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**THE IMPACT OF INTERNATIONAL LEARNING MOBILITY ON
RECENT GRADUATES**

**A NEMZETKÖZI TANULMÁNYI MOBILITÁS HATÁSA A
FRISS - DIPLOMÁSOKRA**

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1. INTRODUCTION

This paper focuses on international learning mobility during higher education and its impact on the labour market position of recent graduates in the case of Hungary. In my research I aim to discover the potential differences between students who participated in an international learning mobility programme and those who have not. The choice of topic was lead by personal motivation and curiosity, however the employability of the recent graduates and the whole internationalisation phenomena of higher education institutes are a current topic, considering the constantly changing world we leave in.

The international mobility programmes are increasingly popular among students, therefore it is worth and necessary to examine their potential impact. These programmes are the most visible manifestation of the internationalisation in higher education phenomena, which is a relevant issue from both perspectives: universities and students. From the institutions' perspective, the goal is to improve education continuously and increase competitiveness at the global level. While for students, the opportunity to study abroad plays a key role in building their careers and developing their competencies. Studies show that learning abroad programmes - like ERASMUS+ - support the aspirations of universities and students as well.

My objective is to explore the potential relations between student mobility experience and the initial labour market situation of recent graduates and prove or disprove its positive impacts. By contrast, this research does not cover the benefits of universities' internationalisation efforts or examine in detail the impact of student mobility on universities. However, for further research an other perspective can be an interesting direction too.

First, I make a comprehensive review of the internationalisation phenomena in the higher education system generally, focusing on its meaning, goals, different tools and types. Then I collect the most important impacts of mobility programmes on the individuals based on the available literature. Thereafter I am analysing the data of Hungarian Graduate Career Tracking System (GCTS) by the SPSS software to answer my research questions and prove (or reject) the hypotheses. During my analysis, I compare my results to the information found in the available literature. On this basis, the research can provide a slice of a big picture and determine why it is worthwhile for students in a short-term to participate in a mobility abroad programme during their higher education and what positive effects it can have on their labour market position. The research could provide useful results for professional career planning.

In the following I describe in detail the exact research questions and the related hypothesis.

Research question 1.: What are the main impacts of international learning mobility for individuals?

In my first research question, I am looking for answers to the question of the impact of learning mobility in general on the students/fresh graduates. It is important to underline that I am looking at the impact on students who are basically studying and will obtain their degree in their home country, but who spend a longer or shorter period of time abroad for study purposes in the framework of a mobility scheme.

To respond this question, I analyse the available international literature and compare the main findings. In the used methodology I filter the studies based on their research purposes and focusing only on the effects of short-term credit-mobility during tertiary education. I neglected the researches which are focusing on mobilities during secondary education and those which are examining the impacts of the degree-mobility. The main differences between the specific terms credit and degree-mobility is explained in chapter 1.

Research question 2.: Does it affect the net wage in the first year after graduation if an individual has participated in an international learning mobility programme for some time?

My second research question relates more specifically to the potential positive labour market benefits of the international learning experiences. I want to explore whether the international learning mobility experience affect on net wages in the first year after graduation. The answer to this question is be determined by two components, first I will draw a conclusion following the literature review, and then the results of my own empirical research will outline the comprehensive answer.

There are two related hypothesis:

H1: In the first year after graduation, there is a significant difference between the net income of recent graduates who have participated in an international learning mobility programme for some time (mobile students) and those who have not (non-mobile students).

I accept this hypothesis only if there is a difference (at 5 percent significance level) between the wages of mobile and non-participating students, in such a way that I divide the mobile students into two subcategories based on whether they have studied abroad for less than one semester (semi-mobile students) or at least one semester (full-mobile students) and comparing to those who did not participate at all. If the hypothesis is true in both comparisons I accept the hypothesis, if it is true only one subcategory, I accept it in part, otherwise, I reject it. The used methodology is one way analysis of variance based on the data of the Hungarian Graduate Career Tracking System.

H2: At least one semester of international study mobility experience contributes to a higher net salary in the first year after graduation.

In this hypothesis I assume that **full-mobile students** can benefit from their international learning experience and reach higher net salary than their non-mobile peers in the first year after graduation. I accept H2 if the result of OLS linear regression represents that mobility experience at a 5 percent significance level can influence the development of net wages after all other explanatory and control variables are taken into account. Otherwise, I reject the hypothesis.

Research question 3.: Does it affect the length of study-to-employment transition if an individual has participated in an international learning mobility programme for some time during their studies?

My third research question is connected to other potential labour market benefit. I want to explore whether the duration of study-to-work is affected by the international learning experience or not. And if yes in which direction.

I have two related hypotheses:

H3: In the first year after graduation, there is a significant difference between the lengths of study-to-employment duration of recent graduates who have participated in an international learning mobility programme for some time (mobile students) and those who have not (non-mobile students).

This hypothesis – similarly to H1 – is acceptable at a 5 percent significance level if, there is significant difference between full-mobile and non-mobile students, as well as there is a significant difference between semi-mobile and non-mobile individuals in terms of

length of study-to-work transition. If the hypothesis is true only in the case of one subcategory, I partly accept it, if both are false, I reject it. The used methodology is one-way ANOVA.

H4: *Those students who have participated in an international learning mobility programme for at least one semester (full-mobile students) can find a job sooner, than those who have not (non-mobile students).*

I assume that the human capital of the individual increases as a result of the experience abroad, and thus the full-mobile students' labour market value improves so that those who have at least one semester-long international study experience find a job faster than those who have not. I accept this hypothesis if OLS linear regression model shows that the longer (at least one semester-long) study mobility influences positively the length of study-to-employment transition, i.e., full-mobile students can find a job sooner after graduation than their non-mobile peers. If it cannot be proven, I reject the hypothesis.

2. INTERNATIONALISATION OF HIGHER EDUCATION

In the first chapter I compare the definitions of internationalisation since it has several different interpretations and aspects, which all together creates the coherent concept of internationalisation. Then I examine its role, rationales and importance in higher education. Internationalisation can be explained as a response to increasing globalisation in all economic sectors, including higher education, however, it has also a significant impact on students' competencies and career planning.

Both institutional and individual perspective could be interesting research topic, however the objective of this thesis focuses on a narrower topic: the purpose is to understand how international mobility programmes (especially short-term mobility) affects students, recent graduates' career prospects, and employability after graduation, furthermore, the first salary and the time needed to find the first job. Nevertheless, I believe that to answer the specific question, we need to understand first the framework in which the processes are taking place, and that framework is the internationalisation of higher education itself.

The goal of this part is to examine and understand why internationalisation is a current and so important phenomenon and to explore what are the key motives behind its spread and what are the ways in which the internationalisation of higher education can take place, including the several mobility types. At the end of this chapter, I will show how the popularity of student mobility has changed in Hungary, which is one of the most visible manifestations of the rise of internationalisation.

2.1. DEFINITION, RATIONALES AND GOALS

According to Knight's (1993) definition, the internationalisation of higher education is a process, which integrates the international and intercultural dimensions into the functions of universities, like teaching, researching, and other service functions. This concept assumes that internationalisation is a dynamic process, but it does not contain any reference to further goals, which means the internationalisation process is the aim itself. On the contrary, Van der Wende (1997) emphasizes that internationalisation is rather a tool to achieve wider goals, such as quality improvement and system upgrading in education, and it can be therefore seen as a key resource for responding to the challenges of globalisation and labour markets.

Altbach (1998) argues that universities were originally international institutions, where the faculty members and students came from all over the world. At medieval universities the commonly used language was Latin, however later in the nineteenth century –

during the idea of nationalism spread – the universities started to use the local languages instead of Latin. Despite this phenomenon several common, cross-border elements remain in higher education and those can be found in the current system as well, like international research groups and conferencies. After World War II. the academic power shifted to the English-speaking countries; thus, English became the bridge between the researchers in scientific discussion.

The commonly used language enhances the internationalisation processes and creates opportunities to find new teaching methods and ideas, furthermore, it also brings the researchers of different nationalities closer to each other. However, the internationalisation of higher education has several advantages beyond the opportunity for international debates. According to Kehm and Teichler (2007), the main aspects of internationalisation are the **physical mobility of students and academic staff**, which is the most visible sign of internationalisation efforts. Furthermore, the border-crossing **knowledge transfer** is important to improve the education system, this aspect includes all books, articles, and other media channels, which can support knowledge sharing among the universities. Through **international learning and research materials** and comparative approaches, the higher education systems mutually **influence each other's activity**, enhancing cooperation and competition.

Overall, internationalisation is a process that involves elements of physical mobility and sharing, expanding, and disseminating knowledge as an intangible good. The commonly used language creates the ground for discussions and supports mutual understanding. It is an umbrella term, which covers all activities, methods, and approaches to enhance cooperation and competition between universities.

There are several explanations and motivations behind the increasing need for internationalisation. Knight (1997) clusters the possible rationales into four groups: political, economic, academic, and cultural/social. **Political rationale** refers to the countries' position in the world, including the aspects of stability, peace, and security. Knight sees internationalisation as a diplomatic investment for the future, with promising future leaders who understand different cultures. **Economic rationale** includes all objectives related to the countries' long-term economic benefits. The skilled and internationally competitive human capital can contribute to a country's trade relations and income-generating motives. The third cluster is the **academic rationale**, which is strongly related to the aspirations of higher education, like to achieve international academic standards from the teaching and research aspects as well. Finally, the **cultural and social rationale** focuses on the significance of

understanding foreign cultures. Internationalisation is a way of respecting cultural and ethnic diversity. To conclude, the arguments behind the intentions of internationalisation are more focused on macro level than individual development.

Altbach and Knight (2007) differentiate the goals of higher education institutes in a simpler way. They found that **making a profit** is a key purpose for internationalisation projects, however, the universities also wish to enhance international research and increase cultural understanding. The other key goal is to **provide access to higher education**, where the demand is rapidly increasing, but the supply cannot satisfy all needs. This is mainly the case in India, China, and Africa. The forms of access provision can be branch campuses, franchised academic programmes, or independent institutions.

Overall, it can be seen that internationalisation efforts are not born from the bottom up (born out of student demand) but rather are driven by a higher macro-level objective. However, the most visible and - in the long term - perhaps the most effective manifestation of these goals can be found in international mobility programmes. The results of these programmes for individuals can be measured in a shorter time than monitoring the impact of internationalization on a country's macro-economy, thus my research is an attempt to examine individual benefits.

2.2. INTERNATIONALISATION OF HIGHER EDUCATION IN EUROPE AND HUNGARY

Internationalisation played an important role in the development of the European - and thus the Hungarian - higher education system as well. European Union has currently 27 members, with several different languages, cultures, habits, and rules, which indicates that the higher education system is to some extent unique in each country, all nation is responsible for their own educational sector. However, the Bologna Declaration in 1999 started the so-called Bologna process, which harmonized the education system in Europe. It aimed to make European higher education more competitive, attractive, and transparent, moreover, to facilitate mobility among the students, and strengthen their employability. Later the most important objective was to transform Europe into a knowledge-based society. (Huják; 2015)

The Bologna process and the rise of the ERASMUS (*European Region Action Scheme for the Mobility of University Students*) programme facilitate the development of the European Credit Transfer System (ECTS), which can be considered the basis of the study mobility in Europe. It is also the representation of successful cooperation within the region. Thus, the ERASMUS programme became the flagship of internationalisation in Europe it

has had a great impact on the reform of higher education and students' and teachers' professional career. (De Wit et al., 2015)

Based on the official website of the European Commission, the objective of the ERASMUS and later ERASMUS+ programme is to provide opportunities for the educational, professional, and personal development of European participants in an international environment, moreover, to contribute to strengthening European identity and active citizenship through social cohesion and fostering innovation. ERASMUS is an exchange programme, which creates the opportunity for students to spend part of their studies abroad.

As I mentioned earlier this programme is the flagship of mobility programmes in Europe and its appearance is the most visible and most successful as well. I do not aim to describe all aspects of the programme in detail, I think it is enough to understand its objectives, furthermore, I believe the main objectives of the further mobility programmes available in Europe (and in Hungary) are in line with the ERASMUS analogy, except that they can also define narrower objectives, but the international experience and personal and career development always remain at the centre.

Overall, in Europe the mobility programmes - especially ERASMUS - become popular, and the number of participating students are increasing over the past decades (Di Pietro, 2015; Favero and Fucci, 2017; Iriondo, 2020; Liwinski, 2017). Considering, my research focuses on Hungarian outgoing-mobile students, it is important to examine the situation in the case of Hungary. Figure 1 represents the number of outbound internationally mobile students from 2000 to 2020, which shows a significant increase, especially in recent decade, representing the growing role of internationalisation among students.

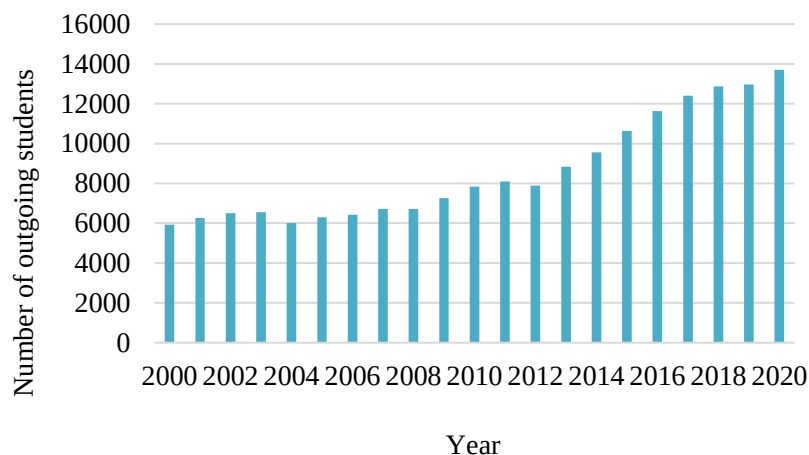


Figure 1. Outbound internationally mobile student in Hungary

Source: Author's own elaboration (data: uis.unesco.org, 2022)

The origin of the data is UNESCO database, they use terminology “internationally mobile student” refers to those students who arrive to the receiving country with the purpose of studying and spent at least one year there and they are not nationals of the host country. However, the UNESCO database does not distinguish between credit and degree mobility students, which can cause discrepancies, when analysing the effects of short- or long-term mobility programmes. Nevertheless, it provides valuable information on the growing internationalisation phenomenon in Hungary and the increasing number of students in international mobility programmes (both credit and degree mobility).

On the other hand, ERASMUS programme is a typical example of short-term mobility programmes, so I think it is reasonable to analyse the popularity of this specific programme as well, considering that my own research will focus on the impact of short-term (credit mobility) programmes. The Figure 2 represents how many students were going abroad between 1998 and 2018 in the frame of Erasmus programme for study purposes in the case of Hungary. The country joined the Erasmus programme in 1998, so this is the starting base, in that year less than 1,000 Hungarian students participated in the programme, but by 2010 this number had jumped to 4,164 and still growing, in 2018 more than 7,300 students travelled abroad to gain international experiences and develop their knowledge.

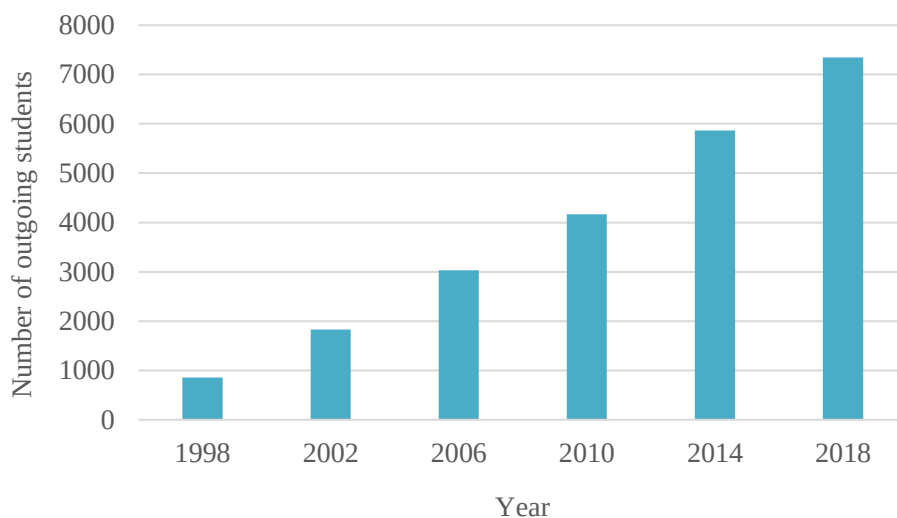


Figure 2. Number of Hungarian outgoing Erasmus students (1998-2018)

Source: Author's own elaboration (data: Tempus Public Foundation)

The first impression might be that the COVID-19 pandemic and the associated restrictions and border closures have discouraged mobility, but the ERASMUS+ Annual Report 2020 document presents the opposite. The programme proved its resilience and the sudden transition from offline to online learning (and teaching) facilitated the digital remote solutions, which are built into the programme. Furthermore, the total budget of ERASMUS+ increased 15% compared to 2019, thus the program could support student to participate in the mobility program. (European Commission et al., 2021)

In summary, an increasing number of Hungarian students can be observed in the overall of international mobility programmes and ERASMUS programme too, based on this it is reasonable to assume that participation in a mobility programme has a positive impact on the life of the individual, otherwise, its growing popularity would be irrational. In the following chapters, I address these potential benefits.

3. IMPACTS OF INTERNATIONAL STUDENT MOBILITY

Over the past decades, mobility programmes, as part of the internationalisation efforts become more and more popular among students. A growing number of students spend one or two semesters abroad during their university studies. Short-term mobility programmes such as ERASMUS programme often claim and emphasise the positive effects on access to the labour market, including access to better compensation and skills development, which helps students prepare for employment (Brandenburg et al., 2014). Another reason behind the increasing numbers can be that the higher education institutes also focus on strengthening their international aspirations, which contain the support of exchange mobility.

In this chapter, I compare the findings related to the positive and negative impact of student mobility. I aim to produce a comprehensive literature review against which I can later compare the results of my own research. Relatively little research has been done on this topic for Hungarian students particularly, so I rely mainly on European results.

3.1. IMPACTS OF INTERNATIONAL STUDENT MOBILITY ON CAREER OUTCOMES

Based on a common belief an international experience has several positive impacts on the participants including the effects on their future labour market opportunities, career ambitions and individual skill development. Waibel et al. (2018) suggest that students can gain a competitive advantage from skill development during mobility, which helps them to become successful on the labour market after graduation. The positive effect of short-term mobility on early career occupational status is proved, however, the impact in terms of income and professional progression is disputed.

Most of the authors urge caution in interpreting causality and point out that participation in mobility abroad is in itself a self-selection process. Students with certain attributes (e.g., motivation and ambition) are more likely to participate in learning mobility and exploiting these attributes can also bring benefits in the labour market (Kratz and Netz, 2018; Messer and Wolter, 2007). In terms of socio-economic background (Netz and Finger, 2016) and professional orientation (Netz, 2015) the students are highly selective too. Thus, we should be careful when we make conclusions about the effect on employability.

In this chapter I focus on three main dimensions of the potential impact of mobility on career outcomes. **Career planning skills and prospect** refers to all skills development and open mindset which facilitate the possible change of the individuals' career path or broaden their horizons about career opportunities including the idea of working abroad, as well as being more conscious in vocational identity. In the **'transition into employment'**

paragraph, I compare studies that examine the speed and smoothness of entry into the labour market. Researchers do not fully agree on the direction in which mobility abroad changes the speed of first employment. The third dimension - I will focus on - is the potential **effects of international mobility on the income and professional status** after graduation. The systematic literature review will provide a general picture of the effects under study, against which my own research results can be compared.

3.1.1. Career planning skills and prospects

Short-term mobility abroad can impact the development of individuals, not just in a professional but in a personal way as well. It is difficult to measure the actual progress with an objective method. The only way to discover the potential benefits regarding the skills and abilities developed during the mobility, is asking the participants. However, their report refers to their own perceptions, that can often be biased.

Paige et al. (2009) in their research uses qualitative and quantitative analysis to discover the long-term impact of mobility experiences. One of their main findings was that most participants experienced some influence on their own career paths because of participation in the mobility programme, which is meaningful from their professional development point of view. Similarly, to Paige et al. (2009) the findings of Bryla (2015) is also positive. They used a large-scale survey among Polish students, who have participated in a mobility programme and the finding was that mobility experience contributes to professional development and position as well as to improving skills and competencies, which are highly appreciated by future employers. The main difference the two articles is that Paige et al. (2009) examined the effect of full degree students, while Bryla (2015) focused on ERASMUS students.

In her article Potts (2015) also argues the high level of benefit in relation to early stages of career. Her research pointed out that the participant's most perceived benefit from international mobility is employability skills, like interpersonal and communication skills, teamwork, and problem-solving attitude, however, the career-related benefits such as future prospects and passion for the chosen career direction are also important positive impacts. According to Kronholz and Osborn (2016) study abroad experiences impact participants' self-knowledge including interest, values and ability to relate it to career options. Furthermore, their study suggest that the student may has clearer career goals and stronger vocational identity after studying abroad. This finding is consistent with the result of Potts (2015), Bryla (2015) and Paige et al (2009), given the impact of mobility abroad on an

individual's personal and professional development. Besides, Jacobone and Moro (2015) also found that career development skills of students increased after an international experience that can be explained with the tendency that students get to know themselves better, their skills, interests, and career aspirations.

Norris and Gillespie (2009) examined actual changes or correlation in career plans before and after the mobility. They found that just a few respondents reported any career reorientation after the mobility, suggesting that the mobility-experience may encourage students to follow their original career path.

3.1.2. Transition into employment

The transition from higher education to work refers to the processes that take place between graduation and the first day in a new job. It includes the effort and time required for the employer to search for employees and for the candidate to search for employers.

The ERASMUS Impact Study was compiled by Brandenburg et al. (2014) for the European Commission. This study analyses how mobility affects employment and later career of students, who participated in the programme. They found that the risk of unemployment after graduation was lower in the case of ERASMUS alumni than in the case of non-mobile students. In an even more recent report (European Commission et al., 2019), students who have taken part in mobility were asked about the benefits they have experienced as a result of student mobility. 72 percent of ERASMUS+ graduates reported that mobility was beneficial for their careers in terms of faster access to the labour market, which means formerly mobile students find their first job after graduation quicker than non-mobile peers.

The conclusion of Di Pietro (2015) was similarly positive. He found that Italian students, who studied abroad during university, have a higher chance with 22.9 percentage points being employed three years after graduation than their non-mobile peers. However, it is important to underline that this effect is more pronounced for graduates who had more disadvantaged employment prospects initially. This indicates that study-abroad mobility can significantly enhance employment opportunities in a certain group, but not in every case.

From another perspective, the better employment prospect is more a hopeful assumption than a research-based statement, especially if we consider the time needed to transition. Many studies show that learning mobility abroad does not reduce the time needed to find the first job after graduation. (Waibel et al., 2017)

Waibel et al.'s claim is also consistent with the results presented in Rodrigues's (2013) study. She analysed data from graduates in 16 European countries five years after graduation, regarding how student mobility does impact their career and what are the experienced labour market related outcomes, including the transition from higher education to employment. The main finding was that the students who spend at least 6 months abroad in the frame of a student mobility programme need a slightly longer time to find their first job after graduation and the delay is higher in the case of students who spent a whole year abroad. This negative consequence can be explained by several reasons. First, there is the possibility that mobile student may lose their professional network in their country of origin. The second reason is that mobile students may prefer to remain internationally mobile after graduation too, and they try to find a job abroad, which can take a longer time. Finally, even if the students return home after finishing the mobility, their international experience may not be appreciated by future employers, as the desired position may not require such experience and the mobile graduates may appear overqualified.

3.1.3. Income and professional status

When we examine the effect of international mobility on future career, the net salary seems a good indicator, at least at the first look. However, the issue is a bit more complex, and the analysis-methods has limitations. Namely, ERASMUS surveys are mainly descriptive, and researcher use regression techniques, which cannot handle the students' all background characteristics, just the observable ones, such as gender, age, and grades. Based on this, some individuals may benefit more from international mobility than others. (Teichler, 2015; Liwiński, 2017) The other limitation is the complexity of understanding the causality. The perceived positive benefits might be attributable to the development of human capital and not the mobility programme in itself. (Kratz and Netz, 2018) Furthermore, Wiers-Jenssen and Storen (2021) found that those groups benefit the most from international experience who are most likely to participate in it in the first place.

Nevertheless, most studies looking at the impact of international mobility on income after graduation agrees that those student graduates receive higher wages after graduation, who spent a given amount of time abroad during their studies, compared to those who did not. (Favero and Fucci 2017, Iriondo 2020, Kratz and Netz 2018, Rodrigues 2013, Teichler 2015)

Favero and Fucci used a descriptive analysis to compare the salaries of formerly mobile ERASMUS students and non-mobile students in case of University of Siena, Italy. The

result shows that the former Erasmus students receive 7-9% more salaries, than the others. (The survey asked the participants one, three, and five years after graduation.) In line with this, Kratz and Netz (2018) showed that the wage gap is four percent between the participants and non-participants after they enter the labour market. However, they also lined out that this percentage decrease if they control the selection effects. The other relevant finding was that graduates with international experience can reach a steeper wage development in their early career. That can be explained with the tendency that internationally experienced graduates to increase their wages through employer changes.

Similarly positive impacts on net income by Teichler (2015) who analysed data from ERASMUS students, with the addition that mobile students find slightly higher positions in their early career phase. Iriondo (2020, pp. 939) confirms that in the case of Spain “*the ERASMUS programme may be considered as investment rather than consumption*”, referring to the result for salaries, which is 10-12% higher in the case of mobile students.

The research made by Liwiński (2017) brings a new aspect into the literature, his results (in case of Poland) represent that wage premium can be recognized only if the studying abroad is followed by working abroad.

Overall, the studies report positive effects, but different methodologies may show differences in the actual figures, and the individual characteristics and skills of the students involved may also distort the results if these factors are not properly filtered out. The available literature about the evidence of potential occupational status, as a career outcome is much smaller than the literature in the case of income benefits. Waibel et al (2018) conclude that there is no evidence that international study mobility would increase the occupational status of the participants, on the other hand, they found that status benefits are less expressed in the case of participants with a higher propensity to study abroad compared to those who have a lower propensity. Here lower propensity refers to not just the motivation but lack of economic or other resources. In contrast, the European Commission et al. (2019) reports that former ERASMUS students claim to achieve higher levels of social recognition and status, as well as opportunities for professional development, compared to their non-mobile peers.

3.2. FURTHER IMPACTS OF STUDENT MOBILITY

Following the logical arc of the impact analysis, this chapter aims to identify the main benefits of international mobility programmes beyond the potential career and employability benefits, considering that the researchers highlight other outcomes of short-term mobility

programmes. These categories focus on **cultural** and **personal** development. (Kratz and Netz, 2018; Kronholz and Osborn, 2016) The Impact Study of Erasmus+ European Commission et al. (2019) concludes that the participants can enhance their technical, interpersonal, and intercultural competencies, moreover the international experience increased their self-confidence and cultural openness.

The chapter is divided into four sections, first I examine the mobility impact on personal growth, then the cultural benefits, and the impacts on European identity and finally I made a comparison among European countries.

3.2.1. Personal growth

Mobility programmes are beneficial to personal development in several ways. In my opinion, one of the main motivational factors for students is to improve themselves by stepping out of their comfort zone. According to Van Hoof and Verbeeten (2005) this motivation (expectation) has a real basis, because an international experience enables students to learn more about themselves which contributes to better self-awareness.

Furthermore, DeGraff et al. (2013) conducted in-depth interviews with mobile students to ask them about the positive effects they experience after returning home. The researchers summarized the responds and found that the mobility programme influences global awareness, maturity, and self-confidence. While Norris and Gillespie (2009) conclude that mobile students perceived a higher level of self-efficacy compared to non-mobile students. This is consistent with Brandenburg et al (2014) findings. Their result represented that formerly mobile ERASMUS students reach a higher score in confidence, curiosity, decisiveness, and serenity, moreover, mobile students can tolerate ambiguity better, compared to those who have not participated in the ERASMUS mobility programme. These characteristics are highly appreciated by employers as well, not just from the individuals' point of view. However, the main benefit of mobility shown in the impact study is the improvement of foreign language proficiency.

Jacobone and Moro (2015) evaluated the impact of the ERASMUS programme on personal development (language skills, employability, self-efficacy, intercultural sensitivity) and on European identity. They agreed that participating in an international programme can enhance language skills including speaking and listening skills, moreover, increasing professional vocabulary. The other significant finding was also confirmed, the international experience enhances the belief of students in their abilities and capacity for control, which

means students become more self-aware and confident in their own characteristics and they can see clearly their own limitations.

3.2.2. Cultural benefits

According to Roy et al. (2018) literature research, the perceived cultural benefits include cultural awareness, cultural intelligence (CQ), sensitivity and global mindset. These factors are improved in the case of students who spend some time abroad, compared to those who are not.

A higher level of cultural awareness indicates that mobile students (after mobility experience) are able to recognize and understand the differences between cultures, which facilitates the more sensible and empathic reaction among international people. In fact, cultural awareness is the basis of cultural intelligence, which is the ability to control the interaction with other cultures respectfully.

Mapp (2012) examines cultural adaptability after completing a short-term international mobility. The research's finding was that even a short-term mobility experience can lead to a higher level of cultural adaptability, which means that the participants are able to align and adjust to the new cultural habits better than the non-mobile students.

Overall, cultural benefits can be identified as a consequence of mobility abroad, both in terms of higher cultural intelligence and better cultural adaptability.

3.2.3. Development of European identity

Considering that one of the best-known frameworks dealing with student mobility is the ERASMUS programme, I think it is worth briefly addressing the potential impact on European identity. There are several definitions, what European identity means, however I will use this term just in a general, superficial interpretation, which includes the self-identity, pride, "togetherness" and also the geographical attachment. (Sigalas, 2010)

Jacobone and More (2015) found empirical evidence that international mobility enhances European identity and contribute to making students feel more European, this result refers to that mobile student can recognise common European values as well as opportunities within the continent. In contrast, Sigalas (2010) research shows a slightly more nuanced picture of the mobility impact. He confirms that the ERASMUS programme facilitates personal interaction between international students, but most of the host students remain "outside" of these conversations, furthermore that students from the same country are more connected to each other than to those who came from another country. To conclude ERASMUS does not reinforce the European identity and may even weaken it.

Nevertheless, Brandenburg et al. (2014) and European Commission et al. (2019) argues that the ERASMUS programme promotes a sense of Europeanism and contributes to creating a stronger European identity.

3.2.4. The impact of mobility in different European countries

Researchers agreed that the impact of international student mobility programmes may differ across countries. Wiers-Jensen and Storen (2021) conclude that the effects of international student mobility are less important in Northern Europe than in some other parts of Europe. The explanation can be the large size of the public sector and recent graduates are recruited mainly to this sector, furthermore, another reason can be the long history of sending students abroad, hence there is a large proportion of candidates have international experience, thus reducing the added value of mobility to human capital.

A study for the European Commission et al. (2016) examines the impact of ERASMUS in a regional comparison. The analysis showed the positive impact of participation in the mobility programme but also draws attention to the fact that the extent of impacts (or the type of impacts) may vary by region. It is proved that the ERASMUS programme significantly reduces the risk of long-term unemployment and increases the likelihood of working in an international environment. This study also analyses Northern, Eastern, Southern and Western European countries regionally, and finds that the largest differences in long-term unemployment perspective between mobile and non-mobile students identified in Eastern and Southern European countries. Furthermore, the largest differences in management position (5-10 years after graduation) are also in the case of Eastern European countries, while in other regions there is no big difference between mobile and non-mobile students. Both in terms of professional responsibility and salary, Eastern European countries have the most pronounced benefits.

The positive labour market outcomes of international experience are higher in Eastern and Southern European countries, suggesting that in these countries the tradition for mobility is weaker compared to Western and Northern countries. Furthermore, Jacob et al. (2019) explain this pattern by the poorer university quality and higher unemployment among graduates.

In summary, the development of personal attributes is as much positively affected by participation in mobility abroad as is the development of cultural awareness and cultural intelligence. Furthermore, it also seems to develop Europeanism and European attitudes. Even if the positive impacts may differ across countries, most of the benefits are undeniable.

4. DATA AND METHODOLOGY

In this chapter I present the data and methodology used during my empirical research. First, I present the most important information about the Hungarian Graduate Career Tracking System and the data collection methods, then I describe the objective of the Fresh Graduate Module and its most important characteristics.

In the second part of the chapter, I summarise the methodology used in my empirical research to prove or reject my hypotheses. These will also enable me to answer the research questions related to the hypotheses.

4.1. HUNGARIAN GRADUATE CAREER TRACKING SYSTEM

For my research purposes I used data from the Hungarian Graduate Career Tracking System (GCTS) Fresh Graduate Module. The entry into force of Act CXXXIX of 2005 on Higher Education introduced compulsory career tracking in Hungary, this was the start of collective and compulsory data gathering among universities. The system was ensured by the Education Public Services Non-Profit LLC, but now the responsibility to run the system belongs to Educational Authority. (Széll et al., 2016)

The aim of the Graduate Career Tracking System is to translate the labour market expectation into the programmes and courses provided by higher educational institutions and provide information about the professional progress of graduates and about their labour market opportunities (Kuráth, 2018). Overall, GCTS provides the basis for information flows between the labour market, higher education institutes, and students in order to improve the new workforce that meet labour market needs.

The Graduate Career Tracking surveys are standardised across the country and they are carried out yearly. It has two main fields, first aims to ask about the **motivation of students** regarding their labour market-related expectations and educational training and programme expectations. The second field focuses on the **career tracking of graduates** (namely Fresh Graduate Survey). The survey has been asking recent graduates in the first, third (since 2018, not surveyed anymore), and fifth year after graduation and it focuses on the experiences achieved in the labour market and ideas for further participation in an educational programme as well as satisfaction with their university courses. (Kuráth, 2018)

The form of data collection is an online, anonym questionnaire, the process itself is conducted by higher education, however, the methodology is provided by the Higher Education Research Department of the Educational Authority. (Diplomántúl.hu, n.a) The method of GCTS follows international tracking research, like REFLEX Project, REFLEX-

HEGESCO Project or CHEERS Project. Accordingly, international comparability was an important consideration when compiling the questionnaire. (Veroszta 2018)

The data used in my research are from the GCTS survey Fresh Graduate Module. The examined time period is 2011-2018. The Module provides a comprehensive data about the situation of recent graduates as well as information about their former studies. The related questions are asking about the location of the workplace (which region), about the size of the company, where the graduates work, and what is their position within the organization. Furthermore, the two most important information, from the perspective of my research are the salary after graduation and the time needed to find the first job. Besides, it includes data about the demographic background of the respondents such as gender, date of graduation, and educational background of the respondents' parents.

4.2. METHODOLOGY

To analyse the data from GCTS Fresh Graduate Module I am using SPSS software. The three main methodological tools are descriptive statistics, analysis of variance and multiple OLS linear regressions.

A descriptive statistic is needed to outline the main attributes of the data and summarise the preliminary findings. The aim of this stage is to identify the possible outlier and any unusual patterns and any kind of trends. (Maravelakis, 2019)

The other method is regression, which is a well-known method in social sciences for analysing the relationship between two variables. The objective of this method is to explore associations between variables and identify their strength. One type of regression is linear regression, which is able to explore the relationship between one dependent variable and one or more explanatory variables. The simple linear regression formula is the following:

$$Y_1 = \beta_0 + \beta_1 X_1 + \varepsilon_i,$$

where 'Y₁' is the estimated dependent variable, 'β₀' is a constant, 'β₁' is the regression coefficient, 'x' is the score of independent variables, and 'ε_i' is the residual. I am using this formula to build up my OLS linear regression models in the case of both analyses. In the first analysis, the dependent variable is the logarithmically transformed monthly net salary of recent graduates, while in second analysis the time of transition from study to first employment after graduation.

4.2.1. Methodology for (potential) net wage differences

My second research question focuses on the potential impact of mobility on the recent graduate's net salary in the first year after graduation. First, with descriptive statistics I explore

the main patterns in the sample and identify the most basic information connected to the net wages of mobile and non-mobile students. Thereafter I use one-way ANOVA in SPSS software to prove or reject the statement: there is significant difference between students who spent some time abroad for study purposes compared to those who have not, in terms of their net wages, in the first year after graduation (H1).

In H2 I want to prove that at least one semester of international study mobility experience contributes to a higher salary in the first year after graduation. However, there can be a fundamental methodological problem while analysing this issue, which is the endogeneity of the variable in the regression model. Researchers concerning about that mobile students are a selected group based on many features, and because of this, the causality is not easy to measure, or it can be contradictory. To handle this more possible solutions can be used by researchers, like *Ordinary Least Squares* (see by Di Pietro, 2015; Liwinski, 2017) or *Propensity Score Matching* (see by Rodrigues, 2013; Irondo, 2020) to control heterogeneity in the observable characteristic.

The chosen methodology by me fits the methods used by researchers, as I use multiple OLS linear regressions. The technique I use to filter out possible selectivity factors is implemented through the more explanatory variables in the regression model. Rodrigues (2013) explained that mobile students are more likely to come from families with higher socio-economic status, which selection factor can be excluded if we put the parent's level of education into our model. Furthermore, the other **socio-demographic characteristics** (D) need to be considered, just like the information on the attributes of the **first job after graduation** (C).

However, there are other factors that may reveal differences between mobile and non-mobile students, such as motivation, **ability, skills and international work experience** (A) (Messer and Wolter, 2007). The further explanatory variables are related to the **characteristics of the higher education** institutes and the study program itself (B). The complete list of variables can be found in Appendix 1.

4.2.2. Methodology for study-to-employment transition

My third research question is about whether recent graduates, who were formerly mobile students find their first job after graduation sooner than those who are non-mobile, i.e. is the length of study-to-employment transition significantly different between mobile and non-mobile students. The related H3 hypothesis stated that I assume there is difference between the length of study-to-employment transition between mobile and non-mobile students,

while the H4 stated that those students who have participated in an international mobility programme for at least one semester can find a job sooner, than those who have not.

For H3 I am using one-way ANOVA test, and for H4 the used methodology is OLS linear regression model building procedure, as with the analysis of wage differentials.

In the OLS linear regression model the dependent variable is the number of months needed to find a job (after graduation), which is a scale variable. The key independent variable is the participation in an international mobility programme variable, from I have three categories, students who spent at least one semester abroad (full-mobile students), or less than one semester (semi-mobile students) or did not participating in any mobility program at all (non-mobile students). The explanatory variables are similar to the used ones in the analysis of wage-differentials.

5. ANALYSIS AND RESULTS

This chapter is focusing on my empirical analysis and the main findings, related to the second and third research question and the connected hypotheses. Thus, the chapter will contain three parts. First, I analyse the database with the descriptive statistic method, second, I build up a regression model related to the net wage differences between mobile and non-mobile students and third part is about the regression model of length of study-to-employment transition.

5.1. DESCRIPTIVE STATISTICS

In the Fresh Graduate Module of the Hungarian Graduate Career Tracking System, the number of respondents between 2011 and 2018 is 170,089. **My research focuses on students who spent some time abroad before graduation for study purposes.** Hereafter, I will refer to these students as “**mobile students**”. (Later, I am differentiating two types of mobile students, according to their time spent abroad.) A total of 165,533 students responded to the question whether they had spent a given amount period of time abroad for study purposes during their studies, of which 17,296 students indicated that they had spent some time abroad.

It is necessary to filter the data according to two criteria. My research focuses on the recent graduates, which means that the time elapsed since the graduation is one year. This filtering condition also ensures that a respondent is only included once in the analysis. The second filter criteria is the type of study: I have excluded part-time students and focus only on the full-time students, because I assume that rationale behind the participation of a part-time programme is work or the attendance in another full-time programme, so those students may distort the result. The number of data series after filtering is shown in Table 1.

Table 1. Number of respondents before and after filtering

	Original dataset	Filtered dataset*	Final dataset**
Number of respondents	170,089	47,828	27,200
Valid respondents	165,533	46,936	27,200
Number of mobile students	17,296	5,008	3,549
<i>*full-time students; 1st year after graduation</i>			
<i>** full-time students; 1st year after graduation; available data about net wages</i>			

Source: Author's own elaboration (Based on the GCTS database)

5.1.1. Descriptive statistics related to the analysis of wage-differentials

Only respondents who also answered the question on net wages were included in the first analysis. Furthermore, data below the minimum wage of each year were filtered out, as they are not realistic, and the upper value of HUF 999,000 was set by the questionnaire authors, so values above this are considered outliers, which I have ignored so as not to distort the results.

Table 2. Number of respondents before and after filtering

	Net wage (in thousand HUF)					
	Number of respondents	Mean	Median	Standard Deviation	Maximum	Minimum
Studied abroad	3,549	279.50	240.74	159.12	999.00	91.88
Did not study abroad	23,651	232.92	200.00	123.15	999.00	90.65
Total	27,200	238.99	205.81	129.37	999.00	90.65

Source: Author's own elaboration (Based on the GCTS database)

The Table 2. represents that there are differences between the net salary of mobile and non - mobile students. The average net wage of mobile students appears to be 17% higher compared to non-mobile students, which difference seems considerable, so in the following chapter, I am analysing whether this difference is significant or not and exploring how to explain the difference.

However, the students who spent some time abroad can be categorized into two groups. First category is those, who studied abroad for less than one semester (semi-mobile students), second is those, who studying abroad at least one semester (full-mobile students). I can assume there is wage difference between these two groups too, not just between mobile and non-mobile student, see in Table 3.

Table 3. General income data for non-mobile and two-types of mobile students

	Number of respondents	Net wage in thousand HUF	
		Mean	Median
Did not study abroad	23,651	232.92	200.00
Studied abroad less than one semester	582	267.83	221.12
Studied abroad at least one semester	2,967	281.79	245.00
Total	27,200	238.99	205.81

Source: Author's own elaboration (Based on the GCTS database)

5.1.2. Descriptive statistics related to analysis of study-to-work transition

The third research question is focuses on to explore whether there is effect on mobile, and non-mobile students in terms of the time (months) needed to find a job after graduation. Only full-time students who completed the questionnaire in the first year after graduation were included in the analysis. I filtered out the time elapsed since the graduation is one year, which logically means that the maximum length of study-to-employment transition is 12 months.

Thus, according to the three categories, the number of respondents and the mean and median value of the duration is represented in the following table.

Table 4. Study-to-employment duration data for three mobility categories

	Valid N	Study-to-employment duration	
		Mean	Median
Did not study abroad	10,548	2.86	2.00
Studied abroad less than one semester	286	2.31	1.50
Studied abroad at least one semester	1,347	2.55	2.00
Total	12,181	2.81	2.00

Source: Author's own elaboration (Based on the GCTS database)

Based on this, semi-mobile students need the least time to find their first job after graduation, on average 2.31 months, while full-mobile students need on average 2.55 months. Non- mobile students take the longest to find a job, on average 2.86 months. In the Chapter 5.3. I discover whether this difference is significant and if so, do the chosen factors influence the evolution of the study-to-work duration, but first in the following chapter I present the analysis of potential wage-differentials.

5.2. ANALYSIS OF (POTENTIAL) WAGE DIFFERENTIAL

In this chapter I discover whether there is any significant difference between the net wage of mobile and non-mobile student and represent the results of the OLS linear regression model, determines the extent to which student mobility explains wage differentials.

5.2.1. One-way ANOVA

The independent samples T-test can be used to determine whether the means of two independent groups are significantly different or not. I found that the value of two-sided p significance is 0.00%, which is lower than 5%, thus the conclusion is that there is significant difference between the net wages of mobile and non-mobile students.

Thereafter, I made a One-way ANOVA test to discover whether there is any difference between the three outcomes (studied abroad at least one semester; studied abroad less than one semester; did not study abroad). The result of the Games-Howell test represents that there is a significant difference in net wages between non-mobile and mobile students (do not matter is it at least one semester or less than one semester), however, there is no significant difference between recent graduates who spent at least one semester abroad compared to those who spent less than one semester. The **Table 5.** illustrates the result of the Games-Howell test. The total results of ANOVA tables can be found in Appendix 3.

Table 5. Significant wage-differences by three mobility categories
(Games-Howell test)

Mobility categories		Mean Difference	Sig.
Did not study abroad	Studied abroad less than one semester	-34.914*	0.000
	Studied abroad at least one semester	-48.871*	0.000
Studied abroad less than one semester	Did not study abroad	34.914*	0.000
	Studied abroad at least one semester	-13.957	0.149
Studied abroad at least one semester	Did not study abroad	48.871*	0.000
	Studied abroad less than one semester	13.957	0.149

**. The mean difference is significant at the 0.05 level.*

Source: Author's own elaboration (Based on the GCTS database)

According to the result of One-way ANOVA, I found evidence there is difference between wages of full-mobile and non-mobile and semi-mobile and non-mobile students, however I cannot find evidence there is difference between net wages of recent graduates who studied abroad less than one semester abroad or at least one semester abroad. Both subcategories of mobile students show significant differences compared to non-mobile peers, so I can accept H1.

5.2.2. OLS linear regression – MODEL 1 (wage-differential)

In the following I build up the OLS linear regression model and explore whether and to what extent participation in the mobility abroad determines the pay gap. In the models the explanatory variable is the international learning mobility experience or with other words

the participation in a mobility program (PIMP) for study purposes, based on the following categories:

- **full-mobile student:** studied abroad at least one semester abroad
- **semi-mobile student:** studied abroad less than one semester
- **non-mobile student:** did not study abroad

For the explanatory variables I create dichotomous (dummy) variables, then I choose a reference category to which I compare the other variables. (This logic is used in all control variable cases too.) The chosen reference category is the non-mobile students, because their number are the highest in the sample dataset.

For the wage-equation regression model, I use Iriondo (2020) and Liwinski (2017) approaches. The wage equation in the regression model (*Model 1*) as the following:

$$\ln WG_i = \beta_0 + PIMP_i \beta_1 + A_i \beta_2 + B_i \beta_3 + C_i \beta_4 + D_i \beta_5 + E_i \beta_6 + \varepsilon_i,$$

where:

- ‘**ln WG**’, represents the monthly net wages of respondents taken to the natural logarithm,
- ‘**PIMP**’ refers the fact of participation in an international learning mobility programme (three outcomes)
- Letter ‘**A**’ contains the skills, abilities, and international work experience
- Letter ‘**B**’ is the characteristics of the higher education institute (HEI) and the study programme
- Letter ‘**C**’ refers to the set of the job/workplace characteristics
- Letter ‘**D**’ is the set of socio-demographic characteristics of the respondents.
- ‘**ε**’ is the residual.

The full list of involved variables can be found in the Appendix 1.

The multiple linear regression model was estimated by using OLS with robust standard errors. First, I examine the exclusive effect of participation in a learning mobility programme (PIMP) variable on net logarithmic wages, called *Model 0*. Next, I review the explanatory power of the participation in a mobility programme variable in combination with the other control variables.

I found that the *Model 0* is significant at the 5% significance level ($p\ 0.000 < 0.05$) and the explanatory power (adjusted R^2) is 0.016, which means that the (semi/full) presence

of mobility experience explains 1.6% of wage developments one year after graduation. Table 6. represents the main finding of the OLS regression, where the reference category is the non-mobile students (who did not study abroad). Hereafter, the reference category is shown in brackets next to the variable name. According to the *Model 0*, the semi-mobile students earn 3.5% more in the first year after graduation compared to non-mobile students, while full-mobile students' net wages are 12.2% higher than non-mobile peers. In both cases the difference is significant. This result is in line with the findings of ANOVA.

Table 6. OLS regression -The effect of *PIMP* on net (ln) wages – Model 0

* Enter method	Model 0	
	Learning mobility experience	
R ²	0.016	
Adjusted R ²	0.016	
Sig.	0.000	
Durbin-Watson	1.628	
F	216.794	
N	27,200	
Constant	2.323	
	Model 0	
	Learning mobility experience	
	Standard. Beta	Sig.
Semi-mobile students (Non-mobile students)	0.035	0.000
Full-mobile students (Non-mobile students)	0.122	0.000

Source: Author's own elaboration (Based on the GCTS database)

In the following steps I involve into the model the control variables, first the variables connected to the skills and international work experience (*Model 1A*), second the HEI and study program characteristics (*Model 1B*); third the characteristics of the job (*Model 1C*) and finally, the socio-demographic features of the respondents (*Model 1D*).

The result of **Model 1A** (see in Table 7.) illustrates that after the involvement of skill and experience variables ('A'), the value of adjusted R² has increased to 6.4%, thus the two variables (participation in a mobility program and the skills and international work experience) together explains 6.4% the net wages developments. However, we can see that the impact of learning mobility experience decreased, in the case of semi-mobile students: the net wages are higher 1.8% than in the case of non-mobile students - all the other variables remaining unchanged - , but it is more moderate than in *Model 0*. The impact also decreased in the case of full-mobile students.

The collinearity statistics VIF value are lower than 10 in all cases, so there is no risk of multicollinearity.

Table 7. OLS regression - The effect of *PIMP* & 'A' on net (ln) wages – Model 1A

* Enter method	Model 1A	
	Skills & International work exp. (A _i)	
R ²	0.065	
Adjusted R ²	0.064	
Sig.	0.000	
Durbin-Watson	1.674	
F	168.962	
N	26,805	
Constant	2.361	
	Model 1A	
	Skills & International work exp. (A _i)	
	Standard. Beta	Sig.
Semi-mobile students (Non-mobile students)	0.018	0.002
Full-mobile students (Non-mobile students)	0.074	0.000

Source: Author's own elaboration (Based on the GCTS database)

In **Model 1B**, the involved variables are the international learning mobility experience (*PIMP*) and the higher education institutes (*HEI*) and study programme characteristics ('B'). The 'B' variables refer to the form of study and form of financing, level of study (Bachelor; Master) and field of study.

ANOVA F value of the *Model 1B* is 250.876, the significance is 0.000 (< 0.05), thus the model is still existing. The explanatory power is 17% (adjusted R²), which is higher than in *Model 0* and *Model 1A*. So, the *HEI* factors have a greater impact on wages than the skills involved.

While the impact of learning mobility experience on wages increased in the case of semi-mobile students, it decreased by the full-mobile student, compared to the result of *Model 0*. The result can be found in Table 8.

Table 8. OLS regression - The effect of *PIMP* & 'B' on net (ln) wages – Model 1B

* Enter method	Model 1B	
	Characteristics of HEI & study programme (B _i)	
	R ²	0.171
	Adjusted R ²	0.170
	Sig.	0.000
	Durbin-Watson	1.830
	F	250.876
	N	26,780
	Constant	2.332
	Model 1B	
	Characteristics of HEI & study programme (B _i)	
	Standard. Beta	Sig.
Semi-mobile students (Non-mobile students)	0.043	0.000
Full-mobile students (Non-mobile students)	0.106	0.000

Source: Author's own elaboration (Based on the GCTS database)

In the following step I examine the common explanatory power of the *PIMP* variable and the work-place characteristics ('C'), like size and ownership of the company and in which region it is. The findings of the *Model 1C* is in Table 9. The value of adjusted R² is 0.460, which means that the two chosen variables can explain 46.0% of the development of net wages. This explanatory value is higher than I found in *Model 0*, *Model 1A*, and *Model 1B*, thus the conclusion is that the influence of job characteristics on wages is extremely strong.

However, it is important to highlight that in *Model 1C* scenario, the wage difference between semi-mobile and non-mobile students is not significant at 5 percent significance level ($p\ 0.258 > 0.05$). While, the difference between full-mobile and non-mobile is significant ($p\ 0.000 < 0.05$), thus mobile students can earn 3.0% more, compared to non-mobile peers.

Table 9. OLS regression - The effect of *PIMP* & 'C' on net (ln) wages – Model 1C

* Enter method		
Model 1C		
Characteristics of the job (C _i)		
R ²	0.461	
Adjusted R ²	0.460	
Sig.	0.000	
Durbin-Watson	1.785	
F	426.823	
N	21,507	
Constant	2.357	
Model 1C		
Characteristics of the job (C _i)		
	Standard. Beta	Sig.
Semi-mobile students (Non-mobile students)	0.006	0.258
Full-mobile students (Non-mobile students)	0.030	0.000

Source: Author's own elaboration (Based on the GCTS database)

In the final (sub)model, the involved variables are the socio-demographic factors ('D') and still the learning mobility (*PIMP*), where the reference category is still the non-mobile students, those who did not study abroad during their studies at all. The main result of the OLS regression *Model 1D* can be found in Table 10.

According to the ANOVA F value and sig. value the *Model 1D* is existing, the two variables together can explain the development of net (ln) wages 11.2%, which is a higher value than in the case of *Model 0* and *Model 1A*, but lower than *Model 1B* and *Model 1C*.

In this scenario the semi-mobile student (who spent less than one semester abroad) earn 3.4 percent higher net wages compared to non-mobile student, while the full-mobile students, who spent at least one semester abroad can reach 10.5 percent higher salaries than non-mobile students. In both cases the result is significant ($p\ 0.000 < 0.05$).

Table 10. OLS regression - The effect of *PIMP* & 'D' on net (ln) wages – Model 1D

* Enter method		
Model 1D		
Sociodemographic characteristics (D _i)		
R ²	0.113	
Adjusted R ²	0.112	
Sig.	0.000	
Durbin-Watson	1.723	
F	220.246	
N	26,060	
Constant	2.094	
Model 1D		
Sociodemographic characteristics (D _i)		
	Standard. Beta	Sig.
Semi-mobile students (Non-mobile students)	0.034	0.000
Full-mobile students (Non-mobile students)	0.105	0.000

Source: Author's own elaboration (Based on the GCTS database)

Overall, in *Model 1A*; *1B*; *1D* there is significant difference in the net wages of mobile and non-mobile students, except in *Model 1C*, where the semi-mobile students standardized coefficient beta value is not significant. However, the model with the highest explanatory power is *Model 1C*, where the job characteristics were involved.

According to the explanatory power (adjusted R^2), the order of the sub-models is the following:

[*Model 0* (1.6%)] < *Model 1A* (6.4%) < *Model 1D* (11.2%) < *Model 1B* (17%) < *Model 1C* (46.0%)

After I identified the OLS sub-models for the wage, I build up the total OLS linear regression model, according to the wage equation. Thus, I include all the previously identified and used variables in the model step by step. The name of final (total) model is *Model 1*.

The Table 11. contains all the result of the final OLS linear regression model and represents the results of sequential, multistage model-building. First, I involved the set of skills and international work experience variables, second, the HEI characteristics, third, the characteristics of the job and finally, I included into the model the respondents' socio-demographic characteristics. The ANOVA F value increased after each model extension step, while the significance level is 0.000 in all cases, thus all models can be considered as existing.

The Durbin-Watson statistic is a frequently used test for the recognition of autocorrelation, its value is always between 0.0 and 4.0, where the value 2.0 means no autocorrelation, from zero to 2.0 positive autocorrelation and values from 2.0 to 4.0 means negative autocorrelation (Uyanto, 2020). As the model was built, the value of Durbin-Watson test value moved closer and closer to 2.00. In addition, with each additional set of variables included, the explanatory power of the model increased steadily, however, the largest difference in explanatory power was due to the inclusion of job-related factors. The value of adjusted R^2 is 0.016 in *Model 0*, while in the final model is 0.535. Furthermore, there is no multicollinearity among the variables, considering that the VIF values are lower than 10, in all cases.

Table 11. OLS regression on (ln) net wages – Model 1 (Total)

<i>* Enter method</i>	Model 0		Model 1A		Model 1AB		Model 1ABC		Model 1 (Total)	
	PIMP		PIMP+'A'		PIMP+'A'+ 'B'		PIMP+'A'+ 'B'+ 'C'		PIMP+'A'+ 'B'+ 'C'+ 'D'	
R ²	0.016		0.065		0.206		0.522		0.535	
Adjusted R ²	0.016		0.064		0.205		0.521		0.533	
Sig.	0.000		0.000		0.000		0.000		0.000	
Durbin-Watson	1.628		1.674		1.854		1.882		1.887	
F	216.794		168.962		220.786		316.390		271.149	
N	27,200		26,805		26,398		20,903		20,137	
Constant	2.323		2.312		2.311		2.315		2.203	
	Model 0		Model 1A		Model 1AB		Model 1ABC		Model 1 (Total)	
	PIMP		PIMP+'A'		PIMP+'A'+ 'B'		PIMP+'A'+ 'B'+ 'C'		PIMP+'A'+ 'B'+ 'C'+ 'D'	
	Standard. Beta	Sig.	Standard. Beta	Sig.	Standard. Beta	Sig.	Standard. Beta	Sig.	Standard. Beta	Sig.
Semi-mobile students (Non-mobile students)	0.035	0.000	0.018	0.002	0.026	0.000	0.006	0.237	0.006	0.247
Full-mobile students (Non-mobile students)	0.122	0.000	0.074	0.000	0.058	0.000	0.016	0.001	0.017	0.001
Diploma grade sufficient (Good)			0.034	0.000	0.018	0.001	0.011	0.018	0.007	0.137
Diploma grade average (Good)			0.059	0.000	0.011	0.062	0.006	0.254	-0.004	0.453
Diploma grade excellent (Good)			-0.038	0.000	-0.005	0.449	-0.002	0.773	0.004	0.421
Native English speaker (Better than a middle-level/4/)			0.039	0.000	0.045	0.000	0.010	0.030	0.009	0.077
Do not speak English at all /1/ (Better than a middle-level /4/)			-0.040	0.000	-0.023	0.000	-0.004	0.439	-0.007	0.190
Speaks basic English /2/ (Better than a middle level /4/)			-0.075	0.000	-0.045	0.000	-0.014	0.006	-0.015	0.005
Speaks middle-level English /3/ (Better than a middle-level/4/)			-0.060	0.000	-0.039	0.000	-0.018	0.001	-0.018	0.001
Speaks English very well /5/ (Better than a middle-level /4/)			0.121	0.000	0.122	0.000	0.039	0.000	0.034	0.000
Did work abroad (Did not work abroad)			0.092	0.000	0.098	0.000	0.026	0.000	0.020	0.000
Own-financed education (Public-scholarship financed)					-0.002	0.736	-0.012	0.014	-0.027	0.000
Master (Bachelor)					0.135	0.000	0.100	0.000	0.074	0.000

* Enter method	Model 0	Model 1A	Model 1AB	Model 1ABC	Model 1 (Total)			
	PIMP	PIMP+'A'	PIMP+'A'+ 'B'	PIMP+'A'+ 'B'+ 'C'	PIMP+'A'+ 'B'+ 'C'+ 'D'			
Undivided training (Bachelor)			0.083	0.000	0.102	0.000	0.088	0.000
Traditional university (Bachelor)			0.148	0.000	0.136	0.000	0.121	0.000
Traditional college (Bachelor)			0.004	0.490	0.019	0.000	0.014	0.004
Specialized further training/Residency (Bachelor)			0.008	0.168	-0.007	0.119	-0.010	0.048
Studied Agricultural sciences (Business)			-0.093	0.000	-0.056	0.000	-0.055	0.000
Studied Humanities and Social sciences (Business)			-0.158	0.000	-0.090	0.000	-0.086	0.000
Studied Information technology (Business)			0.145	0.000	0.124	0.000	0.097	0.000
Studied Law (Business)			-0.141	0.000	-0.087	0.000	-0.084	0.000
Studied Engineering (Business)			0.083	0.000	0.097	0.000	0.062	0.000
Studied Art (Business)			-0.032	0.000	-0.009	0.067	-0.014	0.005
Studied Art mediation (Business)			-0.017	0.002	-0.006	0.208	-0.008	0.105
Studied Public administration (Business)			-0.013	0.017	0.007	0.181	0.003	0.587
Studied Medicine and Health sciences (Business)			-0.087	0.000	0.007	0.413	0.011	0.183
Studied Teacher education (Business)			-0.177	0.000	-0.058	0.000	-0.053	0.000
Studied Sport sciences (Business)			-0.045	0.000	-0.011	0.022	-0.013	0.007
Studied Social sciences (Business)			-0.115	0.000	-0.069	0.000	-0.067	0.000
Studied Natural sciences (Business)			-0.088	0.000	-0.041	0.000	-0.048	0.000
Studied religion (Business)			-0.013	0.023	-0.006	0.246	-0.007	0.123
Self-employed (1000+ employee)					-0.035	0.000	-0.033	0.000
Micro company: 2-9 employee (1000+ employee)					-0.151	0.000	-0.144	0.000
Small company: 10-49 employee (1000+ employee)					-0.110	0.000	-0.103	0.000
Medium company: 50-249 employee (1000+ employee)					-0.071	0.000	-0.068	0.000
Large company: 250-999 employee (1000+ employee)					-0.028	0.000	-0.025	0.000
Total publicly-owned co. (Total privately-owned)					-0.080	0.000	-0.084	0.000
Partly privately. partly publicly-owned co. (Privately-owned)					-0.025	0.000	-0.026	0.000
Partly foreign-owned co. (Total Hungarian-owned)					0.060	0.000	0.062	0.000

<i>* Enter method</i>	Model 0	Model 1A	Model 1AB	Model 1ABC		Model 1 (Total)	
	PIMP	PIMP+'A'	PIMP+'A'+ 'B'	PIMP+'A'+ 'B'+ 'C'		PIMP+'A'+ 'B'+ 'C'+ 'D'	
Total foreign-owned co. (Total Hungarian-owned)				0.183	0.000	0.183	0.000
Agriculture (Human & social services)				0.010	0.123	0.004	0.581
Mining (Human & social services)				0.006	0.251	0.004	0.423
Manufacturing (Human & social services)				0.046	0.000	0.042	0.000
Electricity and AC (Human & social services)				0.034	0.000	0.028	0.000
Water supply & waste management (Human & social services)				-0.006	0.282	-0.005	0.389
Construction (Human & social services)				-0.018	0.012	-0.018	0.015
Trade & motor vehicle repair (Human & social services)				0.004	0.578	0.004	0.592
Delivery & warehousing (Human & social services)				0.015	0.008	0.013	0.023
Tourism & Catering (Human & social services)				0.009	0.162	0.012	0.063
Information, Communication (Human & social services)				0.091	0.000	0.080	0.000
Finance & Insurance (Human & social services)				0.052	0.000	0.047	0.000
Real estate (Human & social services)				-0.001	0.849	0.001	0.831
Professional, technical activities (Human & social services)				0.038	0.000	0.031	0.000
Administration (Human & social services)				0.003	0.600	0.007	0.254
Public administration (Human & social services)				0.036	0.000	0.036	0.000
Education (Human & social services)				-0.026	0.003	-0.030	0.001
Art, entertainment, recreation (Human & social services)				-0.009	0.115	-0.013	0.029
Other services (Human & social services)				0.000	0.946	0.000	0.954
Households' employment activity (Human & social services)				-0.008	0.129	-0.008	0.126
Other area (Human & social services)				0.041	0.000	0.040	0.000
Workplace Region Western Transdanubia (Budapest)				-0.074	0.000	-0.074	0.000
Workplace Region Central Transdanubia (Budapest)				-0.051	0.000	-0.050	0.000
Workplace Region Southern Transdanubia (Budapest)				-0.088	0.000	-0.086	0.000
Workplace Region Northern Hungary (Budapest)				-0.055	0.000	-0.053	0.000
Workplace Region Northern Great Plain (Budapest)				-0.091	0.000	-0.089	0.000

<i>* Enter method</i>	Model 0	Model 1A	Model 1AB	Model 1ABC		Model 1 (Total)	
	PIMP	PIMP+'A'	PIMP+'A'+ 'B'	PIMP+'A'+ 'B'+ 'C'		PIMP+'A'+ 'B'+ 'C'+ 'D'	
Workplace Southern Great Plain (Budapest)				<i>-0.095</i>	<i>0.000</i>	<i>-0.093</i>	<i>0.000</i>
Workplace Abroad (Budapest)				<i>0.324</i>	<i>0.000</i>	<i>0.323</i>	<i>0.000</i>
Workplace Region Central Hungary-Pest (Budapest)				<i>-0.022</i>	<i>0.000</i>	<i>-0.022</i>	<i>0.000</i>
Senior manager (Graduate employee)				<i>0.065</i>	<i>0.000</i>	<i>0.056</i>	<i>0.000</i>
Middle manager (Graduate employee)				<i>0.097</i>	<i>0.000</i>	<i>0.084</i>	<i>0.000</i>
Lower manager (Graduate employee)				<i>0.059</i>	<i>0.000</i>	<i>0.050</i>	<i>0.000</i>
Non-graduate employee (Graduate employee)				<i>-0.123</i>	<i>0.000</i>	<i>-0.121</i>	<i>0.000</i>
Male (Female)						<i>0.104</i>	<i>0.000</i>
Has a child under 18 (Do not have a child under 18)						<i>0.021</i>	<i>0.000</i>
Father's primary education (Tertiary education)						0.000	0.970
Father's secondary education (Tertiary education)						0.001	0.905
Father's education unknown (Tertiary education)						0.001	0.766
Mother's primary education (Tertiary education)						-0.004	0.467
Mother's secondary education (Tertiary education)						0.005	0.390
Mother's education unknown (Tertiary education)						-0.002	0.737
Family economic situation at age 14 - much better than average (Average)						<i>0.020</i>	<i>0.000</i>
Family economic situation at age 14 - better than average (Average)						-0.003	0.581
Family economic situation at age 14 -worse than average (Average)						0.001	0.817
Family economic situation at age 14 - much worse than average (Average)						-0.004	0.436
Age						<i>0.060</i>	<i>0.000</i>

Source: Author's own elaboration (Based on the GCTS database)

In the case of the final model (*Model 1*) the value of ANOVA F is 271.149, and the value of significance is 0.000, thus the model is acceptable at 0.05 level of significance. The value of Durbin-Watson is 1.887, which is not too far from 2.00, thus there is no autocorrelation in the model. The explanatory power of the final model is 53.3 percent, which means that all included variable influences the development of net wages at 53.3 percent.

I found that according to the diploma grade, there is no significant difference in net wages after the first year after graduation (p 0.137; 0.453; 0.421 > 0.05, respectively). On the contrary, the level of English knowledge does have a significant influence on the development of net wages. The respondents who identified themselves as ‘very good English speaker’ can earn 3.4 percent more compared to those who speak English only at a “better than middle-level”. Moreover, as our intuition suggests, respondents with fewer language skills can expect lower wages. However, the wage difference is not significant in the cases of native English speakers and those who do not speak English at all, compared to those who speak English at a “better than middle level”. While evaluating this result, we should be taken into account that the above-mentioned categories of English knowledge are subjectively classified based on the respondents’ own judgment.

The final variable in category ‘A’ is international work experience, which is significant at a 5 percent significance level, thus the conclusion is that fresh graduates who worked abroad for some time, can achieve 2 percent higher salaries than those who gained work experience only in Hungary.

The set of HEI characteristics contains the finance of education; level of graduation, and type of study variables; which are most significant. According to *Model 1*, the fresh graduates, who paid for their studies (own-financed education) earn 2.7 percent less in the first year after graduation compared to those graduates, whose studies were financed by a public scholarship. (p 0.000 < 0.05) In addition, recent graduates who completed their Master-level studies can expect 7.4% higher salaries than those who completed their studies at Bachelor (undergraduate) level. (p 0.000 < 0.05).

Furthermore, in most of the cases I found a significant difference in net wages according to the field of studies. The Agricultural (p 0.000); Humanities and social sciences (p 0.000); Law (p 0.000); Art (p 0.005); Teacher (p 0.000); Sport (p 0.007); Social (p 0.000) and Natural sciences (p 0.000) get lower net wages in the first year after graduation than graduates with degrees in Business field. Only two fields of studies have significantly higher earnings than business graduates: Information technology (p 0.000) and Engineering

(p 0.000), respectively by 9.7 and 6.2 percent. In the cases of Art mediation, Public Administration, Religion, and Medicine the wage difference (compared to Business graduates) is not significant in the final model.

As I stated earlier, the strongest explanatory power has the job and workplace-related characteristics, including the size and ownership of the company, just like the sector and region where the company operates, and this category also includes the position of the job. Overall, the main findings are that graduates who work at smaller size companies could earn less than would be possible for an employer with more than a thousand employees (in all cases p 0.000). Between the employees at a micro company and a company with 1000+ has the greatest wage difference. In a micro company the recent graduates can reach 14.4 percent lower net salaries than employees in a 1000+ size company.

The ownership of the company also influences wage development. In a total publicly owned company the recent graduates can earn 8.4 percent less than respondents in total private companies (p 0.000). While companies, where the ownership is partly or fully foreign, could pay for their fresh-graduate- employees more than a total Hungarian-owned company could.

According to the work field, the chosen reference category was human and social services, considering its highest number in the dataset. The wage difference is significant in the cases of manufacturing (p 0.000); Construction (p 0.000); Delivery and warehousing (p 0.023); Information and communication (p 0.000); Finance (p 0.000); Professional technical activities (p 0.000) Public administration (p 0.000); Education (0.001); Art and recreation (p 0,029) fields. From these categories, only the employees on construction sites; the field of education and the field of art and recreation receive significantly lower net salaries than employees in the human and social services field.

Furthermore, the region has also a significant impact on net wages. Compared to the capital city of Hungary (Budapest) in all the other regions the recent graduates could earn significantly less, except a special category, which is a “workplace abroad”. In this case, according to the Hungarian GCTS database, recent graduates can reach 32.3% higher net wages compared to those who work in Budapest (p 0.000). However, if I look at only the Hungarian regions, the greatest difference is between Budapest and Southern Great Plain, which means that those who work at Southern Great Plain can earn 9.3 percent less than those who work in the capital city (p 0.000).

The last category of job characteristics is the position. As expected, recent graduates in higher managerial position could reach significantly higher net salaries in the first year

after graduation compared to those who are in a graduate employee position (p 0.000 in the cases of three managerial positions). The graduates in non-graduate positions earn 12.1 percent less, than peers in graduate positions (p 0.000).

The final involved category was the “D” socio-demographic characteristics, like gender; age; have children or no children; parents’ educational level, and the families’ financial economic situation at the respondents’ aged 14. I found that age and gender significantly influence wage development. (p 0.000; 0.000). The men earn 10.4 percent higher than woman, while the respondents who has a child under 18 earn 2.1 percent more at a 5.0 percent significance level than those who have not. However, in the final model, the parent’s educational level does not influence the fresh graduates’ net wages in the first year after graduation. The family’s economic situation does impact on net salaries, however only in the case where the subjectively stated answer “where much better (status) than average” (p 0.000 < 0.05). Recent graduates from very wealthy families can get 2.0 percent higher net salaries than graduates who came from families with an average economic situation. In the case of all the other categories, the difference is not significant.

Overall, at the end of the 4-step model-building procedure, the explanatory power has increased to 53.3 percent. However, the model is still not perfect, because I cannot include all the personal characteristics and any motivation or ambition factor of the recent graduates, which could further increase the explanatory power of the model.

In my second research question, I want to find the answer to whether there is any difference between the net wages of fresh graduates who have participated in an international learning mobility program and those who have not. According to *Model 1*, the answer is varied depending on how much time the respondent has spent abroad. The semi-mobile students, who spent abroad less than one semester, have no significant difference in net wages, compared to those fresh graduates who have not participated in any international learning mobility program at all (non-mobile students). Thus, I can only partially accept the associated hypothesis H1, which is consistent with the conclusion obtained in the ANOVA test.

However, the full-mobile students, who participated in an international mobility program for at least one semester has - ceteris paribus – 1.7% higher net wages than non-mobile peers. So, the impact of mobility on net wages is nuanced and the conclusion is that the length of credit-mobility matters.

To compare my finding with the articles examined in the literature review, I found that result of mine: 1.7 percent difference in net wages is even more minimal than in the

case of Favero and Fucci (2017) and Iriondo (2020), who analyses the effect of ERASMUS programme on wages among mobile and non-mobile students. However, the decreasing impact of mobility factors are in line with Kratz and Netz (2018), who also found that controlling the selectivity effect (involving more explanatory variables) could decrease the impact of mobility experience.

5.3. ANALYSIS OF DURATION OF STUDY-TO-EMPLOYMENT

In this chapter I analyse whether there is any significant difference between the study- to- employment duration of mobile and non-mobile students and if yes how can the mobility experience influence the length of the job finding procedure. This analysis could provide a comprehensive answer to my third research question. The related hypothesis (H3) stated that there are significant difference between the formerly mobile-student and their non-mobile peers, however the conclusion of the literature review could not prove fully this statement.

The used methodology - as I outlined in the chapter 3 - is the analysis of variance (One-way ANOVA) and OLS linear regression. The structure and model-building procedure is similar to the previous analysis, where I discovered the significant wage-differences between full- mobile and non-mobile students (see in *Model 0 -Model 1*).

5.3.1. One-way ANOVA

As step zero I made an independent samples T-test to discover whether the means of two groups are significantly different or not, where one independent sample is mobile-students, who participated in an international learning mobility programme for some time, the second group is the non-mobile students, who did not spend any time abroad for study purposes. I found that the value of two-sided p significance is 0.000, which is lower than 0.05, thus the conclusion is that there is significant difference in study-to-employment duration.

Thereafter, I run a One-way ANOVA test to explore the potential difference among full-mobile, semi-mobile and non-mobile students according to the time needed to find a job after graduation. The results in this case show a more nuanced picture.

The Welch-test is a statistical test of unequal variances, its value is significant (p 0.000) at 0.05 significance level, thus the H0 can be rejected, which means there are no equal variances in the sample. The full results of the ANOVA test can be found in Appendix 10.

According to the Games-Howell test, there is a significant difference at 5% significance level between respondents who studied abroad less than one semester (semi-mobile)

and those who did not (non-mobile) just like in the case of between full-mobile and non-mobile students. However, the difference of study-to-employment duration between full-mobile and semi-mobile students is not significant. The full result of the Games-Howell test is represented by Table 12. Overall, based on the ANOVA test I can prove the significant differences between mobile and non-mobile students, according to the time needed to find the first job after graduation, thus I can fully except hypothesis H3.

Table 12. Significant differences in study-to-employment duration by three mobility categories (Games-Howell test)

Mobility categories		Mean Difference	Sig.
Did not study abroad	Studied abroad less than one semester	0.548*	0.000
	Studied abroad at least one semester	0.313*	0.000
Studied abroad less than one semester	Did not study abroad	-0.548*	0.000
	Studied abroad at least one semester	-0.234	0.212
Studied abroad at least one semester	Did not study abroad	-0.313*	0.000
	Studied abroad less than one semester	0.234	0.212

**. The mean difference is significant at the 0.05 level.*

Source: Author's own elaboration (Based on the GCTS database)

5.3.2. OLS regression – MODEL 3 (study-employment duration)

As I identified the differences between the duration needed to find a job after graduation, among full/semi-mobile and non-mobile students, I do not know yet, the direction of the differences. To discover the potential positive impact of participation in a mobility program, I use OLS linear regression model. ('Positive impacts' means that the formerly mobile students find their first job after graduation sooner than non-mobile peers.)

In the model, the dependent variable is the months needed to find the first job after graduation taken to the natural logarithm. While the key explanatory variable is the mobility category with three outputs: the fact of participation in an international learning mobility program during higher education like yes, participated in a mobility programme less than one semester (semi-mobile students); yes, participated for at least one semester (full-mobile students) or no, did not participate at all (non-mobile). The other control variables, like 'A' skills, and international work experience (A), characteristics of the HEI (B), job characteristics (C) and socio-demographic features (D) are the same as in the first analysis.

The structure of the model building procedure is also similar to the previous analysis. First, I explore the exclusive effect of mobility experience on study-employment duration, i.e. how much faster a full or a semi-mobile student can find a job compared to non-mobile peers. The findings of the basic (zero step) model (namely *Model 2*), and all sub-models (*Model 3A*; *Model 3B*; *Model 3C*; *Model 3D*) can be found in Table 13.

I examined the evolution of the key explanatory variable in each submodel with different groups of control variables, thus the mobility category (mobile/non-mobile) appears in every submodel. In *Model 3A*, the further involved variables are the skills and international work experience variables, in *Model 3B* the HEI and study program characteristics, in *Model 3C*, the characteristics of the job, while in *Model 3D* the socio-demographic characteristics of the respondents.

In the following I summarize the main findings of the submodels. *Model 2* is significant at 0.05 significance level, however its explanatory power (adjusted R^2) is extremely low, only 0.3 percent. From the OLS coefficients table, I can identify that the difference between full-mobile and non-mobile students is real, according to their time needed to find the first job after graduation. The full-mobile students can find their first job 3.9 percent faster than their non-mobile peers ($p\ 0.000 < 0.05$), while semi-mobile students need to have 3.8 percent less time to be employed ($p\ 0.000 < 0.05$), compared to non-mobile students.

Based on the exclusive effects of mobility categories and skills, abilities and international experience ('A') in *Model 3A* the explanatory power of the model (adjusted R^2) improved slightly to 0.5 percent, which means the involved variables can explain the evolution of time from study to work.

In *Model 3B* the involved variables are (besides the mobility categories) the universities and study program characteristics, where the value of adjusted R^2 is 4 percent, thus the effect of these factors on study-to-job duration is much stronger than the effects of diploma grade, English language skills and work experience abroad included earlier in *Model 3A*. In *Model 3C* the explanatory power slightly stronger than in *Model 3B*, its value is 4.3 percent. And finally the *Model 3D* concludes the findings where the involved independent variables are the three mobility categories and the socio-demographic characteristics. The model is existing and there are still significant differences between semi-mobile and non-mobile students ($p\ 0.003 < 0.05$) as well as between full-mobile and non-mobile students ($p\ 0.003 < 0.05$) in the time taken to find a first job after graduation. In all sub-models the full- or semi-mobile students can find their first job sooner than their non-mobile peers, which is in line with the findings found in descriptive statistics.

Overall, the basic model and all the four sub-models are existing, due to the significance level in the ANOVA table (in all cases $p < 0.05$). In addition, the differences in study-to-job period are significant in all sub-model scenarios. Furthermore, the strongest explanatory power was achieved by including factors of job characteristics (see in *Model 3C*), however even this result is mild. According to adjusted R^2 , the order of the sub-models is the following:

$[Model\ 2\ (0.3\%)] < Model\ 1A\ (0.4\%) < Model\ 1D\ (0.6\%) < Model\ 1B\ (4.0\%) < Model\ 1C\ (4.3\%)$

Here I note that this order is the same as found in the previous analysis on net wages, which shows that both wages and duration of study-to-work are most influenced by job factors, followed by university characteristics, then sociodemographic factors, and finally variables on language skills and international experience.

Table 13. OLS regression – The exclusive effects of the explanatory categories on (ln) duration of study-to-employment

<i>* Enter method</i>	Model 2		Model 3A		Model 3B		Model 3C		Model 3D	
	Mobility categories		Mobility categories+'A'		Mobility categories+'B'		Mobility categories+'C'		Mobility categories+'D'	
R ²	0.003		0.005		0.041		0.048		0.007	
Adjusted R ²	0.003		0.004		0.040		0.043		0.006	
Sig.	0.000		0.000		0.000		0.000		0.000	
Durbin-Watson	1.661		1.669		1.690		1.666		1.654	
F	16.897		5.782		23.462		9.549		6.129	
N	12,181		11,982		11,960		8,257		11,374	
Constant	1.184		1.192		1.037		1.020		0.097	
	Model 2		Model 3A		Model 3B		Model 3C		Model 3D	
	Mobility categories		Mobility categories+'A'		Mobility categories+'B'		Mobility categories+'C'		Mobility categories+'D'	
	Standard. Beta	Sig.	Standard. Beta	Sig.	Standard. Beta	Sig.	Standard. Beta	Sig.	Standard. Beta	Sig.
Semi-mobile students (Non-mobile students)	-0.038	0.000	-0.033	0.000	-0.028	0.002	-0.028	0.009	-0.035	0.000
Full-mobile students (Non-mobile students)	-0.039	0.000	-0.024	0.012	-0.043	0.000	-0.026	0.020	-0.029	0.003

Source: Author's own elaboration (Based on the GCTS database)

After I identified the OLS sub-models for the time taken to find a job after graduation, I build the full model by incorporating the different categories of variables into the model step by step. The results of the sequential model building procedures can be found in Table 14.

According to ANOVA F values and significance levels, the Model 3AB; 3ABC and Model 3 (total) are existing, in addition the value of Durbin-Watson has moved closer and closer to the optimal value of 2.0 over the steps. Furthermore, the explanatory power of the models - represented by adjusted R^2 - is also increased through each steps, indicating that the model has been steadily improved by the factor inputs. In the initial state the value of adjusted R^2 was 0.003, while in the final model it increased to 0.081. Furthermore, the VIF values are lower than 10 in all cases, meaning that there is no multicollinearity among the variables. (The exact tolerance and VIF values can be found in the detailed OLS results in Appendix 11-15.)

Interpreting the final model (*Model 3*) results in more detail, it can be seen, that the significance level of ANOVA is 0.000 (< 0.05), in addition there is no autocorrelation and no multicollinearity in the model, furthermore the value of adjusted R^2 is 0.081, which can be interpreted as the explanatory and control variables included explains the time from study to employment at 8.1 percent.

However, from my research perspective the most important findings of the *Model 3* are that the **difference between mobile and non-mobile students are not significant at 5 percent significance level according to the duration of study-to-job duration**. I could only accept the difference as significant at 10 percent significance level, thus semi-mobile students would need 2 percent less time to find their first job after graduation, than their non-mobile peers ($p\ 0.077 > 0.1$), however at 5 percent significance level I cannot accept the difference as significant. In the case of full-mobile students I cannot find evidence for significant difference in study-to-employment duration compared to non-mobile students neither at 10% nor at 5% significance level ($p\ 0.127 > 0.05$).

This result shows that there is a nuanced picture among students, but the lack of a significant difference between mobile and non-mobile students - as a result of the OLS regression analysis - is surprising, as both the literature and my own preliminary assumptions suggested that international mobility experience has a positive impact on the human capital of recent graduates, which may be reflected in a more advantageous position in the labour market, i.e. a faster time to find a job. However, the results did not confirm this perspective

of the mobility impacts. But the model building procedure highlighted that the most powerful factor is the job characteristics, which are strongly influence the evolution of the transition time. Therefore, the conclusion is that the difference can be found in the descriptive statistics and ANOVA table are influenced strongly by other factors, the international learning mobility experience do not impact the length of study-to-employment transition.

Table 14. OLS regression on (ln) duration of study-to-employment – Model 3 (Total)

<i>* Enter method</i>	Model 2		Model 3A		Model 3AB		Model 3ABC		Model 3 (Total)	
	PIMP		PIMP+'A'		PIMP+'A'+ 'B'		PIMP+'A'+ 'B'+ 'C'		PIMP+'A'+ 'B'+ 'C'+ 'D'	
R ²	0.003		0.005		0.046		0.085		0.091	
Adjusted R ²	0.003		0.004		0.043		0.076		0.081	
Sig.	0.000		0.000		0.000		0.000		0.000	
Durbin-Watson	1.661		1.669		1.697		1.702		1.704	
F	16.897		5.782		18.194		10.183		9.051	
N	12,181		11,982		11,764		8,002		7,664	
Constant	1.184		1.192		1.052		0.888		-0.676	
	Model 2		Model 3A		Model 3AB		Model 3ABC		Model 3 (Total)	
	PIMP		PIMP+'A'		PIMP+'A'+ 'B'		PIMP+'A'+ 'B'+ 'C'		PIMP+'A'+ 'B'+ 'C'+ 'D'	
	Standard. Beta	Sig.	Standard. Beta	Sig.	Standard. Beta	Sig.	Standard. Beta	Sig.	Standard. Beta	Sig.
Semi-mobile students (Non-mobile students)	-0.038	0.000	-0.033	0.000	-0.023	0.013	-0.021	0.059	-0.020	0.077
Full-mobile students (Non-mobile students)	-0.039	0.000	-0.024	0.012	-0.027	0.004	-0.022	0.054	-0.018	0.127
Diploma grade sufficient (Good)			-0.005	0.549	-0.003	0.719	-0.007	0.492	-0.009	0.398
Diploma grade average (Good)			0.015	0.108	0.027	0.006	0.031	0.008	0.027	0.025
Diploma grade excellent (Good)			-0.003	0.727	-0.030	0.002	-0.026	0.030	-0.026	0.034
Native English speaker (Better than a middle level /4/)			0.001	0.887	-0.001	0.878	-0.003	0.812	0.004	0.701
Do not speak English at all /1/ (Better than a middle level /4/)			0.008	0.397	0.004	0.647	0.006	0.567	0.007	0.541
Speaks basic English /2/ (Better than a middle level /4/)			0.005	0.617	0.001	0.913	-0.006	0.616	-0.009	0.452
Speaks middle-level English /3/ (Better than a middle level /4/)			0.009	0.376	0.010	0.331	0.018	0.140	0.015	0.230
Speaks English very well /5/ (Better than a middle level /4/)			-0.034	0.001	-0.032	0.003	-0.017	0.169	-0.018	0.152
Did work abroad (Did not work abroad)			-0.021	0.024	-0.027	0.004	-0.014	0.232	-0.018	0.120
Own-financed education (Public-scholarship financed)					-0.001	0.951	-0.007	0.554	-0.021	0.079
Master (Bachelor)					0.077	0.000	0.092	0.000	0.073	0.000

<i>* Enter method</i>	Model 2	Model 3A	Model 3AB		Model 3ABC		Model 3 (Total)	
	PIMP	PIMP+'A'	PIMP+'A'+ 'B'		PIMP+'A'+ 'B'+ 'C'		PIMP+'A'+ 'B'+ 'C'+ 'D'	
Undivided training (Bachelor)			-0.063	0.000	-0.054	0.000	-0.068	0.000
Traditional university (Bachelor)			-0.001	0.896	0.000	0.999	-0.016	0.196
Traditional college (Bachelor)			0.019	0.046	0.016	0.157	0.011	0.343
Studied Agricultural sciences (Business)			0.078	0.000	0.063	0.000	0.058	0.000
Studied Humanities and Social sciences (Business)			0.130	0.000	0.120	0.000	0.126	0.000
Studied Information technology (Business)			0.010	0.336	0.017	0.181	0.009	0.499
Studied Law (Business)			0.075	0.000	0.071	0.000	0.079	0.000
Studied Engineering (Business)			0.125	0.000	0.154	0.000	0.139	0.000
Studied Art (Business)			0.023	0.012	0.026	0.021	0.024	0.043
Studied Art mediation (Business)			0.044	0.000	0.038	0.001	0.036	0.001
Studied Public administration (Business)			0.031	0.001	0.024	0.035	0.022	0.059
Studied Medicine and Health sciences (Business)			0.029	0.020	0.058	0.004	0.063	0.200
Studied Teacher education (Business)			0.020	0.046	0.024	0.119	0.026	0.097
Studied Sport sciences (Business)			0.042	0.000	0.037	0.001	0.042	0.000
Studied Social sciences (Business)			0.112	0.000	0.101	0.000	0.105	0.000
Studied Natural sciences (Business)			0.110	0.000	0.100	0.000	0.098	0.000
Studied Religion (Business)			-0.006	0.539	-0.007	0.539	-0.006	0.609
Self-employed (1000+ employee)					-0.005	0.669	-0.003	0.766
Micro company: 2-9 employee (1000+ employee)					0.032	0.031	0.029	0.051
Small company: 10-49 employee (1000+ employee)					0.024	0.105	0.022	0.145
Medium company: 50-249 employee (1000+ employee)					0.007	0.625	0.005	0.743
Large company: 250-999 employee (1000+ employee)					-0.001	0.954	-0.001	0.952
Total publicly-owned co. (Total privately-owned)					0.027	0.132	0.020	0.278
Partly privately, partly publicly-owned co. (Privately-owned)					0.021	0.066	0.019	0.112
Partly foreign-owned co. (Total Hungarian-owned)					-0.024	0.052	-0.024	0.054
Total foreign-owned co. (Total Hungarian-owned)					-0.030	0.071	-0.037	0.031
Agriculture (Human & social services)					0.034	0.016	0.035	0.017

<i>* Enter method</i>	Model 2	Model 3A	Model 3AB	Model 3ABC		Model 3 (Total)	
	PIMP	PIMP+'A'	PIMP+'A'+ 'B'	PIMP+'A'+ 'B'+ 'C'		PIMP+'A'+ 'B'+ 'C'+ 'D'	
Mining (Human & social services)				-0.006	0.608	-0.006	0.585
Manufacturing (Human & social services)				0.072	0.000	0.072	0.000
Electricity and AC (Human & social services)				0.039	0.002	0.036	0.005
Water supply & waste management (Human & social services)				0.002	0.890	0.005	0.668
Construction (Human & social services)				0.005	0.742	0.005	0.736
Trade & motor vehicle repair (Human & social services)				0.033	0.030	0.029	0.057
Delivery & warehousing (Human & social services)				0.022	0.087	0.018	0.179
Tourism & Catering (Human & social services)				0.008	0.552	0.010	0.451
Information, Communication (Human & social services)				0.018	0.342	0.011	0.553
Finance & Insurance (Human & social services)				0.024	0.140	0.028	0.084
Real estate (Human & social services)				0.029	0.010	0.030	0.010
Professional, technical activities (Human & social services)				0.017	0.279	0.013	0.408
Administration (Human & social services)				0.035	0.010	0.031	0.027
Public administration (Human & social services)				0.089	0.000	0.090	0.000
Education (Human & social services)				0.004	0.813	0.004	0.818
Art, entertainment, recreation (Human & social services)				0.001	0.945	-0.003	0.827
Other services (Human & social services)				0.040	0.001	0.043	0.001
Households' employment activity (Human & social services)				-0.007	0.519	-0.006	0.599
Other area (Human & social services)				0.026	0.140	0.030	0.101
Workplace Region Western Transdanubia (Budapest)				0.008	0.469	0.006	0.613
Workplace Region Central Transdanubia (Budapest)				0.045	0.000	0.043	0.000
Workplace Region Southern Transdanubia (Budapest)				0.036	0.002	0.037	0.002
Workplace Region Northern Hungary (Budapest)				0.016	0.144	0.015	0.199
Workplace Region Northern Great Plain (Budapest)				0.040	0.000	0.044	0.000
Workplace Southern Great Plain (Budapest)				0.046	0.000	0.043	0.000
Workplace Abroad (Budapest)				0.017	0.192	0.022	0.099
Workplace Region Central Hungary-Pest (Budapest)				0.018	0.121	0.019	0.111

<i>* Enter method</i>	Model 2	Model 3A	Model 3AB	Model 3ABC		Model 3 (Total)	
	PIMP	PIMP+'A'	PIMP+'A'+ 'B'	PIMP+'A'+ 'B'+ 'C'		PIMP+'A'+ 'B'+ 'C'+ 'D'	
Senior manager (Graduate employee)				-0.027	0.013	-0.027	0.015
Middle manager (Graduate employee)				-0.029	0.009	-0.033	0.003
Lower manager (Graduate employee)				-0.014	0.205	-0.020	0.080
Non-graduate employee (Graduate employee)				0.105	0.000	0.106	0.000
Male (Female)						0.030	0.018
LN Age						0.067	0.000
Has a child under 18 (Do not have a child under 18)						-0.010	0.394
Family economic situation at age 14 - much better than average (Average)						0.004	0.696
Family economic situation at age 14 - better than average (Average)						-0.010	0.408
Family economic situation at age 14 - worse than average (Average)						0.004	0.713
Family economic situation at age 14 - much worse than average (Average)						0.018	0.112
Father's primary education (Secondary education)						0.005	0.654
Father's tertiary education (Secondary education)						-0.024	0.068
Father's education unknown (Secondary education)						-0.017	0.129
Mother's primary education (Secondary education)						-0.027	0.019
Mother's tertiary education (Secondary education)						-0.006	0.636
Mother's education unknown (Secondary education)						-0.003	0.791

Source: Author's own elaboration (Based on the GCTS database)

A further result of Table 14. represents that in the final model there is difference between fresh graduates according to their diploma grade. In the case of students who had excellent academic results needed 2.6 percent less time to find their first job than those who were evaluated at grade good, on the contrary the respondents with final grade 3 needs 2.7 percent more time to find their job after graduation.

At the same time - *ceteris paribus* – there is a significant difference between formerly master and bachelor students. Respondents who graduated in a master programme find their first job after graduation 7.3 percent slower, than those who completed their studies at the bachelor level ($p\ 0.000 < 0,05$), while who completed their studies on an undivided programme could find a job 6.8 percent sooner, compared to bachelor-students. This this seems logical, as most of the graduates in the undivided programmes are teachers and doctors, which areas almost automatically absorb fresh labour.

Furthermore, according to study fields, there are also significant differences in many area compared to those who graduated in the business field. Graduates at agriculture, human and social sciences, law, engineering, art, sport, social and natural sciences needs significantly more time to find their first job than business field-graduates.

According to the final OLS regression it seems that the size of the company do not influence significantly the length of study-to-job, However, respondents who work at a total foreign-owned company needed slightly (3.7%) less time to find their first job than those who work at a total Hungarian-owned company, the reason behind it can be the higher brand awareness and a stronger employer branding position, which making them more visible to recent graduates. Moreover, the total foreign-owned companies may offer better compensation to their employees and further possible international work experience in a challenging environment, which can be an attractive aspect for the candidates.

The region of the workplace also influences the length of study-to-employment. The result shows that in half of the regions graduates needs more time to find their first job, compared to those who work in the capital city of Hungary. In addition, individuals in a higher level (senior, middle manager) positions needs significantly less time to find their jobs, which is a bit surprising result, considering the low number of high-position leader in first year after graduation, however the model did not contain any information about the professional network of respondents, which may can explain this result.

In socio-demographic factors ('D'), the gender and age also influence the evolution of study- to- job duration, however the economic situation of the family (at age 14) and the

parents' highest educational level do not influence that how fast the recent graduates can find their first job.

Overall, at the end of the model building procedure the explanatory power slightly increased, but still very low, which indicates the demand for further variables to include, which may be related to the professional network of respondents, the general condition of the economy, and additional personal characteristics. However, I did not aim to explain the length of study-to-employment, my purpose was to discover whether the international learning experience could influence the time needed to find the first job after graduation. And I found that the participation in a mobility programme do not influence the length of job-finding process. Therefore, the participation in an international learning mobility experience is not beneficial in terms of study-to-work duration.

6. CONCLUSION

To summarize the content of my research I collect the most important findings. This thesis started with the importance of internationalisation in higher education. One extremely important element of it is the student mobility programmes, which are also the most visible manifestation of the internationalisation efforts. I identified the different types of mobility programmes and examined how the popularity of the outgoing, short-term credit mobility were increased in Hungary during the past decades.

The high increase indicates that there is some benefit for students to participate in a study abroad experience. Thus, I have based my entire thesis on the assumption that the international study mobility experience has positive benefits for the participants. My purpose was to explore these most important benefits, but in an even narrower sense the chosen research focus was the labour market benefits of the mobile recent graduates.

During the literature review I compered several European studied based on the potential benefits and I found that mobility experience is beneficial for the career planning skills and contributes to the further professional development and better career prospects (Potts, 2015; Bryla, 2015; Paige et al., 2009). On the contrary, the literature does not report uniformly positive benefits in terms of study-to-employment duration. The risk of unemployment after graduation might lower in the case of mobile students (Brandenburg et. al, 2014), but other researchers argues that participation in a mobility program does not reduce the time needed to find the first job after graduation (Weibel et al., 2017). The results of my own empirical research are in line with the findings of Weibel et al. (2017), as I also found that whether or not one participated in learning mobility does not significantly affect the time to employment.

However, the literature argues for much more positive differences in wage differentials, several studies proved that those students who spent a given time abroad for study purposes could reach a higher salary than those, who did not go abroad at all during their studies (Favero and Fucci 2017, Iriondo 2020, Kratz and Netz 2018, Rodrigues 2013, Teichler 2015). The potential wage benefits may vary by country and by method of analysis, but the majority confirm demonstrable and significant benefits. My own empirical research, based on Hungarian GCTS data, contributes to and fits with this literature. I found that those students who spent at least one semester abroad could earn – ceteris paribus – 1.7% higher net salaries in the first year after graduation than those who did not participate in an international mobility program at all in.

In the literature review I also identified some other benefits, which are not strongly related to the labour market benefits, these are the personal development and better self-awareness, furthermore the international experience could improve the participants cultural awareness and cultural intelligence as well as the language skills. Especially the ERASMUS program contributes the development of European attitude and sense of Europeanism.

Overall, the international learning mobility programmes are beneficial from more perspective, and it can be proved that is worthwhile to participate. The above-mentioned positive impacts, like better career prospects, wage benefits, professional and personal development, improving language skills, cultural awareness and stronger European identity are those factors which proves that the international experience is beneficial. These findings provide me a comprehensive answer to my first research, i.e. what are the main impacts of international learning mobility for individuals.

6.1. EVALUATION OF THE HYPOTHESES

Based on data from the Hungarian Graduate Career Tracking System 2011-2018, my first hypothesis (H1) - that states in the first year after graduation there is a significant difference between the net income of recent graduates who have participated in an international learning mobility programme for some time and those who have not - is proved, since there is significant difference between semi-mobile and non-mobile students just like between full-mobile and non-mobile students.

This result may be of particular relevance for current (and future) higher education students who want to plan their professional careers consciously and improve their future labour market prospects through the international mobility opportunities offered by the university.

My second hypothesis H2 is also connected to the wage-differences, and I found that at least one semester abroad (for study purposes) contributes to a higher net salary in the first year after graduation. According to the OLS regression model the full-mobile students – *ceteris paribus* – earn 1.7 percent better than their non-mobile peers. Therefore, this hypothesis is proved.

The finding confirms that mobility experience can be considered as an investment during the higher education studies, which will pay off basically immediately after graduation. As I found the mobility experience increases the net salary in the first year after graduation significantly, therefore it is financially worthwhile.

The third hypothesis (H3) stated that the first year after graduation there is a significant difference between the lengths of study-to-employment duration of recent graduates who have participated in an international learning mobility programme for some time and those who have not. I found the difference significant at 5 percent significant level, which means I can accept this hypothesis. The ANOVA table represents significant differences between mobile and non-mobile students, which justified my further research into the direction of this difference.

And finally, according to my last (fourth) hypothesis (H4) the full-mobile students can find a job sooner than non-mobile students, which has to be rejected, because in the final OLS regression model (*Model 3*) I found that the mobility experience does not influence significantly the length of study-to-employment duration at 5 percent significance level. This result is important since there are some research in the literature showing that mobile students are slower to find their first job after graduation and thus may be disadvantaged by international experience after graduation. The reason given for this is that mobile students may lose contact with the domestic job market. However, based on my results, there is no significant difference between the study-to-work duration of Hungarian (mobile and non-mobile) students, so this potential disadvantage cannot be detected.

Furthermore, the result shows mobility does not have a positive effect on all career factors, some factors are not affected at all. As it can be seen, in the case of Hungarian recent graduates, it has no effect on the length of study-to-employment transition, thus that in international study experience in itself is not a guarantee of success in the labour market.

Overall, my hypotheses are consistent with the available literature on the impact of international learning mobility programmes, so this research can contribute to a possible cross-country comparison. Furthermore, results might be relevant for the higher education institutes as well - besides the recent graduates. Universities should encourage their students to participate in a mobility programme if they want to make them employable and competitive.

6.2. LIMITATIONS AND FURTHER RESEARCH OPPORTUNITIES

As I indicated during the whole thesis, the issue of selectivity among mobile students can be critical to handle. There are personal characteristics, which are difficult to observe or even measure, like motivation and ambition, which may influence the labour market positions of recent graduates in itself, but in the research, I cannot exclude their effect because of the lack of data. Overall, this is huge limitation of the research.

Among the further research directions related to the topic, I find another type of analysis method interesting, for example the use of the propensity score matching technique and the examination of the extent to which the obtained result differs from the OLS regression findings, both regarding wages and study-to-employment duration. I also find the comparison of the effects between different countries extremely exciting, although I touched on the topic in this thesis, but a more detailed analysis would reveal further results and differences. On other way of further research can be the analysis of mobility experience not just in the first year after graduation, but in the fifth year too. The comparison can outline whether the effect of international study experience during studies is less or more reflected in wage differentials in the longer (5-year) term, compared to the first year after graduation.

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APPENDIX

APPENDIX 1.: EXPLANATORY VARIABLES IN THE OLS REGRESSION MODELS

PIMP _i	Studied abroad	Participation in an international mobility program
A _i	Abilities, skills, international work experience	Grade on the graduation diploma
		Level of English knowledge
		International work experience (after graduation)
B _i	Characteristics of the studies	Type of HEI
		Form of studies
		Professional degree obtained
		Field of study
C _i	Characteristics of the job	Firm size
		Firm ownership
		Economic sector
		Region of the workplace
		Work position
D _i	Socio-demographic	Gender
		Age
		Place of residence
		Year of graduation
		The educational level of the parents

APPENDIX 2.: INDEPENDENT SAMPLES T-TEST (1)

Group Statistics

Studied abroad?		N	Mean	Std. Deviation	Std. Error Mean
Monthly net wages	Yes	3,549	279.4993	159.12355	2.67105
	No	23,651	232.9163	123.14959	0.80077

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
Monthly net wages	Equal variances assumed	238.271	0.000	20.151	27198	0.000	0.000	46.58293	2.31166	42.05196	51.11389
	Equal variances not assumed			16.705	4209.334	0.000	0.000	46.58293	2.78850	41.11600	52.04986

Independent Samples Effect Sizes

		Standardizer ^a	Point Estimate	95% Confidence Interval	
				Lower	Upper
Monthly net wages	Cohen's d	128.41527	0.363	0.327	0.398
	Hedges' correction	128.41882	0.363	0.327	0.398
	Glass's delta	123.14959	0.378	0.343	0.414

a. The denominator used in estimating the effect sizes.

Cohen's d uses the pooled standard deviation.

Hedges' correction uses the pooled standard deviation, plus a correction factor.

Glass's delta uses the sample standard deviation of the control group.

APPENDIX 3.: ANALYSIS OF VARIANCE (1)

Descriptives

Monthly net wages								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Did not study abroad	23,651	232.9163	123.14959	0.80077	231.3468	234.4859	90.65	999.00
Studied abroad less than one semester	582	267.8308	166.45268	6.89969	254.2794	281.3822	94.62	999.00
Studied abroad at least one semester	2,967	281.7881	157.57367	2.89284	276.1159	287.4603	91.88	999.00
Total	27,200	238.9944	129.36799	0.78441	237.4569	240.5319	90.65	999.00

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Monthly net wage	Based on Mean	117.724	2	27,197	0.000
	Based on Median	90.727	2	27,197	0.000
	Based on Median and with adjusted df	90.727	2	26,197.189	0.000
	Based on trimmed mean	101.018	2	27,197	0.000

ANOVA

Monthly net wages					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6,791,165.496	2	3,395,582.748	205.948	0.000
Within Groups	448,413,362.117	27,197	16,487.604		
Total	455,204,527.613	27,199			

Robust Tests of Equality of Means

Monthly net wages				
	Statistic ^a	df1	df2	Sig.
Welch	142.729	2	1,353.220	0.000

a. Asymptotically F distributed.

Multiple Comparisons

Dependent Variable:						
Games-Howell						
(I) Studied abroad three categories		Mean Dif- ference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Did not study abroad	Studied abroad less than one semester	-34.91448*	6.94600	0.000	-51.2346	-18.5943
	Studied abroad at least one semester	-48.87178*	3.00163	0.000	-55.9098	-41.8338
Studied abroad less than one semester	Did not study abroad	34.91448*	6.94600	0.000	18.5943	51.2346
	Studied abroad at least one semester	-13.95731	7.48159	0.149	-31.5247	3.6101
Studied abroad at least one semester	Did not study abroad	48.87178*	3.00163	0.000	41.8338	55.9098
	Studied abroad less than one semester	13.95731	7.48159	0.149	-3.6101	31.5247

*. The mean difference is significant at the 0.05 level.

APPENDIX 4.: OLS LINEAR REGRESSION – MODEL 0

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Esti- mate	Durbin-Watson
1	.125 ^a	0.016	0.016	0.18921	1.628

a. Predictors: (Constant), Studied abroad 3 categories=Studied abroad at least one semester, Studied abroad less than one semester

b. Dependent Variable: LN net wage (monthly)

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.523	2	7.761	216.794	.000 ^b
	Residual	973.687	27,197	0.036		
	Total	989.210	27,199			

a. Dependent Variable: LN net wage (monthly)

b. Predictors: (Constant), Studied abroad 3 categories=Studied abroad at least one semester, Studied abroad less than one semester

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.323	0.001		1887.996	0.000		
	Studied abroad less than one semester	0.046	0.008	0.035	5.752	0.000	0.997	1.003
	Studied abroad at least one semester	0.075	0.004	0.122	20.283	0.000	0.997	1.003

a. Dependent Variable: LN net wage (monthly)

APPENDIX 5.: OLS LINEAR REGRESSION – MODEL 1A

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.255 ^a	0.065	0.064	0.18434	1.674

a. Predictors: (Constant), Studied abroad 3 categories=Studied abroad at least one semester, Studied abroad 3 categories=Studied abroad less than one semester; Worked abroad=Yes, Diploma grade=Avarage, Diploma grade=Sufficient, Diploma grade=Excellent; English knowledge=do not speak at all, English knowledge=native, English knowledge=Speaks basic English, English knowledge=Speaks at level 3, English knowledge=Speaks at level 4

b. Dependent Variable: LN net wage (monthly)

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	63.156	11	5.741	168.962	.000 ^b
	Residual	910.442	26,793	0.034		
	Total	973.598	26,804			

a..Dependent Variable: LN net wage (monthly)

b. Predictors: (Constant), Studied abroad 3 categories=Studied abroad at least one semester, Studied abroad 3 categories=Studied abroad less than one semester; Worked abroad=Yes, Diploma grade=Avarage, Diploma grade=Sufficient, Diploma grade=Excellent; English knowledge=do not speak at all, English knowledge=native, English knowledge=Speaks basic English, English knowledge=Speaks at level 3, English knowledge=Speaks at level 4

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.361	0.002		967.887	0.000		
	Studied abroad less than one semester	0.024	0.008	0.018	3.103	0.002	0.986	1.015
	Studied abroad at least one semester	0.045	0.004	0.074	11.953	0.000	0.915	1.093
	Diploma grade sufficient	0.077	0.014	0.034	5.725	0.000	0.992	1.008
	Diploma grade avarage	0.027	0.003	0.059	9.437	0.000	0.892	1.121
	Diploma grade excellent	-0.016	0.003	-0.038	-6.048	0.000	0.895	1.118
	Native English speaker	0.066	0.018	0.022	3.733	0.000	0.991	1.009
	Do not speak English at all /1/	-0.106	0.009	-0.075	-12.405	0.000	0.956	1.046
	Speaks basic English /2/	-0.103	0.005	-0.143	-22.345	0.000	0.856	1.169
	Speaks middle-level English /3/	-0.076	0.003	-0.166	-24.139	0.000	0.734	1.363
	Speaks English very well /5/	-0.049	0.003	-0.122	-17.507	0.000	0.721	1.386
	Did work abroad	0.051	0.003	0.092	15.167	0.000	0.946	1.057

b. Dependent Variable: LN net wage (monthly)

APPENDIX 6.: OLS LINEAR REGRESSION – MODEL 1B

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.414 ^a	0.171	0.170	0.17395	1.830

a. Predictors: (Constant), Studied abroad 3 categories=Studied abroad at least one semester, Studied abroad 3 categories=Studied abroad less than one semester; Type of HEI=Own-financed education; Professional degree obtained=Master, Professional degree obtained=Undivided training, Professional degree obtained=Traditional university, Professional degree obtained=Traditional college, Professional degree obtained=Specialized further training/Residency; Studied=Agricultural sciences, Studied= Humanities and Social sciences, Studied=Information technology, Studied=Law, Studied=Engineering, Studied=Art, Studied=Art mediation, Studied=Public administration, Studied=Medicine and Health sciences, Studied=Teacher education, Studied=Sport sciences, Studied=Social sciences, Studied=Natural sciences, Studied=religion

b. Dependent Variable: LN net wage (monthly)

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	167.007	22	7.591	250.876	.000 ^b
	Residual	809.640	26,757	0.030		
	Total	976.647	26,779			

a. Dependent Variable: LN net wage (monthly)

b. Predictors: (Constant), Studied abroad 3 categories=Studied abroad at least one semester, Studied abroad 3 categories=Studied abroad less than one semester; Type of HEI=Own-financed education; Professional degree obtained=Master, Professional degree obtained=Undivided training, Professional degree obtained=Traditional university, Professional degree obtained=Traditional college, Professional degree obtained=Specialized further training/Residency; Studied=Agricultural sciences, Studied= Humanities and Social sciences, Studied=Information technology, Studied=Law, Studied=Engineering, Studied=Art, Studied=Art mediation, Studied=Public administration, Studied=Medicine and Health sciences, Studied=Teacher education, Studied=Sport sciences, Studied=Social sciences, Studied=Natural sciences, Studied=religion

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.332	0.003		851.105	0.000		
	Studied abroad less than one semester	0.057	0.007	0.043	7.620	0.000	0.986	1.015
	Studied abroad at least one semester	0.065	0.004	0.106	18.501	0.000	0.949	1.054
	Studied Agricultural sciences	-0.102	0.006	-0.111	-18.279	0.000	0.845	1.184
	Studied Humanities and Social sciences	-0.098	0.004	-0.159	-24.015	0.000	0.707	1.414
	Studied Information technology	0.096	0.004	0.135	21.368	0.000	0.773	1.294
	Studied Law	-0.140	0.006	-0.158	-22.504	0.000	0.632	1.583
	Studied Engineering	0.027	0.003	0.057	8.125	0.000	0.619	1.616
	Studied Art	-0.069	0.010	-0.038	-6.731	0.000	0.954	1.048
	Studied Art mediation	-0.085	0.021	-0.022	-4.018	0.000	0.989	1.011
	Studied Public administration	-0.029	0.010	-0.016	-2.892	0.004	0.956	1.046
	Studied Medicine and Health sciences	-0.075	0.005	-0.112	-15.503	0.000	0.591	1.693
	Studied Teacher education	-0.165	0.005	-0.203	-32.875	0.000	0.812	1.232
	Studied Sport sciences	-0.114	0.013	-0.051	-9.072	0.000	0.967	1.034
	Studied Social sciences	-0.086	0.004	-0.121	-19.182	0.000	0.781	1.281
	Studied Natural sciences	-0.084	0.005	-0.102	-16.365	0.000	0.805	1.242
	Studied religion	-0.207	0.078	-0.015	-2.655	0.008	0.999	1.001
	Master	0.065	0.003	0.143	23.539	0.000	0.836	1.196
	Undivided training	0.065	0.005	0.092	12.736	0.000	0.588	1.702
	Traditional university	0.086	0.004	0.148	24.502	0.000	0.845	1.184
	Traditional college	-0.004	0.005	-0.004	-0.736	0.461	0.944	1.059
	Specialized further training/Residency	0.040	0.035	0.006	1.136	0.256	0.997	1.003
	Own-financed education	0.000	0.003	0.000	-0.076	0.939	0.945	1.058

a. Dependent Variable: LN net wage (monthly)

APPENDIX 7.: OLS LINEAR REGRESSION – MODEL 1C

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.679 ^a	0.461	0.460	0.13890	1.785

a. Predictors: (Constant), Studied abroad 3 categories=Studied abroad at least one semester, Studied abroad 3 categories=Studied abroad less than one semester; Firm size=Self-employed, Firm size=Micro company: 2-9 employee, Firm size=Small company: 10-49 employee, Firm size=Medium company: 50-249 employee, Firm size=Large company: 250-999 employee; Firm ownership (1)=Total publicly-owned co., Firm ownership (1)=Partly privately, partly publicly-owned co., Firm ownership (2)=Partly foreign-owned co. Firm ownership (2)=Total foreign-owned co.; Area=Agriculture, Area=Mining, Area=Manufacturing, Area=Electricity and AC, Area=Water supply & waste management, Area=Construction Trade & motor vehicle repair, Area=Delivery & warehousing, Area=Tourism & Catering Information, Area=Communication, Area=Finance & Insurance, Area=Real estate, Area=Professional, technical activities, Area=Administration, Area= Public administration, Area=Education, Area=Art, entertainment, recreation, Area=Other services, Area=Households' employment activity, Area=Other area, Workplace Region=Western Transdanubia, Workplace Region=Central Transdanubia, Workplace Region=Southern Transdanubia, Workplace Region=Northern Hungary, Workplace Region=Northern Great Plain, Workplace Region=Southern Great Plain, Workplace Region=Abroad, Workplace Region=Central Hungary-Pest; Position=Senior manager, Position=Middle manager, Position=Lower manager, Position=Non-graduate employee

b. Dependent Variable: LN net wage (monthly)

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	354.103	43	8.235	426.823	.000 ^b
	Residual	414.099	21463	0.019		
	Total	768.203	21506			

a. Dependent Variable: LN net wage (monthly)

b. Predictors: (Constant), (Constant), Studied abroad 3 categories=Studied abroad at least one semester, Studied abroad 3 categories=Studied abroad less than one semester; Firm size=Self-employed, Firm size=Micro company: 2-9 employee, Firm size=Small company: 10-49 employee, Firm size=Medium company: 50-249 employee, Firm size=Large company: 250-999 employee; Firm ownership (1)=Total publicly-owned co., Firm ownership (1)=Partly privately, partly publicly-owned co., Firm ownership (2)=Partly foreign-owned co. Firm ownership (2)=Total foreign-owned co.; Area=Agriculture, Area=Mining, Area=Manufacturing, Area=Electricity and AC, Area=Water supply & waste management, Area=Construction Trade & motor vehicle repair, Area=Delivery & warehousing, Area=Tourism & Catering Information, Area=Communication, Area=Finance & Insurance, Area=Real estate, Area=Professional, technical activities, Area=Administration, Area= Public administration, Area=Education, Area=Art, entertainment, recreation, Area=Other services, Area=Households' employment activity, Area=Other area, Workplace Region=Western Transdanubia, Workplace Region=Central Transdanubia, Workplace Region=Southern Transdanubia, Workplace Region=Northern Hungary, Workplace Region=Northern Great Plain, Workplace Region=Southern Great Plain, Workplace Region=Abroad, Workplace Region=Central Hungary-Pest; Position=Senior manager, Position=Middle manager, Position=Lower manager, Position=Non-graduate employee

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	2.357	0.005		512.563	0.000		
Total publicly-owned co.	-0.040	0.003	-0.098	-12.437	0.000	0.403	2.483
Partly privately, partly publicly-owned co.	-0.026	0.004	-0.031	-5.871	0.000	0.885	1.129
Senior manager	0.166	0.013	0.065	12.980	0.000	0.991	1.009
Middle manager	0.087	0.005	0.093	18.156	0.000	0.954	1.048
Lower manager	0.052	0.004	0.061	12.013	0.000	0.966	1.035
Non-graduate employee	-0.094	0.003	-0.172	-31.789	0.000	0.862	1.161
Workplace Region Western Transdanubia	-0.057	0.004	-0.083	-15.429	0.000	0.866	1.155
Workplace Region Central Transdanubia	-0.044	0.004	-0.056	-10.590	0.000	0.899	1.112
Workplace Region Southern Transdanubia	-0.076	0.004	-0.095	-17.935	0.000	0.903	1.108
Workplace Region Northern Hungary	-0.060	0.005	-0.059	-11.353	0.000	0.931	1.074
Workplace Region Northern Great Plain	-0.082	0.004	-0.106	-20.079	0.000	0.906	1.104
Workplace Southern Great Plain	-0.074	0.004	-0.113	-21.057	0.000	0.869	1.151
Workplace Abroad	0.256	0.005	0.331	56.943	0.000	0.745	1.342
Workplace Region Central Hungary-Pest	-0.024	0.004	-0.031	-5.855	0.000	0.905	1.105
Partly foreign-owned co.	0.039	0.004	0.062	10.673	0.000	0.744	1.344
Total foreign-owned co.	0.077	0.003	0.186	24.738	0.000	0.446	2.243
Agriculture	-0.019	0.007	-0.016	-2.840	0.005	0.781	1.280
Mining	0.026	0.019	0.007	1.389	0.165	0.960	1.042
Manufacturing	0.035	0.005	0.058	7.412	0.000	0.416	2.406
Electricity and AC	0.062	0.008	0.043	7.756	0.000	0.830	1.205
Water supply & waste management	-0.003	0.011	-0.001	-0.257	0.797	0.927	1.079
Construction	0.018	0.006	0.020	3.233	0.001	0.630	1.587
Trade & motor vehicle repair	-0.005	0.006	-0.005	-0.822	0.411	0.631	1.584
Delivery & warehousing	0.022	0.008	0.016	2.943	0.003	0.822	1.216
Tourism & Catering	-0.016	0.007	-0.015	-2.462	0.014	0.686	1.459
Information, Communication	0.073	0.005	0.124	16.037	0.000	0.419	2.388
Finance & Insurance	0.032	0.005	0.041	6.097	0.000	0.567	1.765
Real estate	-0.013	0.016	-0.004	-0.790	0.430	0.957	1.045
Professional, technical activities	0.031	0.005	0.043	6.507	0.000	0.575	1.741
Administration	-0.023	0.006	-0.021	-3.586	0.000	0.750	1.333
Public administration	0.012	0.005	0.015	2.347	0.019	0.645	1.550
Education	-0.046	0.004	-0.075	-10.952	0.000	0.540	1.851
Art, entertainment, recreation	-0.038	0.007	-0.030	-5.414	0.000	0.818	1.223
Other services	-0.017	0.008	-0.011	-2.107	0.035	0.852	1.173
Households' employment activity	-0.048	0.023	-0.011	-2.123	0.034	0.960	1.042
Other area	0.023	0.004	0.037	5.258	0.000	0.507	1.972
Self-employed	-0.102	0.014	-0.038	-7.408	0.000	0.955	1.047
Micro company: 2-9 employee	-0.098	0.004	-0.169	-25.136	0.000	0.556	1.800
Small company: 10-49 employee	-0.059	0.003	-0.130	-18.785	0.000	0.528	1.894
Medium company: 50-249 employee	-0.040	0.003	-0.087	-13.508	0.000	0.601	1.663
Large company: 250-999 employee	-0.011	0.003	-0.023	-3.801	0.000	0.707	1.415
Studied abroad less than one semester	0.008	0.007	0.006	1.130	0.258	0.988	1.012
Studied abroad at least one semester	0.018	0.003	0.030	5.867	0.000	0.958	1.044

a. Dependent Variable: LN net wage (monthly)

APPENDIX 8.: OLS LINEAR REGRESSION – MODEL 1D

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.336 ^a	0.113	0.112	0.17937	1.723

a. Predictors: (Constant), Studied abroad 3 categories=Studied abroad at least one semester, Studied abroad 3 categories=Studied abroad less than one semester; Gender=Male; Child(ren) under age 18=Has a child under 18, Father's highest education=Father's primary education, Father's highest education=Father's higher education, Father's highest education=Father's education unknown; Mother's highest education=Mother's primary education, Mother's highest education=Mother's higher education, Mother's highest education=Mother's education unknown; Family economic situation at age 14=much better than average, Family economic situation at age 14= better than average, Family economic situation at age 14=worse than average, Family economic situation at age 14=much worse than average; Age

b. Dependent Variable: LN net wage (monthly)

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	106.287	15	7.086	220.246	.000 ^b
Residual	837.892	26,044	0.032		
Total	944.179	26,059			

a. Dependent Variable: LN net wage (monthly)

b. Predictors: (Constant), Studied abroad 3 categories=Studied abroad at least one semester, Studied abroad 3 categories=Studied abroad less than one semester; Gender=Male; Child(ren) under age 18=Has a child under 18, Father's highest education=Father's primary education, Father's highest education=Father's higher education, Father's highest education=Father's education unknown; Mother's highest education=Mother's primary education, Mother's highest education=Mother's higher education, Mother's highest education=Mother's education unknown; Family economic situation at age 14=much better than average, Family economic situation at age 14= better than average, Family economic situation at age 14=worse than average, Family economic situation at age 14=much worse than average; Age

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2,094	0,011		198,755	0,000		
	Studied abroad less than one semester	0,045	0,008	0,034	5,742	0,000	0,992	1,008
	Studied abroad at least one semester	0,065	0,004	0,105	17,696	0,000	0,965	1,036
	Male	0,099	0,002	0,256	43,309	0,000	0,972	1,029
	Has a child under 18	-0,008	0,008	-0,006	-0,980	0,327	0,904	1,106
	Father's primary education	-0,008	0,007	-0,007	-1,138	0,255	0,935	1,069
	Father's higher education	0,021	0,003	0,054	7,810	0,000	0,702	1,425
	Father's education unknown	0,003	0,008	0,002	0,360	0,719	0,965	1,036
	Mother's higher education	-0,020	0,006	-0,019	-3,132	0,002	0,913	1,095
	Mother's secondary education	0,014	0,003	0,036	5,239	0,000	0,728	1,374
	Mother's education unknown	-0,015	0,019	-0,005	-0,781	0,435	0,980	1,021
	Family economic situation at age 14 - much better than average	0,046	0,005	0,056	9,177	0,000	0,912	1,096
	Family economic situation at age 14 - better than average	0,009	0,003	0,021	3,297	0,001	0,814	1,229
	Family economic situation at age 14 - worse than average	0,011	0,003	0,021	3,351	0,001	0,862	1,159
	Family economic situation at age 14 - much worse than average	0,016	0,006	0,016	2,594	0,009	0,940	1,064
	Age	0,006	0,000	0,098	15,832	0,000	0,883	1,132

a. Dependent Variable: LN net wage (monthly)

APPENDIX 9.: INDEPENDENT SAMPLES T-TEST (2)

Group Statistics					
Studied abroad?		N	Mean	Std. Deviation	Std. Error Mean
Study-to-employment duration (month)	Yes	1,633	2.5080	2.21582	0.05483
	No	10,548	2.8623	2.45173	0.02387

Independent Samples Test											
		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
Study-to-employment duration (month)	Equal variances assumed	28.575	0.000	-5.503	12179	0.000	0.000	-0.35438	0.06439	-0.48060	-0.22816
	Equal variances not assumed			-5.926	2296.506	0.000	0.000	-0.35438	0.05980	-0.47166	-0.23711

Independent Samples Effect Sizes					
		Standardizer ^a	Point Estimate	95% Confidence Interval	
				Lower	Upper
Study-to-employment duration (month)	Cohen's d	2.42145	-0.146	-0.199	-0.094
	Hedges' correction	2.42160	-0.146	-0.198	-0.094
	Glass's delta	2.45173	-0.145	-0.197	-0.092

a. The denominator used in estimating the effect sizes.

Cohen's d uses the pooled standard deviation.

Hedges' correction uses the pooled standard deviation, plus a correction factor.

Glass's delta uses the sample standard deviation of the control group.

APPENDIX 10.: ONE-WAY ANOVA (2)

Descriptives

Study-to-employment duration (month)								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Did not study abroad	10,548	2.8623	2.45173	0.02387	2.8156	2.9091	0.00	12.00
Studied abroad less than one semester	286	2.3147	2.11401	0.12500	2.0686	2.5607	0.00	12.00
Studied abroad at least one semester	1,347	2.5490	2.23545	0.06091	2.4295	2.6685	0.00	12.00
Total	12,181	2.8148	2.42436	0.02197	2.7718	2.8579	0.00	12.00

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Study-to-employment duration (month)	Based on Mean	15.431	2	12,178	0.000
	Based on Median	11.033	2	12,178	0.000
	Based on Median and with adjusted df	11.033	2	12,121.142	0.000
	Based on trimmed mean	18.569	2	12,178	0.000

ANOVA

Study-to-employment duration (month)					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	190.542	2	95.271	16.250	0.000
Within Groups	71,397.567	12,178	5.863		
Total	71,588.109	12,180			

Robust Tests of Equality of Means

Study-to-employment duration (month)				
	Statistic ^a	df1	df2	Sig.
Welch	19.392	2	690.315	0.000

a. Asymptotically F distributed.

APPENDIX 11.: OLS LINEAR REGRESSION – MODEL 2

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.053 ^a	0.003	0.003	0.55946	1.661

a. Predictors: (Constant), Studied abroad 3 categories=Studied abroad at least one semester, Studied abroad less than one semester

b. Dependent Variable: LN study-to-employment duration (month)

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	10.578	2	5.289	16.897	.000 ^b
Residual	3811.708	12,178	0.313		
Total	3822.285	12,180			

a. Dependent Variable: LN study-to-employment duration (month)

b. Predictors: (Constant), Studied abroad 3 categories=Studied abroad at least one semester, Studied abroad less than one semester

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.184	0.005		217.279	0.000		
	Studied abroad less than one semester	-0.140	0.034	-0.038	-4.189	0.000	0.997	1.003
	Studied abroad at least one semester	-0.069	0.016	-0.039	-4.254	0.000	0.997	1.003

a. Dependent Variable: LN study-to-employment duration (month)

APPENDIX 12.: OLS LINEAR REGRESSION – MODEL 3A

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.073 ^a	0.005	0.004	0.55857	1.669

a. Predictors: (Constant), Studied abroad 3 categories=Studied abroad at least one semester, Studied abroad 3 categories=Studied abroad less than one semester; Worked abroad=Yes, Diploma grade=Avarage, Diploma grade=Sufficient, Diploma grade=Excellent; English knowledge=do not speak at all, English knowledge=ative, English knowledge=Speaks basic English, English knowledge=Speaks at level 3, English knowledge=Speaks at level 4

b. Dependent Variable: LN study-to-employment duration (month)

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	19,842	11	1,804	5,782	.000 ^b
Residual	3734,592	11970	0,312		
Total	3754,434	11981			

a. Dependent Variable: LN Study to employment duration (month)

b. Predictors: (Constant), Studied abroad 3 categories=Studied abroad at least one semester, Studied abroad 3 categories=Studied abroad less than one semester; Worked abroad=Yes, Diploma grade=Avarage, Diploma grade=Sufficient, Diploma grade=Excellent; English knowledge=do not speak at all, English knowledge=native, English knowledge=Speaks basic English, English knowledge=Speaks at level 3, English knowledge=Speaks at level 4

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	1.192	0.010		119.719	0.000		
Studied abroad less than one semester	-0.122	0.034	-0.033	-3.589	0.000	0.986	1.014
Studied abroad at least one semester	-0.043	0.017	-0.024	-2.524	0.012	0.910	1.099
Diploma grade sufficient	-0.050	0.083	-0.005	-0.599	0.549	0.996	1.004
Diploma grade avarage	0.022	0.014	0.015	1.607	0.108	0.905	1.105
Diploma grade excellent	-0.004	0.012	-0.003	-0.350	0.727	0.905	1.105
Native English speaker	0.010	0.068	0.001	0.142	0.887	0.985	1.015
Do not speak English at all /1/	0.036	0.043	0.008	0.848	0.397	0.974	1.027
Speaks basic English /2/	0.011	0.021	0.005	0.500	0.617	0.897	1.115
Speaks middle-level English /3/	0.012	0.014	0.009	0.886	0.376	0.798	1.253
Speaks English very well /5/	-0.041	0.013	-0.034	-3.246	0.001	0.752	1.330
Did work abroad	-0.036	0.016	-0.021	-2.265	0.024	0.930	1.075

a. Dependent Variable: LN study-to-employment duration (month)

APPENDIX 13.: OLS LINEAR REGRESSION – MODEL 3B

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.204 ^a	0.041	0.040	0.54966	1.690

a. Predictors: (Constant), Studied abroad 3 categories=Studied abroad at least one semester, Studied abroad 3 categories=Studied abroad less than one semester; Type of HEI=Own-financed education; Professional degree obtained=Master, Professional degree obtained=Undivided training, Professional degree obtained=Traditional university, Professional degree obtained=Traditional college, Professional degree obtained=Specialized further training/Residency; Studied=Agricultural sciences, Studied= Humanities and Social sciences, Studied=Information technology, Studied=Law, Studied=Engineering, Studied=Art, Studied=Art mediation, Studied=Public administration, Studied=Medicine and Health sciences, Studied=Teacher education, Studied=Sport sciences, Studied=Social sciences, Studied=Natural sciences, Studied=religion

b. Dependent Variable: LN study-to-employment duration (month)

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	155.949	22	7.089	23.462	.000 ^b
Residual	3606.473	11937	0.302		
Total	3762.422	11959			

a. Dependent Variable: LN study-to-employment duration (month)

b. Predictors: (Constant), Studied abroad 3 categories=Studied abroad at least one semester, Studied abroad 3 categories=Studied abroad less than one semester; Type of HEI=Own-financed education; Professional degree obtained=Master, Professional degree obtained=Undivided training, Professional degree obtained=Traditional university, Professional degree obtained=Traditional college, Professional degree obtained=Specialized further training/Residency; Studied=Agricultural sciences, Studied= Humanities and Social sciences, Studied=Information technology, Studied=Law, Studied=Engineering, Studied=Art, Studied=Art mediation, Studied=Public administration, Studied=Medicine and Health sciences, Studied=Teacher education, Studied=Sport sciences, Studied=Social sciences, Studied=Natural sciences, Studied=religion

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.037	0.013		77.848	0.000		
Studied abroad less than one semester	-0.103	0.034	-0.028	-3.053	0.002	0.977	1.024
Studied abroad at least one semester	-0.077	0.016	-0.043	-4.675	0.000	0.958	1.044
Own-financed education	0.008	0.014	0.006	0.605	0.545	0.945	1.058
Master	0.084	0.013	0.062	6.393	0.000	0.845	1.183
Undivided training	-0.122	0.024	-0.062	-5.098	0.000	0.550	1.818
Traditional university	-0.002	0.017	-0.001	-0.108	0.914	0.852	1.173
Traditional college	0.058	0.025	0.021	2.309	0.021	0.938	1.066
Specialized further training/Residency	0.070	0.318	0.002	0.221	0.825	0.999	1.001
Studied Agricultural sciences	0.203	0.025	0.080	8.056	0.000	0.813	1.230
Studied Humanities and Social sciences	0.210	0.018	0.125	11.344	0.000	0.662	1.510
1 Studied Information technology	0.037	0.024	0.016	1.547	0.122	0.796	1.256
Studied Law	0.191	0.029	0.075	6.671	0.000	0.633	1.579
Studied Engineering	0.205	0.017	0.137	11.986	0.000	0.615	1.625
Studied Art	0.119	0.051	0.021	2.327	0.020	0.956	1.046
Studied Art mediation	0.334	0.071	0.042	4.675	0.000	0.975	1.026
Studied Public administration	0.136	0.042	0.030	3.242	0.001	0.935	1.070
Studied Medicine and Health sciences	0.057	0.023	0.031	2.482	0.013	0.509	1.965
Studied Teacher education	0.040	0.024	0.016	1.647	0.100	0.801	1.249
Studied Sport sciences	0.274	0.062	0.040	4.405	0.000	0.968	1.033
Studied Social sciences	0.210	0.021	0.106	10.159	0.000	0.737	1.356
Studied Natural sciences	0.249	0.023	0.114	10.994	0.000	0.745	1.342
Studied religion	-0.342	0.550	-0.006	-0.621	0.534	0.999	1.001

a. Dependent Variable: LN study-to-employment duration (month)

APPENDIX 14.: OLS LINEAR REGRESSION – MODEL 3C

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.218 ^a	0.048	0.043	0.54281	1.666

a. Predictors: (Constant), Studied abroad 3 categories=Studied abroad at least one semester, Studied abroad 3 categories=Studied abroad less than one semester; Firm size=Self-employed, Firm size=Micro company: 2-9 employee, Firm size=Small company: 10-49 employee, Firm size=Medium company: 50-249 employee, Firm size=Large company: 250-999 employee; Firm ownership (1)=Total publicly-owned co., Firm ownership (1)=Partly privately, partly publicly-owned co., Firm ownership (2)=Partly foreign-owned co. Firm ownership (2)=Total foreign-owned co.; Area=Agriculture, Area=Mining, Area=Manufacturing, Area=Electricity and AC, Area=Water supply & waste management, Area=Construction Trade & motor vehicle repair, Area=Delivery & warehousing, Area=Tourism & Catering Information, Area=Communication, Area=Finance & Insurance, Area=Real estate, Area=Professional, technical activities, Area=Administration, Area= Public administration, Area=Education, Area=Art, entertainment, recreation, Area=Other services, Area=Households' employment activity, Area=Other area, Workplace Region=Western Transdanubia, Workplace Region=Central Transdanubia, Workplace Region=Southern Transdanubia, Workplace Region=Northern Hungary, Workplace Region=Northern Great Plain, Workplace Region=Southern Great Plain, Workplace Region=Abroad, Workplace Region=Central Hungary-Pest; Position=Senior manager, Position=Middle manager, Position=Lower manager, Position=Non-graduate employee

b. Dependent Variable: LN study-to-employment duration (month)

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	120.984	43	2,814	9,549	.000 ^b
Residual	2419.891	8213	0,295		
Total	2540.875	8256			

a. Dependent Variable: LN study-to-employment duration (month)

b. Predictors: (Constant), (Constant), Studied abroad 3 categories=Studied abroad at least one semester, Studied abroad 3 categories=Studied abroad less than one semester; Firm size=Self-employed, Firm size=Micro company: 2-9 employee, Firm size=Small company: 10-49 employee, Firm size=Medium company: 50-249 employee, Firm size=Large company: 250-999 employee; Firm ownership (1)=Total publicly-owned co., Firm ownership (1)=Partly privately, partly publicly-owned co., Firm ownership (2)=Partly foreign-owned co. Firm ownership (2)=Total foreign-owned co.; Area=Agriculture, Area=Mining, Area=Manufacturing, Area=Electricity and AC, Area=Water supply & waste management, Area=Construction Trade & motor vehicle repair, Area=Delivery & warehousing, Area=Tourism & Catering Information, Area=Communication, Area=Finance & Insurance, Area=Real estate, Area=Professional, technical activities, Area=Administration, Area= Public administration, Area=Education, Area=Art, entertainment, recreation, Area=Other services, Area=Households' employment activity, Area=Other area, Workplace Region=Western Transdanubia, Workplace Region=Central Transdanubia, Workplace Region=Southern Transdanubia, Workplace Region=Northern Hungary, Workplace Region=Northern Great Plain, Workplace Region=Southern Great Plain, Workplace Region=Abroad, Workplace Region=Central Hungary-Pest; Position=Senior manager, Position=Middle manager, Position=Lower manager, Position=Non-graduate employee

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.020	0.022		46.095	0.000		
Studied abroad less than one semester	-0.107	0.041	-0.028	-2.605	0.009	0.973	1.027
Studied abroad at least one semester	-0.046	0.020	-0.026	-2.329	0.020	0.954	1.048
Self-employed	-0.009	0.087	-0.001	-0.104	0.917	0.970	1.031
Micro company: 2-9 employee	0.057	0.025	0.033	2.291	0.022	0.544	1.837
Small company: 10-49 employee	0.040	0.020	0.030	2.023	0.043	0.524	1.909
Medium company: 50-249 employee	0.021	0.019	0.015	1.101	0.271	0.605	1.652
Large company: 250-999 employee	0.008	0.019	0.005	0.414	0.679	0.710	1.409
Partly privately, partly publicly-owned co.	0.023	0.029	0.010	0.797	0.426	0.794	1.259
Total privately-owned co.	-0.040	0.020	-0.035	-1.957	0.050	0.358	2.792
Partly foreign-owned co.	-0.050	0.024	-0.026	-2.086	0.037	0.753	1.329
Total foreign-owned co.	-0.047	0.021	-0.038	-2.288	0.022	0.418	2.392
Agriculture	0.196	0.040	0.059	4.934	0.000	0.824	1.214
Mining	0.076	0.113	0.007	0.674	0.500	0.968	1.034
Manufacturing	0.233	0.029	0.127	8.037	0.000	0.465	2.151
Electricity and AC	0.259	0.053	0.057	4.916	0.000	0.857	1.166
Water supply & waste management	0.148	0.065	0.025	2.278	0.023	0.935	1.070
Construction	0.147	0.036	0.053	4.122	0.000	0.702	1.425
Trade & motor vehicle repair	0.141	0.036	0.051	3.902	0.000	0.669	1.496
Delivery & warehousing	0.142	0.045	0.037	3.143	0.002	0.842	1.188
Tourism & Catering	0.054	0.044	0.015	1.231	0.218	0.735	1.361
Information, Communication	0.076	0.029	0.040	2.650	0.008	0.505	1.979
Finance & Insurance	0.052	0.033	0.021	1.575	0.115	0.633	1.580
Real estate	0.326	0.101	0.035	3.219	0.001	0.961	1.041
Professional, technical activities	0.120	0.030	0.053	4.021	0.000	0.664	1.507
Administration	0.179	0.038	0.058	4.747	0.000	0.766	1.305
Public administration	0.226	0.028	0.108	8.172	0.000	0.660	1.515
Education	0.045	0.025	0.024	1.753	0.080	0.605	1.652
Art, entertainment, recreation	0.103	0.043	0.028	2.378	0.017	0.845	1.183
Other services	0.222	0.049	0.052	4.528	0.000	0.864	1.157
Households' employment activity	-0.011	0.193	-0.001	-0.055	0.956	0.985	1.015
Other area	0.103	0.026	0.057	3.962	0.000	0.561	1.783
Workplace Region Western Transdanubia	0.004	0.023	0.002	0.181	0.857	0.876	1.142
Workplace Region Central Transdanubia	0.089	0.025	0.041	3.576	0.000	0.893	1.120
Workplace Region Southern Transdanubia	0.066	0.026	0.029	2.524	0.012	0.893	1.120
Workplace Region Northern Hungary	0.045	0.031	0.016	1.432	0.152	0.927	1.078
Workplace Region Northern Great Plain	0.090	0.025	0.041	3.592	0.000	0.898	1.113
Workplace Southern Great Plain	0.074	0.022	0.040	3.446	0.001	0.854	1.171
Workplace Abroad	0.027	0.028	0.013	0.976	0.329	0.683	1.465
Workplace Region Central Hungary-Pest	0.047	0.027	0.020	1.767	0.077	0.896	1.116
Senior manager	-0.301	0.119	-0.027	-2.530	0.011	0.991	1.009
Middle manager	-0.087	0.035	-0.028	-2.534	0.011	0.953	1.049
Lower manager	-0.032	0.030	-0.012	-1.065	0.287	0.962	1.039
Non-graduate employee	0.217	0.021	0.122	10.504	0.000	0.861	1.162

a. Dependent Variable: LN study-to-employment duration (month)

APPENDIX 15.: OLS LINEAR REGRESSION – MODEL 3D

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.087 ^a	0.007	0.006	0.55918	1.654

a. Predictors: (Constant), Studied abroad 3 categories=Studied abroad at least one semester, Studied abroad 3 categories=Studied abroad less than one semester; Gender=Male; Child(ren) under age 18=Has a child under 18, Father's highest education=Father's primary education, Father's highest education=Father's higher education, Father's highest education=Father's education unknown; Mother's highest education=Mother's primary education, Mother's highest education=Mother's higher education, Mother's highest education=Mother's education unknown; Family economic situation at age 14=much better than average, Family economic situation at age 14= better than average, Family economic situation at age 14=worse than average, Family economic situation at age 14=much worse than average; Age

b. Dependent Variable: LN study-to-employment duration (month)

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	26.832	14	1.917	6.129	.000 ^b
Residual	3551.735	11359	0.313		
Total	3578.567	11373			

a. Dependent Variable: LN study-to-employment duration (month)

b. Predictors: (Constant), Studied abroad 3 categories=Studied abroad at least one semester, Studied abroad 3 categories=Studied abroad less than one semester; Gender=Male; Child(ren) under age 18=Has a child under 18, Father's highest education=Father's primary education, Father's highest education=Father's higher education, Father's highest education=Father's education unknown; Mother's highest education=Mother's primary education, Mother's highest education=Mother's higher education, Mother's highest education=Mother's education unknown; Family economic situation at age 14=much better than average, Family economic situation at age 14= better than average, Family economic situation at age 14=worse than average, Family economic situation at age 14=much worse than average; Age

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	0.097	0,219		0,442	0,658		
	Studied abroad less than one semester	-0.127	0,035	-0,035	-3,688	0,000	0,987	1,013
	Studied abroad at least one semester	-0.052	0,017	-0,029	-3,007	0,003	0,960	1,041
	Male	0.028	0,011	0,024	2,522	0,012	0,965	1,036
	LN Age	0.785	0,157	0,048	5,012	0,000	0,962	1,040
	Family economic situation at age 14 - much better than average	-0.022	0,025	-0,009	-0,880	0,379	0,924	1,082
	Family economic situation at age 14 - better than average	-0.028	0,013	-0,023	-2,193	0,028	0,825	1,213
	Family economic situation at age 14 - worse than average	-0.003	0,015	-0,002	-0,191	0,848	0,872	1,146
	Family economic situation at age 14 - much worse than average	0.030	0,030	0,010	0,997	0,319	0,953	1,049
	Father's primary education	0.008	0,035	0,002	0,227	0,820	0,930	1,076
	Father's higher education	-0.034	0,013	-0,029	-2,629	0,009	0,702	1,424
	Father's education unknown	-0.003	0,039	-0,001	-0,085	0,932	0,944	1,059
	Mother's primary education	-0.022	0,031	-0,007	-0,715	0,475	0,913	1,095
	Mother's higher education	-0.012	0,012	-0,011	-1,005	0,315	0,727	1,375
	Mother's education unknown	-0.035	0,083	-0,004	-0,417	0,677	0,958	1,044

a. Dependent Variable: LN study-to-employment duration (month)