4	10.2	24.5	22.6
	Qualified non-technical worker	23.3	27.6	23.7	27.2	22.2	27.6	26.9
	Lower and middle management	8.4	18.0	8.8	17.1	7.2	17.8	16.4
	Top management	0.3	1.8	0.3	1.7	0.3	1.8	1.6
	Total	100	100	100	100	100	100	100
C Z	Auxiliary workers	10.4	2.2	11.3	2.8	10.4	2.6	3.4
	Qualified labourers	22.4	11.7	19.9	12.7	24.1	12.0	13.2
	Administrative worker	14.6	9.5	16.1	9.8	15.1	9.7	10.2
	Qualified technical worker	16.0	31.1	20.2	29.7	12.1	30.9	29.1
	Qualified non-technical worker	25.5	24.3	22.5	24.6	27.1	24.2	24.4
	Lower and middle management	10.6	18.9	9.7	18.4	10.7	18.5	17.8
	Top management	0.5	2.2	0.3	2.1	0.6	2.2	2
	Total	100	100	100	100	100	100	100

4.1.3 Education requirements of student jobs

The information about education requirements can be entered in a non-exclusive manner, meaning that the advertising subject can mark several educational categories that it deems suitable for a candidate applying for a given position. For the educational attainment analysis of student and non-student offers we therefore consider two related measures – minimum education and maximum education. Data presented in Tables 6 and 7 show the share of relevant job offers that marked as a minimum/maximum the required level of education in the respective educational category.

Minimum education suggests that student jobs are suitable for less educated individuals in comparison to non-student jobs. Forty-six percent of jobs in Slovakia and 49% in the Czech Republic that are suitable for students require lower education than secondary with leaving certificate. This compares to 12.6% (SK) and 13.3% (CZ) for non-student jobs. This pattern is consistent through all three definitions of student/non-student job. The maximum education (presented in Table 7) surprisingly shows that student jobs are not solely aimed at less educated individuals, but also at those with high-level education. Thirty percent of offers in Slovakia and 42.8% offers in the Czech Republic are suitable for PhD graduates. This exceeds the proportions of non-student job offers for PhD holders. This finding suggests that student jobs are not exclusive to a certain educational category, but rather are less dependent on the attained education of the prospective applicants.

Table 5: Minimum education requirement

Co un try	Education category	Definition1		Definition2		Definition 3		Tota l
		student job	non- student job	jobs aimed at student s	jobs not aimed at student s	flexible work contrac t	traditio nal work contrac t	
SK	Primary	11.7	2.6	9.5	3.7	12.9	2.8	4.1
	Secondary school student	11.9	0.0	25.3	0.0	8.7	0.9	1.9
	Secondary without leaving certificate	22.4	9.9	10.6	12.1	26.0	9.8	11.9
	Secondary with leaving certificate	38.9	50.7	36.2	49.8	39.1	50.3	48.8
	University student	8.4	0.0	17.8	0.0	5.4	0.8	1.4
	Higher professional education	0.7	2.7	0.0	2.6	0.8	2.6	2.4
	BA	2.1	13.5	0.1	12.6	2.5	13.0	11.7
	MA	3.7	20.5	0.1	19.2	4.5	19.8	17.8
	PhD	0.3	0.1	0.4	0.1	0.1	0.1	0.1
	Total	100	100	100	100	100	100	100
CZ	Primary	13.9	3.0	12.7	3.8	15.5	3.3	4.3
	Secondary school student	14.2	0.0	29.5	0.0	7.0	1.2	1.7
	Secondary without	20.5	10.3	12.9	11.4	24.2	10.3	11.5

	leaving certificate							
	Secondary with leaving certificate	35.2	52.4	28.2	51.7	38.3	51.4	50.3
	University student	7.9	0.0	16.4	0.0	3.5	0.7	1.0
	Higher professional education	1.3	3.3	0.0	3.3	1.8	3.2	3.1
	BA	2.4	14.6	0.0	13.9	3.3	14.0	13.1
	MA	4.4	16.4	0.0	15.9	6.2	15.8	14.9
	PhD	0.2	0.1	0.2	0.1	0.1	0.1	0.1
	Total	100	100	100	100	100	100	100

Table 6: Maximum education attainment

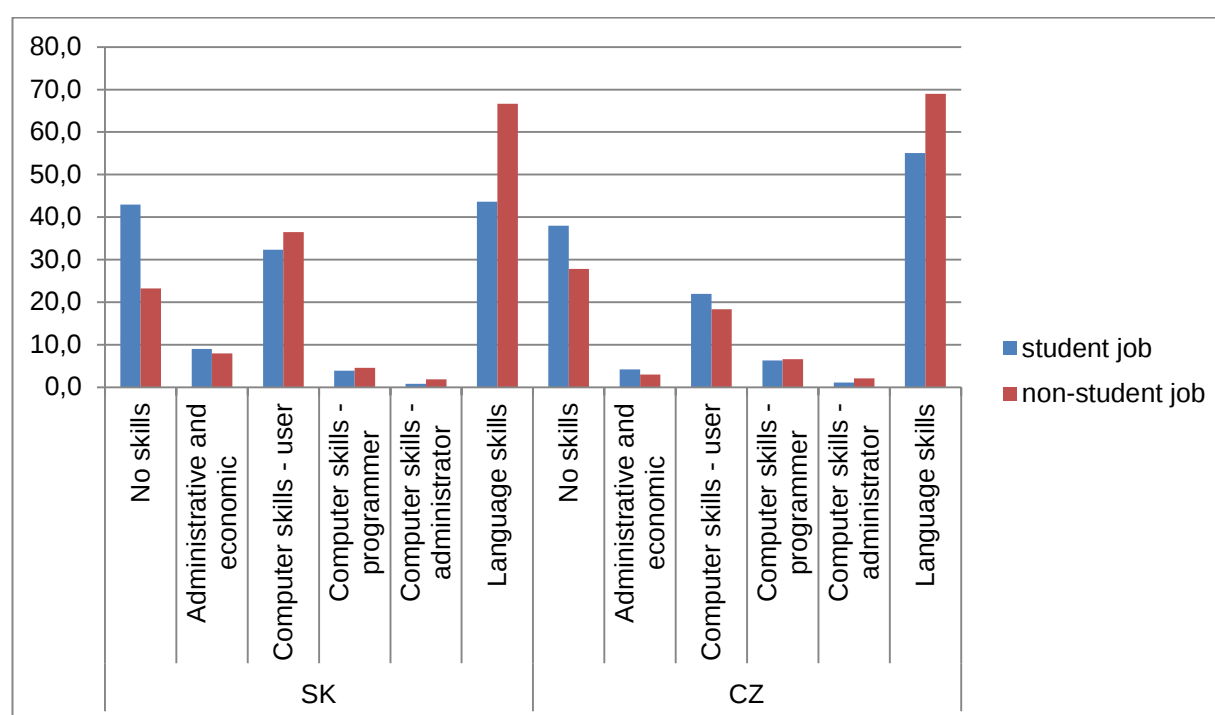
Co un try	Education category	Definition1		Definition2		Definition 3		Total
		student job	non- student job	jobs aimed at students	jobs not aimed at students	flexible work contract	tradition al work contract	
SK	primary	1.1	0.6	0.0	0.8	1.4	0.6	0.7
	secondary school student	1.0	0.0	2.1	0.0	0.4	0.1	0.2
	secondary without leaving certificate	3.3	1.8	0.2	2.2	4.0	1.8	2.1
	secondary with leaving certificate	17.4	19.7	1.9	20.8	20.6	19.2	19.4
	university student	9.4	0.0	20.0	0.0	9.6	0.3	1.5
	higher professional education	7.8	4.9	6.3	5.3	8.5	4.9	5.4
	BA	10.2	5.5	13.1	5.7	10.1	5.7	6.2
	MA	19.5	44.0	21.6	41.6	17.8	43.5	40.1
	PhD	30.2	23.4	34.8	23.7	27.6	24.1	24.5
	Total	100	100	100	100	100	100	100
CZ	Primary	1.2	0.6	0.0	0.7	1.7	0.6	0.7
	Secondary school student	1.5	0.0	3.2	0.0	0.3	0.2	0.2
	Secondary without leaving certificate	2.5	1.8	0.4	2.0	3.2	1.8	1.9
	Secondary with leaving certificate	19.3	20.0	1.6	21.0	26.0	19.3	19.9
	University student	4.6	0.0	9.6	0.0	3.3	0.3	0.6
	Higher professional education	4.4	3.4	3.8	3.5	5.0	3.4	3.5
	BA	6.4	5.2	9.0	5.1	5.1	5.3	5.3
	MA	17.3	32.9	19.9	31.7	16.4	32.4	31.0
	PhD	42.8	36.2	52.6	36.0	39.0	36.8	37.0
	Total	100	100	100	100	100	100	100

4.1.4 Skill requirements and previous experience

We measure skill requirements only by evaluating predefined skill categories. These include language skills, computer skills and administrative skills. Additional skills – cognitive and non-cognitive, are typically specified in the body of the text of the advertisement, but it is beyond the scope of this paper to analyse these (see Kureková et al., 2015).

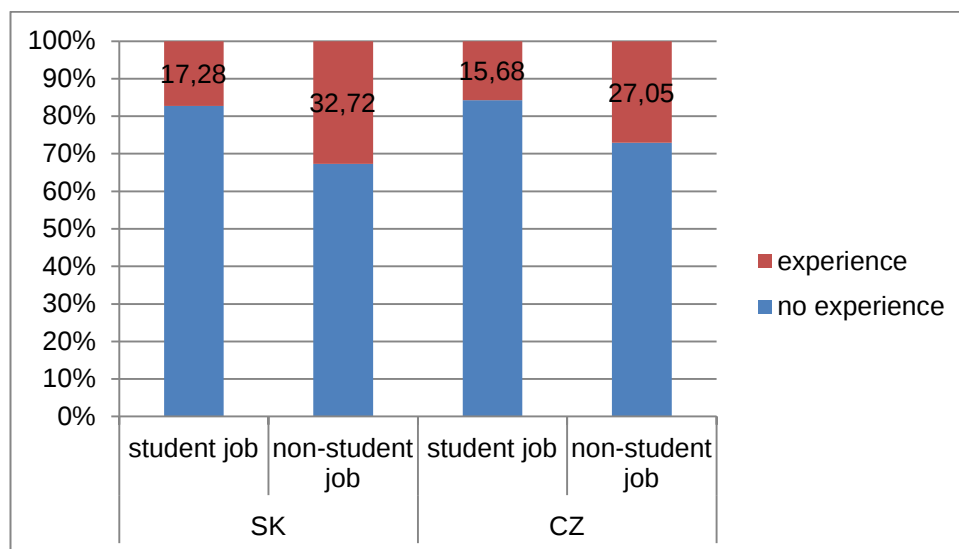
The majority of all analysed job vacancies require some skills. On average, student job offers are less demanding in the desired skill set. The proportion of job offers that does not require any skills is greater among student offers - 43% in Slovakia and 38% in the Czech Republic compared to 23% in Slovakia and 28% in the Czech Republic among non-student job offers. The skills that are most often required from prospective applicants are language skills, followed by computer user skills. Most notable is the gap in the requirements of language skills. In Slovakia 67% of non-student offers require knowledge of a language compared to 44% of student offers. In the Czech Republic the situation for non-student offers is similar, for student jobs the language requirements occur more often - in 55% of offers. The second most desired skills are computer skills, which are sought with similar frequency for student and non-student jobs. Administrative and advanced computer skills are required for less than 10% of the jobs and the difference between student and non-student jobs is small.

Figure 5: Skill requirements among student and non-student jobs



Previous experience might serve as a proxy for skills and as a signalling tool for employers about the employability of a candidate. We present the shares of offers that required experience in Figure 6. Only about 17% in Slovakia and 16% in the Czech Republic of positions advertised as suitable for students requested previous experience. Among non-student jobs, the share is about twice as large in both countries. Our earlier work revealed, however, that experience might be required in the body of the text and in fact seems to be the most required aspect on average (Kureková et al., 2015).

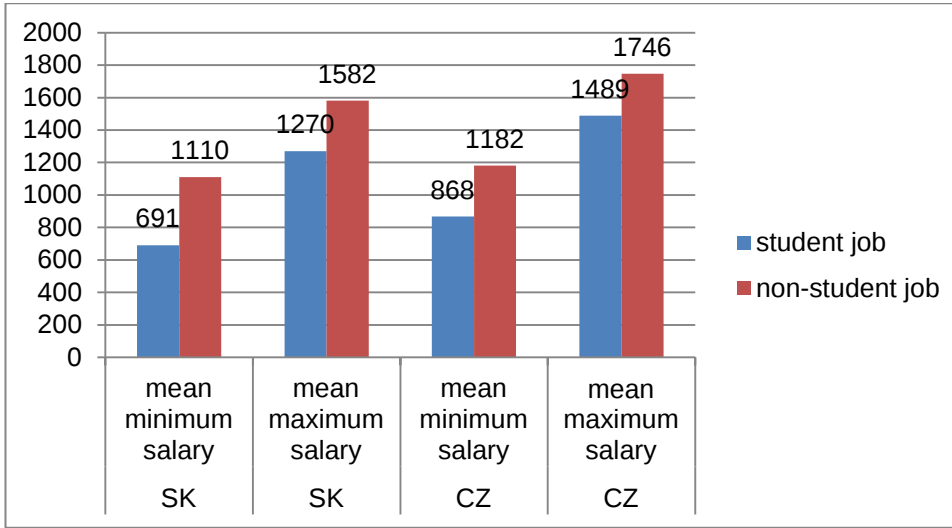
Figure 6 Requirement of previous experience among student and non-student jobs



4.1.5 Wage opportunities in student jobs

With respect to wage opportunities, employers could enter a salary range attached to a given position. We use two types of data: a minimum and a maximum salary. Since this information could be entered by employers optionally, many values are missing. Figure 7 presents mean minimum and mean maximum salary for student and non-student jobs. Clear patterns can be observed in both countries. First, the wage offered is on average higher for non-student positions. Second, the gap is more pronounced in Slovakia than in the Czech Republic and for the minimum rather than for the maximum wage. Third, mean wages are higher in the Czech Republic than in Slovakia. This suggests a greater wage dispersion/inequality in Slovakia than in the Czech Republic, especially at the lower end of the pay scale.

Figure 7: Maximum and minimum salary for student and non-student jobs



Note: Salary was recalculated per month and in euro. We applied cut-off points 10 - 9999 for minimum salary and 10 - 50000 for maximum salary.

4.2 Determinants of 'studentness'

In order to determine the characteristics of student jobs in a robust way, we conduct probabilistic regression analysis with clustered standard errors. The analysis helps us to define determinants of student offers and to better grasp features of the student labour market, including the variations we have conceptually defined in this work: job offers directly aimed at students and job offers based on flexible work contracts. We therefore use multiple dependent variables according to the three definitions of student jobs that we have worked with: broad definition of student job (D1: student job), and two more specific definitions: job aimed at students (D2) and jobs based on flexible work contracts (D3).

The following model is estimated:

$$Y^i = Bx^i + YZ^i + u^i$$

where vector B includes all available characteristics of job offers in country i : occupational group, sector, minimum and maximum required education, experience, skills, agency offer, and minimum salary; and vector Y includes macroeconomic variables: GDP growth and unemployment rate and year dummies. These were added in order to test the effect of crisis and economic conditions on the growth of student jobs. The error term is measured by u . Altogether, we estimated six logistic regressions for each country. Each definition of student offer is run with year dummies (M1-M3) or the two macroeconomic variables (M4-M6).⁹

We needed to tackle the non-exclusivity of categories of three variables – occupational group, sector and skills, we left the original structure of the dataset and entered the same offer more than once in the analysis when more than one value was ascribed to one (or more) of these variables. Then we applied clusters for each offer to deal with the non-independence of the observations.

⁹ Year dummies and macroeconomic variables could not be entered in the same model due to collinearity.

Results are presented in Table 8 for Slovakia and Table 9 for the Czech Republic. Findings are largely consistent across the different specifications. They might differ in strength, but typically not in significance across the three variations of dependent variable.

In Slovakia, we find significant effects of occupational group on the probability of a job being a student job. Relative to the least skilled category of auxiliary workers, the probability is lower if a job vacancy appeared for positions in more skilled occupational categories. This effect, however, is smaller in the case of a dependent variable defined strictly as student job (D2). A job offer which belongs to top management occupational group is nearly 30% less likely to be student job (D1), 28% less likely to be based on flexible work contracts (D3), but only 7% less likely to be targeted directly at students (D2). The sector also significantly effects the likelihood of a job offer being a student offer. Relative to the manufacturing sector, offers that belong to all other sectors, with the exception of agriculture and construction (D2), are more likely to be student offers.

The ‘studentness’ of a job offer declines with rising minimum educational requirements attached to a given job offer and rises with maximum educational requirements. If a job offer requires previous experience, it is 3-4% less likely to be a student offer. Relative to the requirement of no skills, the probability of a student offer declines if administrative and computer skills are required, especially advanced computer skills (programmer or administrator). Interestingly, the role of skill requirements is weaker in offers aimed directly at students (D2) – relative to no skills, administrative and language skills play no role in predicting student-aimed job offer. Student offers are significantly less likely to be advertised by recruitment agencies, which implies that companies prefer to target such candidates directly. With an increasing amount of salary offered, the likelihood of student job offer declines, and this effect is strongest in vacancies directly aimed at students (2.7%).

Over time, student jobs have become more widespread, especially since 2012. This effect is stronger for offers based on flexible work contracts than for offers directly aimed at students. It is difficult to distinguish a year effect as it could capture strategies of firms in post-crisis recovery, as well as legislative changes that have taken place (e.g. Labour Code amendments). However, the unemployment rate has a significantly strong effect – percentage growth in unemployment rate increases probability of student job by 1-2%. Improved macroeconomic performance measured by GDP growth only seems to negatively impact the occurrence of offers directly aimed at students.

Results for the Czech Republic are comparable to Slovakia in several aspects. First, we find significant effects of occupational group and sector on the ‘studentness’ of job offers. However, the effects of sector variables are weaker for models measuring the determinants of offers directly aimed at students (M2 and M5). Relative to the mining and manufacturing industry, the likelihood of student vacancy rises the most if it is classified in financial and insurance activities and in other services where it increases by 11-12% (depending on model specification).

Like the Slovak data, the ‘studentness’ of job offers declines with the rising minimum educational requirements attached to a given job offer and rises with maximum educational requirements. If a job offer requires previous experience, it is about 2% less likely to be a student offer, but not in the case of job offers directly aimed at students.

The Czech results differ from the Slovak findings in the skills variable. We find that relative to the requirement of no skills, the probability of an offer being directly aimed at students (M2 and M5) grows if it requires administrative, computer and language skills. However, we find a negative effect of required skills for student offers measured through flexible work contracts (M3 and M6). Student offers are less likely to be advertised by recruitment agencies. As expected, the likelihood of a student job offer declines with rising salaries. Student jobs have not spread since the crisis and years seem to have no independent effect on the probability of student jobs increasing on the labour market. The unemployment rate seems to have no effect on the studentness of jobs. In sum, the macroeconomic environment seems to have no effect on the occurrence of student jobs in the Czech Republic.

Table 7: Slovakia: Probability of the ‘studentness’ of job offers

	D1:Student job	D2: Job aimed at students	D3: flexible work contracts	D1:Student job	D2: Job aimed at students	D3: flexible work contracts
	M1	M2	M3	M4	M5	M6
Auxiliary worker (<i>reference category</i>)						
Qualified labourer	-0.214***	-0.050***	-0.193***	-0.213***	-0.050***	-0.193***
Administrative worker	-0.224***	-0.036***	-0.218***	-0.225***	-0.036***	-0.218***
Qualified technical worker	-0.235***	-0.036***	-0.245***	-0.237***	-0.036***	-0.246***
Qualified non/technical worker	-0.226***	-0.047***	-0.213***	-0.229***	-0.048***	-0.214***
Lower and middle management	-0.253***	-0.051***	-0.239***	-0.258***	-0.053***	-0.241***
Top management	-0.299***	-0.070***	-0.278***	-0.303***	-0.071***	-0.280***
Agriculture, forestry and fishing	-0.015	-0.015***	0.006	-0.017	-0.016***	0.006
Mining, quarrying and manufacturing (<i>reference category</i>)						
Construction	0.033***	0.006	0.035***	0.032***	0.006	0.035***
Wholesale and retail, transportation and storage, accommodation and food	0.049***	0.023***	0.043***	0.048***	0.023***	0.043***
Information and communication	0.207***	0.014***	0.238***	0.207***	0.014***	0.239***
Financial and insurance activities	0.117***	0.031***	0.102***	0.113***	0.030***	0.100***
Professional, scientific, technical, administrative and support service activities	0.071***	0.032***	0.063***	0.069***	0.031***	0.062***
Public administration, education, social work activities	0.141***	0.039***	0.118***	0.135***	0.038***	0.115***
Other services	0.131***	0.053***	0.091***	0.130***	0.053***	0.091***
Minimum education	-0.064***	-0.045***	-0.030***	-0.064***	-0.045***	-0.031***
Maximum education	0.028***	0.018***	0.019***	0.031***	0.019***	0.020***
Experience	-0.042***	-0.032***	-0.030***	-0.040***	-0.031***	-0.029***
No skills (<i>reference category</i>)						
Administrative skills	-0.098***	0,001	-0.100***	-0.098***	0	-0.100***

Computer skills - user	-0.046***	0.025***	-0.057***	-0.047***	0.025***	-0.057***
Computer skills - programmer	-0.124***	0.030***	-0.119***	-0.125***	0.031***	-0.120***
Computer skills - administrator	-0.154***	0.018	-0.155***	-0.157***	0.017	-0.155***
Language skills	-0.091***	0	-0.090***	-0.093***	0	-0.091***
Agency offer	-0.240***	-0.067***	-0.175***	-0.239***	-0.067***	-0.174***
Minimum salary (thousand euro per month)	-0.130***	-0.027***	-0.155***	-0.129***	-0.027***	-0.155***
2009 (<i>reference category</i>)						
2010	0.004	-0.013***	0.014**			
2011	0.014*	-0.002	0.027***			
2012	0.047***	0.010*	0.039***			
2013	0.042***	0.008*	0.031***			
2014	0.035***	0.002	0.022***			
GDP growth				-0.003	-0.002***	0
Unemployment				0.017**	0.007*	0.011**
_cons	5.454***	0.815*	3.783***	1,055	0.137**	0.989
N	125483	125483	125483	125483	125483	125483
Pseudo R2	0.262	0.2643	0.2647	0.2605	0.2628	0.2638

Note 1: Probit with clustered standard errors, marginal effects. Significance: * $p < .05$. ** $p < .01$. *** $p < .001$. Note 2: Data source: GDP – Eurostat, unemployment – Eurostat.

Table 8: Czech Republic: Probability of the ‘studentness’ of job offers

	D1: Student job	D2: Job aimed at students	D3: flexible work contracts	D1: Student job	D2: Job aimed at students	D3: flexible work contracts
	M1	M2	M3	M4	M5	M6
Auxiliary worker (<i>reference category</i>)						
Qualified labourer	-0.107***	-0.022***	-0.113***	-0.106***	-0.024***	-0.112***
Administrative worker	-0.098***	0.002	-0.129***	-0.098***	0.001	-0.129***
Qualified technical worker	-0.155***	-0.018**	-0.190***	-0.155***	-0.019**	-0.190***
Qualified non/technical worker	-0.111***	-0.015*	-0.135***	-0.110***	-0.016*	-0.135***

Lower and middle management	-0.153***	-0.033***	-0.158***	-0.153***	-0.033***	-0.158***
Top management	-0.175***	-0.068***	-0.150***	-0.174***	-0.069***	-0.150***
Agriculture, forestry and fishing	-0.020	-0.034***	0.028	-0.020	-0.033***	0.027
Mining, quarrying and manufacturing (reference category)						
Construction	0.038*	-0.01	0.051***	0.039*	-0.009	0.051***
Wholesale and retail, transportation and storage, accommodation and food	0.054***	0.015***	0.046***	0.054***	0.015***	0.046***
Information and communication	-0.010	-0.007	0.023**	-0.011	-0.008	0.023**
Financial and insurance activities	0.120***	0.026*	0.096***	0.122***	0.028*	0.094***
Professional, scientific, technical, administrative and support service activities	0.068***	0.016***	0.052***	0.067***	0.016***	0.052***
Public administration, education, social work activities	0.079***	0.004	0.095***	0.079***	0.005	0.094***
Other services	0.119***	0.071***	0.050*	0.119***	0.074***	0.049*
Minimum education	-0.073***	-0.048***	-0.027***	-0.073***	-0.048***	-0.028***
Maximum education	0.029***	0.023***	0.015***	0.029***	0.022***	0.015***
Experience	-0.023*	-0.001	-0.015*	-0.024**	-0.002	-0.016*
No skills (reference category)						
Administrative skills	-0.019	0.036***	-0.043***	-0.016	0.039***	-0.042***
Computer skills - user	-0.009	0.037***	-0.026***	-0.007	0.039***	-0.026***
Computer skills - programmer	0.031	0.036***	0.018	0.031	0.038***	0.017
Computer skills - administrator	0.032	0.073**	-0.078***	0.031	0.074**	-0.078***
Language skills	-0.019*	0.029***	-0.032***	-0.017*	0.031***	-0.032***
Agency offer	-0.250***	-0.075***	-0.181***	-0.248***	-0.074***	-0.180***
Minimum salary (thousand euro per month)	-0.042***	-0.011**	-0.055***	-0.042***	-0.012**	-0.055***
2009 (reference category)						
2010	0.027	-0.012	0.029**			
2011	0.020	-0.005	0.028**			

2012	0.000	-0.028***	0.015			
2013	0.026*	-0.011	0.025**			
2014	0.015	-0.020*	0.011			
GDP growth*				0.003*	0	0.003**
Unemployment				0.009	-0.001	0.013
_cons	2.608***	0.263***	1.645***	1,88	0,276	0.732
N	46143	46143	46143	46143	46143	46143
Pseudo R2	0.2561	0.2478	0.275	0.2557	0.2452	0.2745

Note 1: Probit with clustered standard errors, marginal effects. Significance: * $p < .05$. ** $p < .01$. *** $p < .001$. Note 2: Data source: GDP – Eurostat, unemployment – Eurostat

4.3 Position-specific analysis

For the analysis of low-skilled jobs we selected a range of low-and medium-skilled positions based on the categorisation provided by Profesia. In Table 10 we add the respective International Standard Classification of Occupations (ISCO-08) codes that refer to the overall level of skills demanded for a certain position according to recognised international classification and proxy skill sophistication. The positions were selected with the aim to cover ‘typical’ occupations from the less-skilled segment of the labour market across different skill and education requirements as prescribed by ISCO classification. The majority of selected occupations broadly belong to the service sector, where we expect most opportunities for student employment. We analyse how vacancies in these positions differ for those marked as student vacancies from the non-student ones. The advertised vacancies for these positions constitute 12% of all job offers in Slovakia and nearly 9% in the Czech Republic.

Table 9: Characteristics of positions within selected occupations: Slovakia and Czech Republic

	SK						CZ				
	ISCO code	N	Share of all offers	Share student offers			N	Share of all offers	Share student offers		
				Def. 1	Def. 2	Def. 3			Def. 1	Def. 2	Def. 3
Administrative worker, officer	4	43 313	37.5	18.9	11.1	15.2	8255	38.4	16.2	8.1	12.5
Secretary	4/412	5236	4.5	23.6	12	20	756	3.5	20.6	12.3	15.7
Receptionist	4/4226	4930	4.3	39.2	24.8	30.8	1048	4.9	46.1	34.5	30.2
Cook	5/5120	5397	4.7	35.2	11.3	30.9	1043	4.9	39.7	18.1	30.3
Waiter & waiter - room service	5/5131	5421	4.7	47.5	22.7	40	1107	5.2	42.2	30.4	26.9
Bartender	5/5132	1931	1.7	50.1	26.5	41.1	512	2.4	50.6	36.3	31.3
Hostess	5/5149	995	0.9	90.3	60.7	83.7	230	1.1	76.1	58.3	52.6
Salesperson	5/522	17770	15.4	30.6	11.8	28.6	1851	8.6	30.2	10.4	27.9
Cashier	5/523	6980	6.0	35.4	18	33.8	896	4.2	32.7	4.4	30.7
Au-pair	5/53	301	0.3	54.5	29.6	44.6	122	0.6	47.5	35.3	27.1
Caretaker, personal assistant	5/532	1556	1.4	31.3	19.2	18.5	653	3.0	32.8	23.9	17.0
Handyman, maintenance	7/7126	1637	1.4	17.6	4.2	16.2	174	0.8	20.1	12.6	17.8
Tailor/ Seamstress	7/7531, 753	858	0.7	27.5	2.9	25.9	143	0.7	14.7	2.1	12.6
Auxiliary worker	9	8442	7.3	68.8	34.6	65.1	1665	7.7	52.9	23.4	42.8
Cleaner	9/91	1637	1.7	73	21.5	71.3	178	0.8	48.9	18.5	38.8
Chambermaid	9/911	1734	1.5	53.4	31.1	42.9	709	3.3	51.3	37.8	34.0

Labourer	9/93	7186	6.2	41.7	14	37	2170	10.1	32.7	17.4	21.2
Total		11566 2	100	43.4	20.9	38.0	2151 2	100	38.5	22.6	27.6
Share among all offers			12	-	-	-		8.6			

We present the share of student offers across the three definitions of student jobs. It can be seen that the share of student offers varies across positions and across definitions of the student job.

The share of student offers in the selected positions is much higher than the share identified for the full sample. On average, 43% in Slovakia and 39% in the Czech Republic of analysed positions for the selected occupations can be identified as student offers based on the broad definition 1. Importantly, looking at definition 2 and definition 3, it is clear that the share of student jobs in the first definition is largely formed by the proportion of positions with shorter working hours rather than positions advertised directly for students. On the other hand, it can be seen that these definitions overlap to some extent – the correlation coefficient between the two is 0.44 for the Slovak data and 0.31 for the Czech data.

In Slovakia, the highest share of student offers is found for hostesses, cleaners, auxiliary workers and chambermaids, which are the least-skilled occupations (with the exception of hostess). The lowest share of student workers is seen for administrative workers and handyman/maintenance, which are fairly skilled occupations. In the Czech Republic, higher shares of student offers can also be observed in the less-skilled positions - chambermaid, cleaner, auxiliary worker, au pair, although there are some exceptions (hostess and bartender). The least student offers appear among vacancies for tailors and seamstresses, administrative workers and secretaries, which demand higher skills. We can thus conclude that, broadly speaking, the share of student offers decreases with the sophistication of the occupation and the level of education and skills demanded as proxied by ISCO occupational classification.

We proceed to analyse the selected positions in greater detail, presenting results based on the broad definition 1 in Table 11 for Slovakia and in Table 12 for the Czech Republic. We focus on educational requirements (minimum and maximum), skills, experience and wage opportunities.

4.3.1 Educational requirements

We find great similarities in the two countries with respect to educational requirements marked for the selected occupations and the differences between student and non-student job offers. In both countries, the average *minimum educational requirements* for the selected positions in student jobs are moving around secondary education without leaving certificate (3). For non-student positions the mean minimum education reaches the value of secondary education with leaving certificate (4). This accounts for all selected occupations (except for auxiliary workers in Slovakia), although smaller or bigger differences can be observed. Thus, although there is variation among individual offers, the gap between student and non-student jobs is constant. With respect to *maximum marked educational requirements*, we find a reversed pattern for student and non-student job offers: for the vast majority of positions, the average maximum education is higher for student positions.

Interestingly, we also find a very strong negative relationship between average educational requirements in the selected positions and the ISCO code (Table 10). There is a strong correlation between the formal sophistication of a job vacancy (measured by ISCO) and the demanded minimum education, also in student jobs, not only in non-student vacancies and this strong negative relationship holds across the two countries. This implies that while student job offers are on average less demanding with respect to minimum formal education of a job candidate, this is the case across skill levels and types of occupations. In Slovakia, we find a similar relationship with respect to maximum education requirements, but this relationship is much weaker in the Czech case.

4.3.2 Skill and experience requirements

In both countries, fewer student-marked vacancies require some skills than non-student vacancies; however, there are marked position-specific differences in the type of skill demand. We map administrative, computer and language skills and also compute ‘sum of skills’, which is a simple sum of the share of vacancies requesting a given skill type for the analysed position (Table 11, Table 12).

In both countries, the most demanded skills in the analysed set of positions are language capabilities, while the least demanding are administrative skills. Language skills are demanded in positions with a high share of offers abroad (caretaker, au pair), and in the hospitality sector, such as receptionist, waiter, bartender and chambermaid. The results also show a connection between the requirement of administrative and computer skills, as the share of offers with computer skills requirements (although much higher) mirrors the pattern of the share of offers with administrative skills requirements. In Slovakia, there is a strong relationship between the ‘skill intensity’ of a given position measured by the sum of skills indicator and ISCO, and this is the case for student-marked offers as well as the non-student offers. This association is somewhat weaker in the Czech Republic (Table 10). This implies that although student job offers by and large require fewer skills, the main driver of different skill intensity is skill sophistication (i.e. ISCO), and not whether the job offer is student or non-student. The most skill-intensive positions are administrative worker, secretary and receptionist.

Unsurprisingly, in both countries the non-student offers more often require at least some experience compared to student offers. Experience is most desired in trades such as cook, waiter, bartender and tailor. There is a weak relationship between ISCO level and experience expectation in all types of vacancies (Table 10).

4.3.3 Wage opportunities

Similarly to the general analysis, we find relatively large difference in the level of salaries offered across the two countries. Student job offers are systematically offered lower pay in both countries. An exception in both countries is labourers, where student job offers are on average better paid, suggesting that there might be a precariousness premium in this particular occupation. The best-paid positions are caretaker/personal assistant and au pair in both countries. These positions are often hired for foreign labour markets, and hence offer a higher salary. There appears to be no link between the formal level of skills associated with position/occupation and the minimum salary offered, as demonstrated by weak correlations (Table 10).

Table 10: Correlations between ISCO code and selected variables

		Minimum educational requirements	Maximum educational requirements	Sum of skills	Mean minimum salary	Share experience
Slovakia	Student	-0.80*	-0.52*	-0.73*	-0.04	-0.12
	Non- student	-0.84*	-0.62*	-0.74*	-0.14	-0.30
Czech Republic	Student	-0.78*	-0.23	-0.56*	0.03	-0.18
	Non- student	-0.79*	-0.25	-0.60*	0.03	-0.20

Note: * - significant at 0.05 level

Table 11: Analysis of characteristics of student and non-student marked positions within selected occupations: Slovakia

	Mean required minimum education		Mean required maximum education		Mean minimum salary*		Share Experience		Administrative skills		Computer skills		Language skills		Sum of skills	
	Student vacancy	Non-student vacancy	Student vacancy	Non-student vacancy	Student vacancy	Non-student vacancy	Student vacancy	Non-student vacancy	Student vacancy	Non-student vacancy	Student vacancy	Non-student vacancy	Student vacancy	Non-student vacancy	Student vacancy	Non-student vacancy
Admin worker, officer	3.8	4.7	6.9	7.3	556	847	8.7	18.8	16.5	13.4	55.3	44.1	56.6	80.6	128.4	138.1
Secretary	3.8	4.3	6.7	6.7	592	673	16.7	34.5	31.3	29.8	67.4	71.9	46.6	55.8	145.3	157.5
Receptionist	3.4	4.0	6.8	6.4	699	865	16.2	29.1	19.7	22.3	49.9	58.2	76.4	71.6	146	152.1
Cook	2.6	3.0	6.0	5.2	773	978	41.6	45.7	4.4	3.3	5.4	5.1	39.2	33.9	49	42.3
Waiter & room service	2.8	3.2	6.3	5.6	752	985	33.4	41.9	11.0	11.2	9.7	10.7	65.8	68.4	86.5	90.3
Bartender	2.8	3.2	6.5	5.7	743	1005	36.3	41.0	8.9	11.2	9.8	12.4	71.9	73.3	90.6	96.9
Hostess	2.7	3.6	7.2	5.8	537	867	1.7	8.3	1.2	2.1	7.1	11.3	36.5	71.1	44.8	84.5
Salesperson	2.9	3.5	5.7	5.1	492	595	10.7	25.8	13.7	20.3	20.0	40.0	21.4	28.6	55.1	88.9
Cashier	2.6	3.4	6.1	5.3	489	564	7.9	22.7	16.9	27.0	13.6	38.8	18.1	25.4	48.6	91.2
Au pair	3.0	3.1	7.4	7.0	1106	1572	11.6	15.3	0.6	0.7	3.1	1.5	76.8	89.8	80.5	92
Caretaker, assistant	2.9	3.4	8.1	6.4	1191	1468	10.8	18.4	0.4	0	16.5	3.7	82.9	72.9	99.8	76.6
Handyman, maintenance	3.0	3.4	5.4	5.0	691	940	20.5	39.7	1.4	1.8	16.7	21.4	17.7	22.4	35.8	45.6
Tailor & Seamstress	2.6	2.8	4.8	5.1	448	535	50.9	26.4	2.5	0.5	4.2	2.4	8.9	8.8	15.6	11.7
Auxiliary worker	2.5	2.5	6.2	5.0	705	829	4.0	13.1	1.5	1.2	7.3	6.5	19.5	34.4	28.3	42.1
Cleaner	1.8	2.0	5.0	4.4	430	755	5.6	17.0	0.4	0.6	2.1	2.6	11.4	28.1	13.9	31.3
Maid (Chambermaid)	2.0	2.6	6.3	5.9	907	1091	20.4	24.4	1.6	2.0	9.9	4.5	56.5	73.6	68	80.1

Labourer	2.2	2.5	6.0	5.2	750	708	8.5	17.1	0.2	0.6	3.1	5.6	14.4	19.0	17.7	25.2
Total among selected	2.8	3.2	6.3	5.7	698	899	18.0	25.8	7.8	8.7	17.7	20.0	42.4	50.5	67.9	79.2
Total among all offers	3.5	5.1	6.9	7.3	699	1091	16.4	33.7	8.2	7.6	38.4	42.7	42.5	63.4	89.1	113.7

Note1: Based on Definition 1. * - cut off points were applied 10 - 9999 for minimum salary and 10 - 50000 for maximum salary

Note2: 1-primary, 2-secondary school student, 3-secondary without leaving certificate, 4-secondary with leaving certificate, 5-university student, 6-higher professional education, 7-BA, 8-MA, 9-PhD.

Table 12: Analysis of characteristics of student and non-student marked positions within selected occupations: Czech Republic

	Mean required minimum education		Mean required maximum education		Mean minimum salary		Share Experience		Administrative skills		Computer skills		Language skills		Sum of skills	
	Student vacancy	Non-student vacancy	Student vacancy	Non-student vacancy	Student vacancy	Non-student vacancy	Student vacancy	Non-student vacancy	Student vacancy	Non-student vacancy	Student vacancy	Non-student vacancy	Student vacancy	Non-student vacancy	Student vacancy	Non-student vacancy
Admin worker, officer	3.3	4.4	6.9	7.2	645	771	5.8	12.0	7.6	5.1	34.3	33.4	56.2	79.7	98.1	118.2
Secretary	3.6	4.2	7.1	7.2	708	769	19.2	27.2	26.3	13.2	55.1	44.2	58.3	72.7	139.7	130.1
Receptionist	2.9	3.6	7.5	6.4	905	1093	15.9	22.3	9.9	11.9	23.6	31.0	89.0	84.8	122.5	127.7
Cook	2.1	2.8	6.9	5.5	964	1182	32.4	45.3	1.9	3.2	5.6	5.6	69.6	55.0	77.1	63.8
Waiter & room service	2.6	3.0	7.3	6.3	1050	1347	25.1	32.5	3.4	5.2	6.4	4.1	88.7	91.6	98.5	100.9
Bartender	2.8	3.0	7.6	6.0	909	1071	26.3	36.4	3.1	4.0	7.0	3.6	90.0	85.4	100.1	93
Hostess	2.8	3.3	7.7	5.5	493	954	3.4	10.9	0.6	0.0	2.3	3.6	58.3	74.6	61.2	78.2
Salesperson	2.7	3.6	6.1	5.2	660	725	6.1	23.8	5.7	6.2	10.6	31.8	21.2	39.8	37.5	77.8
Cashier	2.2	3.6	6.6	4.8	600	620	6.5	23.6	5.5	9.0	5.8	20.6	43.7	23.7	55	53.3
Au pair	2.4	2.6	8.0	7.8	1348	1703	6.9	15.6	0.0	0.0	0.0	0.0	93.1	98.4	93.1	98.4

Caretaker, assistant	2.6	3.2	8.6	7.6	1433	1492	11.7	25.7	0.0	0.0	0.5	2.1	93.9	81.6	94.4	83.7
Handyman, maintenance	2.6	3.2	7.5	6.2	830	1424	17.1	25.9	0.0	1.4	14.3	14.4	34.3	66.2	48.6	82
Tailor & Seamstress	1.9	2.7	4.5	4.8	476	649	38.1	37.7	0.0	0.0	4.8	4.1	28.6	18.9	33.4	23
Auxiliary worker	2.0	2.4	6.9	5.8	958	956	4.6	11.0	0.0	0.4	0.8	1.8	55.1	56.9	55.9	59.1
Cleaner	1.5	2.3	6.3	5.8	855	1305	2.3	26.4	0.0	0.0	0.0	2.2	49.4	58.2	49.4	60.4
Maid (Chambermaid)	2.2	2.5	7.6	6.6	942	1179	14.8	24.9	0.3	1.7	8.5	1.2	87.4	92.8	96.2	95.7
Labourer	1.8	2.2	7.0	5.9	887	746	6.5	8.4	0.3	0.0	1.6	2.3	33.0	31.0	34.9	33.3
Total among selected	2.5	3.1	7.1	6.2	863	1058	14.3	24.1	3.8	3.6	10.7	12.1	61.8	65.4	76.2	81.1
Total among all	3.3	4.9	7.2	7.3	847	1160	14.8	28.7	4.1	3.1	27.5	26.7	51.3	63.8	82.9	93.6

*Note1: Based on Definition 1. * - cut off points were applied 10 - 9999 for minimum salary and 10 - 50000 for maximum salary*

Note2: 1-primary, 2-secondary school student, 3-secondary without leaving certificate, 4-secondary with leaving certificate, 5-university student, 6-higher professional education, 7-BA, 8-MA, 9-PhD.

5. Conclusion

This paper looked at patterns of student employment in two East-Central European countries. The structure of the online data enabled us to study the characteristics of vacancies that we classify as ‘student jobs’ and to compare them with ‘non-student’ jobs. We adopted a two-pronged approach to defining student jobs and classified as student vacancies job offers directly aimed at students based on educational requirements stated in the job offer and internship offers, as well as job offers that propose flexible types of contracts – temporary or part-time contracts.

Existing academic literature and empirical studies offer only relatively general findings about the student labour market and position it in the low-skilled labour market segment and in flexible forms of contractual arrangements. We find that, indeed, there are many similarities between the student job market and ‘flexible’ job market as reflected in similar results for definition 2 and definition 3 in different aspects of the empirical analysis. We also confirm that most student vacancies exist in the service sectors.

We also generate a number of new findings. First, while student vacancies require fewer skills on average than non-student vacancies, there are marked position-specific differences in skill intensity required for individual low- and medium-skilled positions/occupations. Second, the student labour market is dispersed across the low- and medium-skilled segment of the labour market and is not exclusively concentrated in the least skill-intensive jobs/occupations: a significant share of student offers is to be found in medium-skilled positions, namely qualified labourers, non-technical workers, and administrative workers. This is generally the case in both countries. This implies that the student worker labour market is quite diverse with respect to broad occupational categories and the related skill demand. It extends beyond the least-skilled segment of the labour market for which no qualifications or skills are needed.

Third, student jobs are not exclusive to a certain educational category, but rather are less dependent on the attained education of prospective applicants. Moreover, student vacancies require fewer skills, on average. Through position-specific analysis we find that there is a strong correlation between the formal sophistication of a job vacancy (as measured by ISCO) and the required minimum educational level, as well as required skills, also in student jobs, not only in non-student vacancies, and this strong negative relationship holds across the two countries. This implies that while student job offers are generally less demanding, this is the case across the skill levels and types of occupations. In other words, the key driver of differing skill intensity is skill sophistication, not only whether the job offer is student or non-student. The student labour market is therefore distinct in its systematically lower level of requirements. In addition, it does not appear to focus solely on the least skilled and most precarious segments of the labour market.

Together, these findings seem to support the ‘complementarity view’ of the coexistence of student employment and low-skilled employment rather than the crowding out theory. Younger workers might have an advantage in some specific positions, especially those requiring good language proficiency and vacancies for foreign labour markets that require relocation. However, they are not ‘taking over’ the low-skilled labour market in the two countries analysed in this study: even in some of the least skilled positions (auxiliary workers, labourers), student-market vacancies are less demanding in terms

of education, skills, or experience.

With respect to the country comparison, we find mostly similar results. In both countries, the vast majority of job offers are non-student vacancies - about 84% in Slovakia and 88% in the Czech Republic, between 2009 and 2014. Moreover, a clear growth trend in student job offers is evident over time. Importantly, this trend is driven both by the growth of directly student-targeted job offers as well as through the increase in offers based on flexible contractual contracts. The growth has been especially steep in Slovakia where it can be linked to post-crisis recovery. Results for two countries are comparable in significant predictive power of occupational group, sector, educational requirements, salary, and experience requirements on the studentness of job offers. However, we identify differences in the effect of macroeconomic environment. In Slovakia, the unemployment rate has a significant strong effect – a percentage growth in unemployment rate increases the probability of a student job by 1-2%. Improved macroeconomic performance measured by GDP growth decreases the occurrence of offers directly aimed at students. The macroeconomic environment seems to have no effect on the occurrence of student jobs in the Czech Republic.

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Appendix

Table A1: Key student work statistics, 2011

	youth unemployment	share of working students	share of working students<25	share of paid training programs
SK	33.6	15.88	5.37	1.14
CZ	18.3	22.34	8.87	0.55
EU 27	23.17	32.82	21.75	5.39

Source: Beblavý et al 2015, based on EU LFS.

Table A2: Profesia classification of skill levels

Auxiliary workers
- does not require any education
- e.g.: auxiliary worker/helper, au pair
Qualified labourers and workers in services
- requires secondary education with certificate (lower-level specialized or vocational)
- e.g.: miller, hairdresser, machine operator, waiter
Administrative workers
- requires secondary education without specialisation
- e.g.: secretary, administrative worker, accountant, salesman/businessman
Qualified technical workers
- requires complete secondary education or university education of technical orientation
- e.g.: technologist, (machine) designer, web designer
Qualified non-technical workers
- requires complete secondary education or university education without technical orientation
- e.g.: account manager, reporting specialist, teacher
Lower and middle management
- requires university education and experience in a given position
- e.g.: head of unit, project manager, product manager
Top management
- requires university education and extensive experience in a given position
- e.g.: director of logistics, director of school

Source: Profesia