

THESIS

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**JÖVEDELEM-ÉS MUNKAERŐKÖLTSÉG KÜLÖNBSÉGEK
AUSZTRIA, MAGYARORSZÁG ÉS SZLOVÁKIA KÖZÖTT**

A kisebb kelet-és nyugat európai országok közt fennálló szakadék
vizsgálata

**INCOME-AND LABOUR COST DIFFERENCES BETWEEN
AUSTRIA, HUNGARY AND SLOVAKIA**

Examining the huge gap among smaller Western and Eastern European
countries

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NYILATKOZAT

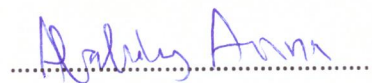
Alulírott Abaházy Anna büntetőjogi felelősségem tudatában nyilatkozom, hogy a szakdolgozatomban foglalt tények és adatok a valóságnak megfelelnek, és az abban leírtak a saját, önálló munkám eredményei.

A szakdolgozatban felhasznált adatokat a szerzői jogvédelem figyelembevételével alkalmaztam.

Ezen szakdolgozat semmilyen része nem került felhasználásra korábban oktatási intézmény más képzésén diplomaszerezés során.

Tudomásul veszem, hogy a szakdolgozatomat az intézmény plágiumellenőrzésnek veti alá.

Budapest, 2021.... év 5. hónap 14. nap



hallgató aláírása

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1. INTRODUCTION

1.1 Relevance and aim of the topic

Income level differences and inequality exist all around the world, creating huge challenges to national economies in order to keep up their development. Living conditions and the standard of living are quite diverse in each country due to the inequality of incomes. In this paper my analysis covers three member countries of the European Union: Austria, Hungary and Slovakia. The ground of examination is to determine the income differences among these three countries, representing the inequality between Eastern-Western European smaller countries.

I had several reasons for choosing this research topic. It reflects actual problems that are not commonly researched such as income inequality within the European Union. (The focus is usually on the comparison of developing countries with the most developed, economic leader ones.) I am interested in meeting and communicating with international people as well as studying about their culture and economies. For this reason I chose two neighbouring countries besides my home country, Hungary and found an issue that influences everyday life and standard of living in each nation. In addition, the current global economic crisis caused by the COVID-19 pandemic creates various new approaches to the topic.

I undertook this study to seek for new possibilities of economic development of Hungary, to give a clear view about the main differences of working at the other side of the border (in Austria) and to find ways to encourage employees not to leave their home country.

1.2 Research objectives and research questions

The first objective of this study is to analyze and compare mean gross and net annual per capita income of three relatively small-sized European countries that are also members of the European Union. (Austria, Hungary and Slovakia) I also investigate the income-related economic effects of the COVID-19 pandemic that broke out, in the beginning of 2020. Moreover, the research aims to explain possible solutions to why Austria is considered to be attractive to the labour force of Hungary and Slovakia, what encourages them to leave their country and work in Austria.

In order to understand the topic at a deeper level, I formulated three research questions:

1. How much income and labour cost differences can be identified between Austria-Hungary and Slovakia?
2. How does the COVID-19 pandemic influence labour costs, working times and other employment-related factors?
3. Will the current crisis broaden the gap between the three countries?

The first and most important one is about how much gross and net income level and labour cost differences can be identified between Austria-Hungary and Slovakia. The second question examines a quite actual problem of nowadays: How does the COVID-19 pandemic influence labour costs, working times and other employment-related factors? Furthermore, the paper also seeks which two countries are the most alike out of the three according to the previous aspects. Inspired by the current situation caused by the COVID-19 pandemic, the research also focuses on the question of which countries are hit the most by the crisis caused by the virus and whether it will broaden the gap between the three countries. The time frame of examination is between the years of 2016 and 2019 (pre-COVID-19 years), supplemented by the current year, 2020, the year of the outbreak of the latest coronavirus.

1.3 Methodology and structure, main sources

Considering the nature of the observed topic this paper should be noted as an applied research, since it is looking for solutions and answers to current practical problems while applying already existing methods, theories and definitions. The survey is based on one cardinal research method, namely comparison, supplemented by evaluations (descriptive analysis). Some statistical methods, such as the Laspreyes index, are also applied. Besides a regional comparison between countries the paper follows a longitudinal time frame. (Investigation of time periods from 2016 to 2020.) The main approach of examination is induction: collected data is analyzed, the results are evaluated and finally the consequences and main findings provide answers for the research questions, serving as hypotheses. The analysis is mostly quantitative, the data used is pre-collected by statistical institutions.

Regarding the structure, the paper is built up according to the research questions. After defining the main concepts and the research questions the paper gives an overview about the size of population and the number and share of employees in the observed countries, broken down by occupations (definition is explained in Chapter 2). In this part, a specific time frame is applied between 2016 and 2019. The most important part of the survey is Chapter 4 in which mean annual gross and net earnings of a single person without children, earning 100% of the average are investigated. Besides presenting the quantitative sums of gross incomes on a bar chart, differences in net earnings are described by another column chart that also visualizes the European Union average. The research continues with the observation of the number of working hours actually worked by employees, between 2016 and 2019. Moreover, the last part of Chapter 4 includes another crucial topic, the analysis of labour costs of employees. The paper also reflects the current economic situation by observing the possible labour market related effects of the crisis caused by the COVID-19 pandemic. The end of the survey aims to provide a closer view to the concepts and main requirements of job retention programs as parts of economic stimulus packages.

The main sources of the paper are mostly provided by organizations that collect official statistical data. The most essential sources are the websites of International Labour Organization (ILOSTAT) and Eurostat. International Labour Organization is a department of the United Nations, dealing with labour statistics. (United Nations: an international organization with currently 193 Member States, founded in 1945. (un.org, 2020)) ILOSTAT provides available and up to date data on the research topic, as well as definitions and descriptions of the necessary indicators. In addition it mentions the enhancement of international comparability among its basic aims. (ilostat.ilo.org, 2020) International Labour Organization also issues articles and summaries that are quite useful for this study. Eurostat is the central statistical office of the European Union. Mostly quantitative data is collected from Eurostat. Another data and information provider organization of great importance is the OECD: Organization for Economic Co-operation and Development. OECD publishes quite essential articles on the research topic.

1.4 Literature review

Economists approach measurement and analysis of income and labour cost differences from various points of view. This sub-chapter offers an overview about some of the related literature that focuses on the measurement of income inequality and the labour market related effects of the COVID-19 pandemic. From the relatively rich literature of these topics, this study only refers to the most relevant sources that provide useful concepts and methodology for analysis.

Income inequality, as it is defined in a common presentation (held in Ankara, Turkey, 2015) of three important global economic organizations-ILO, IMF and OECD- as „the unequal distribution of total income between individuals, households and other demographic groups.” (International Labour Organization et al., 2015) The main topic of the lecture was the measurement and comparison of income inequality within a determined group of countries. The main statistical tool of comparison was a macroeconomic indicator, the Gini (gross national income) index. The study mentions the Gini index as the most popular method that is used for comparison of income level differences between countries. Despite the great popularity and reliability of the Gini index, this study intends to present more detailed indicators in order to examine country specific factors.

For a detailed analysis, I searched for some guidance on how to distinguish the observed population. Marlier and Atkinson argue that there several ways of segmentation exist, such as dividing the population according to gender, age etc. The most relevant option given in their article is segmentation according to employment status: employees and self-employed. (Marlier & B. Atkinson, 2010) I decided to apply this method in my study.

An other important question before conducting this research was how to determine the concept of labour income, since many approaches exist. Marlier and Atkinson claim that out of the three main approaches -total compensation, gross earnings and net earnings- total compensation is the most suitable for analysis and comparison. (Marlier & B. Atkinson, 2010) (Because gross and net incomes depend on the type of households-eg social benefits, taxation systems.) Consequently, my paper also investigates labour income from this approach. Total compensation is usually mentioned as labour cost.

In the past few decades many authors have tried to examine the relationship between economic growth and income differences. Sujianto and Suryanto (Sujianto & Suryanto, 2018) studied the role of trade and institutions to measure income differences. In their paper they argue that key to economic growth are efficient institutions and a stable political system. An important

technique is used in their research: the panel analysis. This technique involves observations about different cross sections (cross section: at one point of time) over time (time series). Panel analysis technique is used in my research, by the collection and analysis of data from a specific period of time. The European Commission presents an other important method of analysis: linear regression, trend analysis and the application of the Phillips curve in one graph. (European Commission, 2012) Marlier and Atkinson raise an important issue in their paper: many countries have different national currencies which can distort calculations. For this reason, we must convert nominal values to real values. (Marlier & B. Atkinson, 2010) "Purchasing Power Parities (PPP) convert amounts expressed in a national currency to an artificial common currency that equalises the purchasing power of different national currencies (including those countries that share a common currency)". (Marlier & B. Atkinson, 2010) Based on these findings, my research applies US dollar as common currency in case of the comparison of labour costs. Another important basis of the research methods used in this study is a Hungarian book with the title „Statisztika I.” (Hunyadi & Vita, 2008) This book provides all the learning materials of the first semester of statistical studies in Corvinus University of Budapest. My paper focuses mostly on price and volumen indexes explained by Hunyadi and Vita, especially on the Laspreyes index.

The last part of the paper deals with COVID-19 related analyses, based on an article provided by Eurostat, with the title „Labour market in the light of the COVID 19 pandemic—Quarterly statistics—Statistics Explained.” (Eurostat, 2021b)

1.5 Imperfections, incompleteness of the survey

Given that the focus of the study is on the comparison of net and gross income (and working hours) of employees, I must apply some limitations. Firstly, it is important to note that earnings and working hours of self-employed workers are not included, since the information collected on employees tends to be more reliable. Secondly, instead of per capita income of employees, the paper investigates a „Single person without children earning 100% of the average earning”. Married people, single parents and people with children in general are excluded from this part of the survey. However, this approach is widely similar to calculating with the income of employees, since more than 85% of total employed people are in an employee status, in each country. (More detailed explanation can be found in Chapter 4.1.) Income data is usually not disclosed by employees, because they depend on the differences in social benefits and tax differences due to family status, as well. That is the reason why Eurostat

distinguishes among different types of household, such as single person without children earning 100% of the average. The other income comparison approach, which intends to restrict the limitations of the first one, also has its own boundaries. Gross wage costs are also biased by the taxes and allowances paid by the employers, however, they still serve as a better comparison.

Other type of income approaches such as disposable income of households, capital income, passive income, income of the state, real and nominal income are excluded. The study is restricted to income and labour costs differences so spendings of employees are not taken into consideration. Moreover, every economy implies its own taxation system that is quite specific, making it complicated to compare with others. For this reason, only the sum amount of taxes (paid by a single person earning 100% of the average) are mentioned and calculated with, on country level, broken down to years. In case of governmental benefits and subsidies, the study only includes the income-related parts of job retention programmes, established in order to support employees during the economic crisis caused by the COVID-19 pandemic.

2 MAIN CONCEPTS

The basic concepts applied in this research are commonly used macroeconomic factors and indicators. While defining the meaning of them, I rely on my knowledge from my university studies, supplemented by definitions given in articles and on official statistical data collection websites.

„Persons in *employment* are defined as all those of working age who, during a short reference period, were engaged in any activity to produce goods or provide services for pay or profit.” (International Labour Organization, 2020b) *Employed* people can be divided into two sub-categories: self-employed (excluded from the survey) and employees. *Employees*, according to the definition of the International Labour Organization, are workers that have a paid job, a valid employment contract and their basic remuneration (salary) is not directly dependent upon the revenue of the unit for which they work. (International Labour Organization, 2020b) By this means, managers of firms are also considered to be employees. The concept *unemployed* -according to the definition that we studied in Macroeconomic analysis class (International Labour Organization, 2020b)- include all people of working age that are:

- a) without work during the reference period
- b) currently available for work
- c) actively looking for jobs

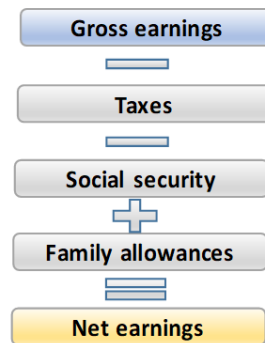
The *unemployment rate* -based on the same material that we studied in Macroeconomic analysis class- „expresses the number of unemployed as a percent of the labour force”. (International Labour Organization, 2020b) (Labour force is the sum of employed and unemployed at a given time period.)

Labour costs (or wage costs/ employment costs/ compensation costs) are defined by Ilostat as all wages paid to employees supplemented by the costs of employee benefits and payroll taxes paid by an employer. (International Labour Organisation, 2021a) More detailed description of the indicator can be found in Chapter 4.

The term *gross earnings* refers to the remuneration paid by the employer, during the reference period, before tax deductions and social security contributions payable by wage earners. All bonuses are included. (For instance 13th month salary, holiday bonuses, allowances for leaves not taken etc.) Severance payment and payments in kind are excluded. (Eurostat, 2020b)

„*Net earnings* are calculated from gross earnings by deducting the employee's social security contributions and income taxes, and adding family allowances in the case of households with children.” (Eurostat, 2020b) Chart 1 provides a detailed illustration for the definition.

Chart 1: Components of net earnings



Source: Self-made chart (Eurostat, 2020b)

Moreover, important expressions in connection with other type of indicators are also used. For instance the concept of „*occupation*” that reflects what kind of job an employee is doing. Grouping according to occupations means creating heterogenous groups according to the main tasks and duties, chategorizing the jobs according to activities. (International Labour Organization, 2020b) Occupations are ranged in the research based on skill levels. A *skill* is defined by the International Labour Organization as „the ability to carry out the tasks and duties of a given job”. (International Labour Organization, 2020b) *Skill level* can be described as the complexity of tasks and duties in an occupation. While determining skill levels the following aspects are taken into consideration: the nature of the job, the level of education required, the amount of informal trainings required and how much previous job-related experience is needed. (International Labour Organization, 2020b) Detailed explanations about the different skill levels can be found in Chapter 3.3.2.

Further important phrases are given in case of working hours as well. „*Hours actually worked*” include direct hours that are productively worked, related hours (hours spent to enhance productive activities), down time (when the employee cannot work due to technical or technological problems) and resting time (shorter breaks), according to the interpretation of the International Labour Organization. Holidays, any kind of leaves (such as sick leave, parental leave etc), unproductive trainings, longer breaks (eg meal break) and paid travel time (between the workplace and home) are excluded. (International Labour Organization, 2020b)

I also find it important to describe the so called *COVID-19 pandemic*. COVID-19 is an infectious disease caused by a newly discovered (01/2020) coronavirus. (who.int, 2020) It causes severe fever and respiratory illness. Although, many people experience mild or moderate symptoms and have a full recovery, it has already caused death to more than 3 million people all around the world- and many are suffering from chronic post-COVID symptoms. (koronavirus.gov.hu, 17/04/2021) Since until the end of 2020 neither official curement nor vaccine existed against it, the most effective way to stop the spread of the virus was (and still is) to keep people away from each other. (Although, the vaccination of the „world” against the virus has started in January 2021, the authorization, production and procurement of the different new vaccines is a slow process. As a consequence, the new vaccines could not stop the arrival of the third wave of the virus which hit the world much more dreadfully than the first two.) The so called „physical distancing” is carried out by lockdowns and partial lockdowns of companies, factories and places of everyday life in general. These preventive measures soon broke out the most challenging global economic crisis of our times. The crisis widely effects incomes and working hours, creating a new research gap. Motivated by this research gap, in this paper I investigate some of the income-and working hour related consequences of the preventive measures.

3 THE DETERMINING FACTORS OF EARNED INCOME-A LABOUR MARKET ANALYSIS

This chapter aims to give an overview about the sources of income and labour costs, more specifically the determining factors of earned income, by investigating the number and share of employees according to their qualifications and skill levels.

3.1 General country specific information

Austria is a Central-European country, bordered by one of the most important actors of the global economy, Germany. In addition, the official language of the country is German. Its land size is 83 858 sq km. (nationsencyclopedia.com, 2020) Austria is a landlocked country, without any connection to sea. Hungary is another relatively small Central-European country, located at the Eastern border of Austria and the Southern border of Slovakia. The size of its land is slightly larger than Austria, 93,030 sq km. (nationsencyclopedia.com, 2020) The third country of this research, Slovakia, is smaller than the previous ones, covering only 48,845 sq km of land. (nationsencyclopedia.com, 2020)

3.2 Population

Similarly to the sizes of lands, the number of population is also the largest in Hungary, followed with a slight difference by Austria. Slovakia only has about half of the size of population of Hungary.

Table 1: Size of population, 2016-2019

Unit of measure: Million people

	2016		2019
Hungary	9,83 M	-0,59%	9,77 M
Austria	8,7 M	1,82%	8,86 M
Slovakia	5,43 M	0,45%	5,45 M

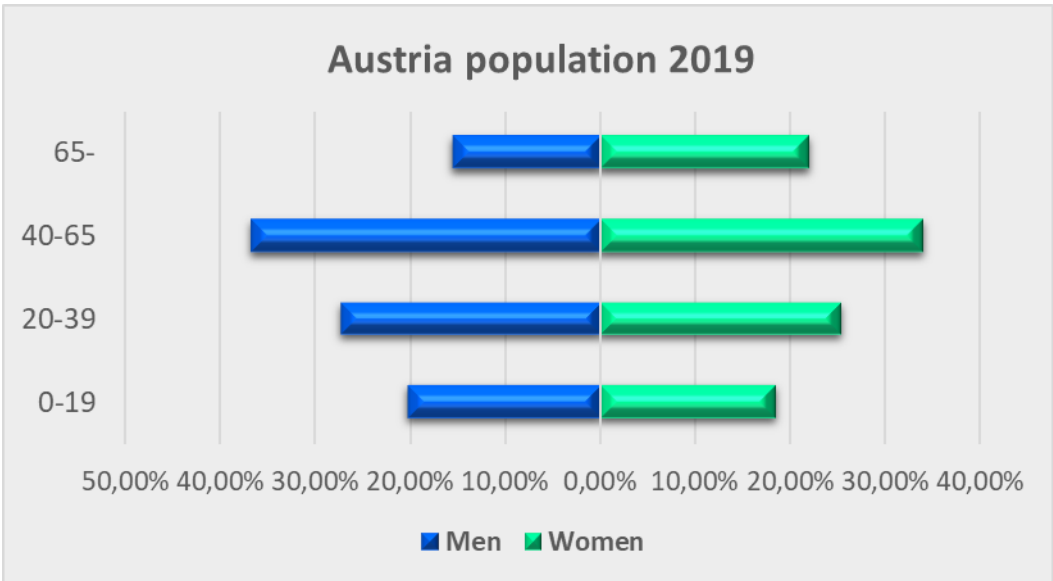
Source : Self-made table (Eurostat, 2020d)

The table above (Table 1) illustrates the exact numbers and changes of population in each country from 2016 to 2019. No significant change can be observed within this period. In 2019 Hungary’s population (9,77 million people) was almost twice as much as Slovakia’s number (5,45 million). The question arises: are larger population and land size the key factors to achieve better standard of living, higher salaries and working more efficiently? The answer for this question will occur later in the research.

In order to have a closer view about the population, I composed self-made age pyramids (Chart 2) based on the number of population at the end of 2019. They show the structure of population according to the following age groups: people aged between years 0 and 19, 20 and 39, 40 and 65 and older than 65. As it is not closely related to the research topic, I only present one of the age pyramids as an example, the rest of them can be found in the Appendix. As Chart 2 shows. Austria has an ageing population (similarly to Hungary and Slovakia). The majority of the current population is between the age of 40 and 65. Both men’s and women’s share of this age group is almost 40% within the whole population. Below this age category a significant decrease can be identified. Hungary and Slovakia have the same structure so each country has the same conditions from this point of view. In case this trend continues in the future, all the three countries are going to face a lack of young labour force. Without enough young and well-skilled labour force it is quite challenging to keep up or even increase the income levels of employees.

Chart 2: Age pyramid of Austria, 2019

Unit of measure: Percentage



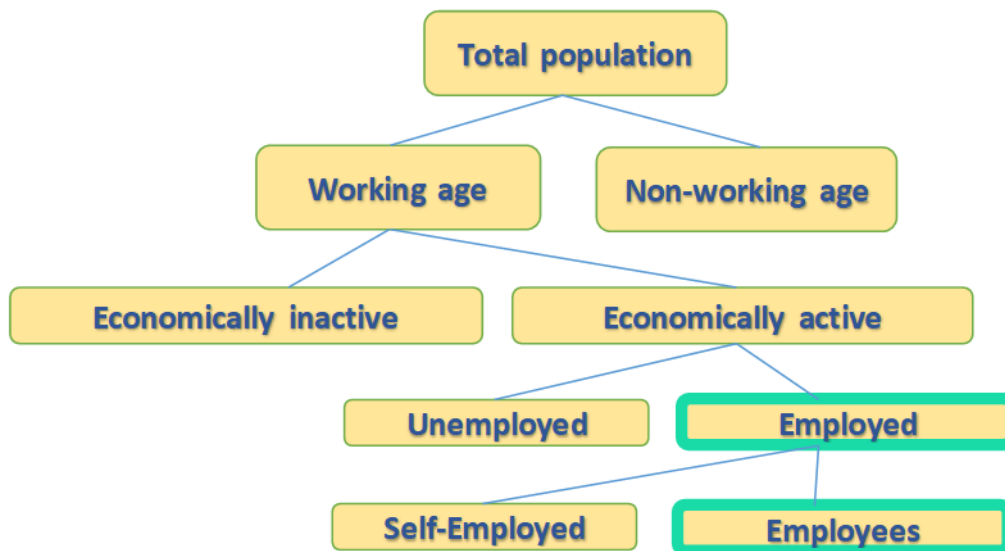
Source: Self-made chart (Eurostat, 2020d)

3.3 The focus group study: employees

3.3.1 Employees in the labour market structure

The structure of the labour market of a country is an important factor that determines the standard of living, income, working hours and people's everyday life in general. In this sub-chapter I will briefly go through the structure figure (Chart 3) with the intention to determine the place of employees in the labour market structure. In order to stick to the topic of the research, I will only explain the parts that lead to „employees” in the end.

Chart 3: Labour market structure



Source: Self-made chart, (BGE: Macroeconomic analysis class 2019.11.12)

I already mentioned the size of the countries' total population before in Chapter 3.2. The first aspect that divides the population is whether people are at their working age or not. (Working age is defined differently by each country and statistical dataset, but in general it is between the age of 18 and 65.) If we continue with dividing the population we can split the working age population into two parts: the economically active population and the economically inactive population. The economically active population is called the labour force. (Although this definition not entirely true, because some members of the inactive population can also be part of the labour force. For example working above the retirement age.) The labour force means people who contribute to the production of the GDP, have paid jobs or

are unemployed, but available for working and searching for jobs. (BGE: Macroeconomic analysis class 2019.11.12) The next category of the labour market structure is the separation of the labour force into employed and unemployed. Employed people are the ones who have at least one paid job (employee) or are self-employed. (cbs.nl, 2020) The definition of employees is already explained in the Main concepts chapter.

The study is focused on all employees without any assumptions in connection with their contractual working time (part time, full time etc) or type of contract (as long as it is an employee contract). The research is narrowed down to employees because measuring income and working hours of employees is much more reliable than calculating with earnings and working time of self-employed. (Self-employed often don't have a fix amount of regular working hours or salary. They work for their own account, organizing their own time schedule and their earnings are dependent on the revenue of the unit they are working for.)

However, the lack of available data on gross and net income of employees required to find an alternative way for calculations and comparison of the countries. Instead of employees, the collected data reflects the mean annual income of „a single person without children earning 100% of the average earning”. The differences and possible limitations of this approach is explained in Chapter 4.1.

3.3.2 Classification of employees according to their occupation and skill level

Before going into details about the number of employees in each occupation category, I intend to give a more detailed explanation of the content of occupational groups according to skill levels. The concept of occupation is already described in Chapter „2 Main concepts”. This sub-chapter gives a clear overview about the structure of occupational skill levels as well. The reason why it is important for the research is that „changes in the occupational distribution of an economy can be used to identify and analyse stages of development.” (International Labour Organization, 2020c) In developed economies, increases in the shares of high-skilled occupational groups are associated with the progress of the knowledge economy. (International Labour Organization, 2020d)

The International Labour Organization's database originally has nine skill level categories, but as method of simplification, this study compresses them into only five: 1. Managers, 2. Professionals, 3. Technicians and associate professionals, 4. Other medium skill level workers, 5. Other low skill level workers.

The top skill category, Managers, include different kind of managers of various fields such as chief executives, senior officials and legislators, administrative and commercial

managers, production and specialized services managers, hospitality, retail and other services managers. (International Labour Organization, 2020d)

Managers are followed by Professionals in case of skill levels. This category covers physical (eg physicists, meteorologists) mathematical and engineering science professionals, life science and health professionals, teaching professionals (all kind of teachers), business and administration professionals, information and communication technology professionals and many other kind of professionals. (International Labour Organization, 2020d)

The group of Technicians and Associate Professionals consists of physical and engineering science associate professionals, life science and health associate professionals (eg laboratory technicians, nurses), teaching associate professionals and other associate professionals. (International Labour Organization, 2020d)

The fourth category covers Other medium skill level workers. The following occupations belong to this level: clerical support workers (eg secretaries, receptionists, operators), services and sales workers (eg waiters, hairdressers, shop salespeople), skilled agricultural, forestry and fishery workers, craft and related trades workers (such as building and related trade workers), plant and machine operators and assemblers. (International Labour Organization, 2020d)

The lowest skill level refers to elementary occupations. For instance cleaners, helpers, agricultural, forestry and fishery labourers, labourers in mining, construction, manufacturing and transport. (International Labour Organization, 2020d)

3.3.3 Number of employees by occupation

As the next stage of the comparison of Austria, Hungary and Slovakia, I collected data (from International Labour Organization database) on the number of employees by occupations and assigned them to the categories I determined for skill levels. The data is mean annual data, covering the years from 2016 to 2019. In order to be able to show a clear view, I calculated the four-year-average number of employees by occupation between 2016 and 2019. The table below (Table 2) indicates that Austria holds the highest amount from the top skilled employees (169 thousand people), despite the fact that Hungary has more employees altogether. Austria's total four-year-average number of employees is 3749 thousand versus Hungary's 3952 thousand. In fact, Austria has a significant advantage in the top three categories. It means that they have a higher amount of skilled managers, professionals and even technicians and associate professionals than the other two countries. The turning point can be noticed in the fourth skill

category: Hungary counts an average of 2162 thousand of medium skill level workers while Austria only has 1865 thousands.

It is important to note that these are absolute numbers which can lead to distorted deductions, because the number of employees is also highly dependent on the size of population. It explains why Slovakia stays substantially behind Austria and Hungary from this point of view. Its size of population is roughly the half of Hungary's, therefore it is obvious that they have a smaller number of employees at each level, however it doesn't necessarily mean that the country is less developed than Hungary.

Table 2: Average number of employees by occupation 2016-2019

Unit of measure: Thousands of employees

Occupation	Austria	Hungary	Slovakia
1. Managers	169	160	76
2. Professionals	675	599	271
3. Technicians and associate professionals	700	591	338
4. Other medium skill level	1 865	2 162	1 268
5. Other low skill level	340	441	193
Total average number of employees 2016-2019	3749	3952	2146

Source: Self-made table (ILOSTAT, 2020c)

To avoid the possible false deductions from absolute numbers, in the next sub-chapter I observe the shares of occupation levels within each country's groups of employees.

3.3.4 Share of employees by occupation

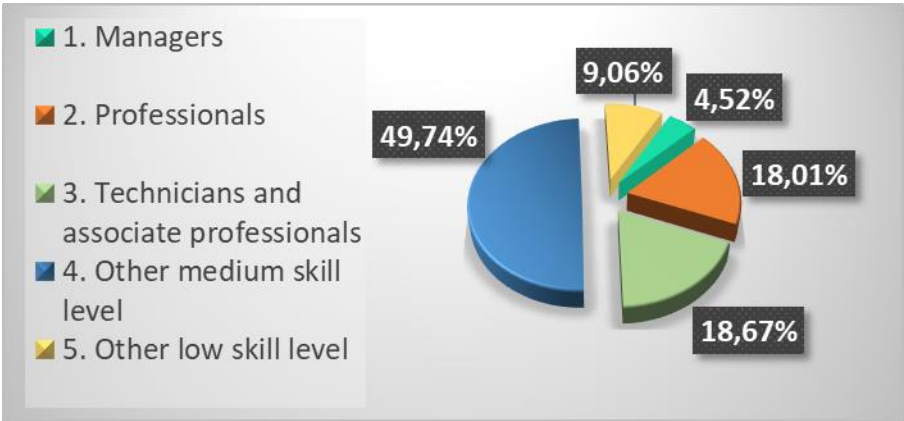
After calculating the four-year averages of the number of employees (Table 2) according to occupational skill level, I used this data for further analysis. By dividing a country's data in each row with the total average of the same country, I got the result of the share of a certain occupation level. For example in case of Austria the share of managers in the total four-year-average number of employees is $169\ 000 / 3749\ 000 = 4,52\%$, in Hungary: $160\ 000 / 3952\ 000 = 4,05\%$, in Slovakia: $76\ 000 / 2146\ 000 = 3,55\%$.

Chart 4 below serves as an illustration of the results, with the example of Austria. (The same graphs for Hungary and Slovakia can be found in the Appendix, named as Appendix chart 3 and Appendix chart 4) As the previous example described, the share of managers are quite alike, with Austria having the highest: 4,52%. In the next category, Professionals, Austria has

a substantial advantage. While Slovakia can only present a poor rate of 12,64% of Professional employees, Hungary is in between with 15,15% and Austria takes the lead with 18,01%. (Appendix table 1) This advantage indicates that the Austrian labour force is more developed, they have a better share of high-skilled employees (science professionals, engineers, teachers, medical doctors etc.) than the other two countries. The proportions are quite similar in case of Technicians and associate professionals as well. Austria leads with 18,67%, Hungary and Slovakia both have around 15-15%. Approximately half of the number of employees are included into the Medium skill level category in each country, however, Austria has the lowest shares from this point of view (49,74% versus Slovakia: 59,08% (Appendix table 1), as well as in case of Other low skill level activities. Several reasons and explanations exist, but the most relevant one is that Austria is outsourcing medium and low skill level jobs to cheaper labour force from outside the country. For instance to Hungary and Slovakia.

Chart 4: Share of average number of employees by occupation in Austria, 2016-2019

Unit of measure: Percentage (%)



Source: Self-made chart (ILOSTAT, 2020c)

Based on the findings of this sub-chapter we can assume that the higher the share of high skilled workers in the number of employees, the more developed the economy is, therefore higher salaries can be provided.

4 COMPARISON OF INCOMES AND LABOUR COSTS

After examining the number and share of employees, in this chapter the previous assumptions are being tested: if an economy with larger shares of highly skilled and educated employees provides higher salaries, labour costs and better standard of living. The first part of the chapter deals with the examination of collected data according to a specific household type (determined by Eurostat): „Single person without children earning 100% of the average earning”. The second part of the chapter analyses the labour costs that provide a detailed and more accurate basis for comparison of the three countries.

4.1 Single person without children earning 100% of the average earning

As it is mentioned above, among the imperfections of the survey, instead of earnings of employees, this paper uses earnings of a „Single person without children earning 100% of the average earning”. I find „Single person without children earning 100% of the average earning” relevant for the study despite the fact that other type of households (such as married people and people with children) are excluded from the numbers. In addition, the data includes childless, single self-employed as well. In order to prove the relevance and applicability of the data, I investigated the share of employees in the total number of employed in each country (Chart 5). (Because self-employed and employees together make the total number of employed.)

Chart 5: Share of employees in total employed, 2019

Unit of measure: Percentage (%)



Source: Self-made charts (ILOSTAT, 2020b)

The result of the observation of the proportion of employees in total employed prove that employees take up the vast majority in all the three countries. Austria has the largest share with 89,67% of employees within employed, followed by Hungary’s 88,07% and Slovakia’s 85,3%. The results revealed that including childless, single self-employed into the income comparison

dataset of the survey does not have any significant default effect, because even self-employed altogether only take up a minor part, a very little share compared to employees, in addition the share of them having no children and being unmarried is even smaller.

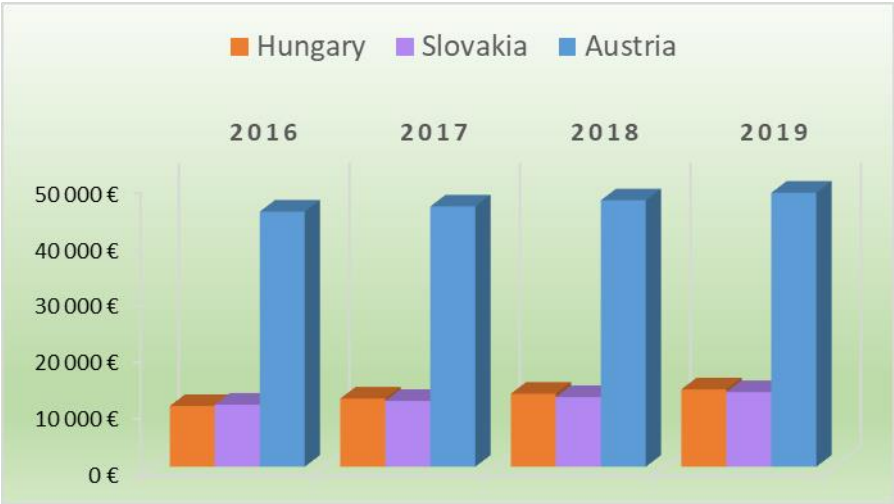
Furthermore, the incomes of married and childless people are excluded, but we can state that in a usual developed economy in Europe being married or having children does not make substantial difference in earnings. (The family allowances are zero according to Eurostat’s data collection-detailed later in Chapter 4.1) In addition, the emphasis of the research is on shares and comparison of incomes of employees in general, without any regard to their status of personal life.

4.1.1 Comparison of gross earnings

The first step towards investigating income differences is to compare gross incomes. Chart 6 below is generated based on data collected from Eurostat and expressed in Euro. The reference period is between 2016 and 2019. The graph presents the total gross annual earning of a single person earning 100% of the average.

Chart 6: Comparison of mean gross earnings 2016-2019

Currency: Euro



Source: Self-made chart (Eurostat, 2020b)

The main aim of the chart is to illustrate that Austrian mean gross incomes are considerably higher than Hungarian and Slovakian. The way of illustration shows the great differences, since columns of Austrian gross earnings are spectacularly greater in each period. The different colours distinguish the individual values of the countries. The exact amounts of total gross annual earnings of a single person earning 100% of the average, can be found in the

Appendix, in Chart 6. Austria's values are approximately three times as much as Hungary's or Slovakia's in each year, however, a slight decrease of difference can be observed throughout the years. Furthermore, the general increase of average gross earnings is also remarkable. It is mainly caused by the global economy's constant growth between 2016 and 2019. This process not only slowed down, but dramatically stopped in 2020. Further details are given on this topic later in the research.

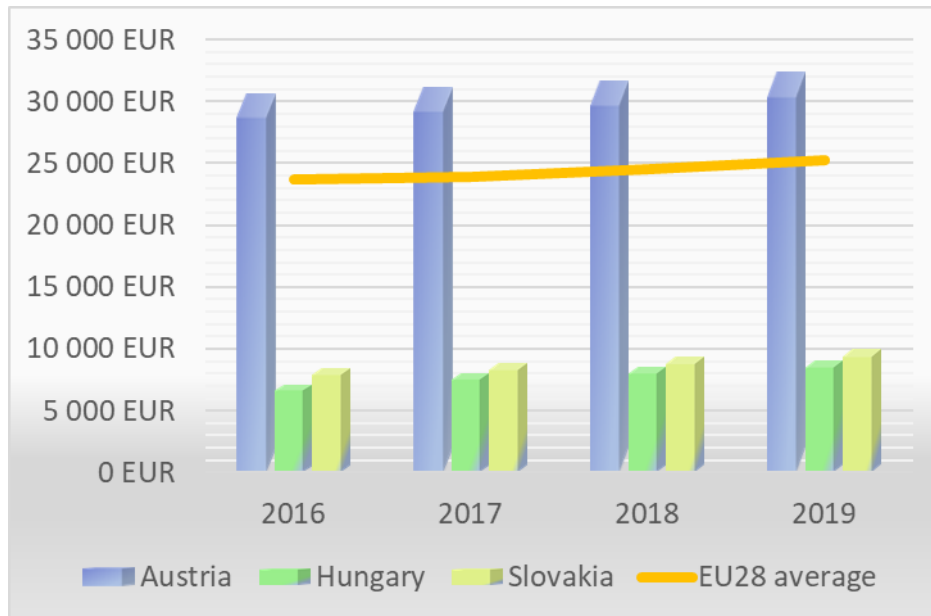
4.1.2 Comparison of net earnings

The way of deduction of net earnings from gross earnings is explained above, within the Main concepts. In this sub-chapter I intend to further-analyze the income differences, but in this case at a more appropriate level: the net income level. Net income gives a closer view to how much money employees actually have in their pockets, therefore it makes the discrepancies between the countries even more obvious. I would like to highlight that the research does not include the comparison of spendings, neither calculates with consumer prices, consequently, my findings only refer to how much is earned and not to how much employees or households can save.

Similarly to Chapter 4.1.1, the calculations are based on Eurostat data, denominated in Euro, covering the years from 2016 to 2019. Chart 7 presents the total net annual earning of a single person earning 100% of the average. The European Union (EU28) average of the indicator is given as a basis of reference. (EU28 is currently EU27: the United Kingdom left the European Union after 31st January, 2020)

Chart 7: Comparison of mean net earnings, 2016-2019

Currency: Euro



Source: Self-made chart (Eurostat, 2020b)

Chart 7 emphasizes the huge difference between net incomes of Austria versus Hungary and Slovakia. In fact, Austria even goes considerably above the European Union average every year, which indicates that despite being a small country, it beats larger countries as well. It can also be detected the Hungary and Slovakia are extremely below the EU28 average, even though there is slight increase in earnings during the years.

Slovakia has half of the size of population and the number of employees of Hungary and is still able to present higher levels of net incomes. What are the possible reasons behind it?

One extremely important factor in the process of income level growth in Slovakia is the government. „In recent years the pace of growth has accelerated, accompanied by a political commitment from the Slovak government to continue with this trend." (European Commission, 2018) As a tool of this commitment, the Slovak government introduced minimum wage regulations that cover employees with regular employment contract, as well as special work contracts (work performance contracts, work activities contracts and temporary student job contracts) Certain minimum wage claims are defined by the Labour Code of Slovakia and applied to the private sector. The claims define a scale of six levels of occupations, according to work difficulty. (Similarly to International Labour Organization's classifications in chapter 3.3.2) "As a result, the minimum wage for professionals with a university degree (the sixth degree) is twice as high as for persons performing basic work of the first degree of difficulty. " (European Commission, 2018) In addition, the average wage growth from 2018 to 2019 was

the highest in Slovakia among the three country (6,84%). Moreover, this rate of wage growth in Slovakia is faster than in the previous years. (Appendix table 2) It is partly due to irregular bonus payments to employees (Národná Banka Slovenska, 2019a) and partly because of the increase in the contractual wages of employees working in public and state services. (Národná Banka Slovenska, 2019b) Despite the slowdown of economic growth in Slovakia from the beginning of 2019, „the average wage continued growing relatively dynamically in the third quarter of 2019”. (Národná Banka Slovenska, 2019b)

In spite of the fact that Slovak net incomes are generally higher than Hungarians, the Hungarian rate of wage growth was remarkably faster in the years of 2017 and 2018. In 2017 it was 12,4% versus Slovakia's 5,51% while in from 2017 to 2018 the changes were 7,02% in Hungary and 5,41% in Slovakia. (Appendix table 2) (Austrian income growth rate is irrelevant for comparison from this point of view since their incomes are constantly high, there is no significant change between 2016 and 2019. Consequently, Austrian the income growth rates are generally low.) According to the report of the Ministry of Finance of Hungary, the reduction of payroll taxes played an important role in the growth of net earnings in 2018. (Ministry of Finance Hungary, 2018)

The question arises: what is the „secret” of Austria in order to keep up this extremely high net (and gross) income level? Several factors can influence earnings such as working hours of employees (examined in Chapter 4), the size of the labour force or the unemployment rate.

4.2 Comparison of working hours

Gross and net incomes depend on various factors such as working time. In this subchapter I intend to compare the number of hours actually worked by employees in Austria, Hungary and Slovakia. Is there any significant difference? Do Austrian employees work more hours for their much higher salaries? This part of the study seeks the answers for all these questions. Moreover, the number of working hours provide an important basis for further analysis in the following chapters.

4.2.1 Comparison of mean weekly hours worked by employees

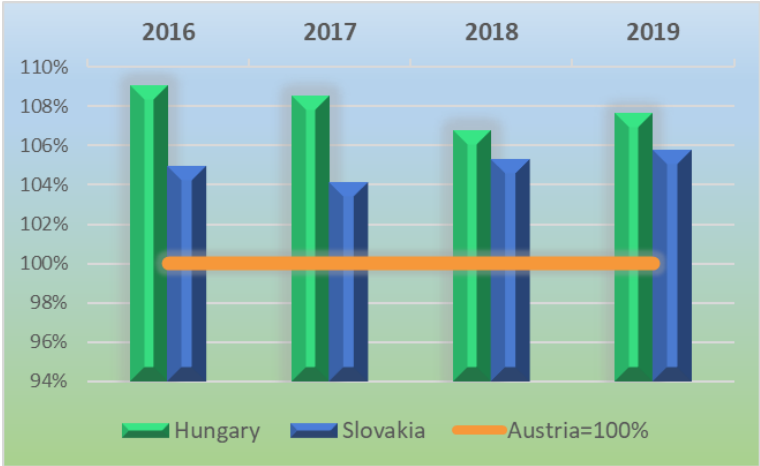
This part of the paper deals with calculations based on data collected from Ilostat (International Labour Organization), referring to weekly hours actually worked by employees. The criteria that define hours actually worked are given in the Main concepts chapter.

As Chart 8 (below) reveals, I use the weekly average working hours of Austrian employees as a reference basis. I chose this method in order to emphasize that Austria sets a

good example, less developed countries should adjust themselves and follow Austria’s methods and principles so that they can keep up with the progress. An example of calculations for the year 2019: Hungary 2019 (38,3 hours)/ Austria 2019 (35,6 hours)= 109,1%. The results of calculations confirm that Hungarian employees have the largest amount of weekly working hours. Furthermore, both Hungarian and Slovakian employees work notably more hours than Austrians, although the numbers are slightly better in Slovakia. Considering the four-year-averages, Hungarian employees worked 8,02% (+2,85 hours) more (weekly) than Austrians between 2016 and 2019, while in case of Slovakia it is 5,05% (+1,79 hours). Chart 8 indicates that higher income does not necessarily mean longer working time. On the contrary, Austrian employees create more value in less time, because they work more efficiently.

Chart 8: Mean weekly hours actually worked by employees, 2016-2019

Unit of measure: Percentage (%)



Source: Self-made chart (ILOSTAT, 2020e)

To go into details a little deeper, I observe the levels of occupations to find which kind of professions make the greatest differences in working hours. Firstly, I calculated the four-years averages to each occupation category. (Table 3) Professionals and medium skill level workers work considerably less hours in a week in Austria (35,55 and 35,43 hours), while Hungarian low skill level employees have significantly longer working times (36,98 hours a week).

Table 3: Mean weekly hours actually worked by occupation, 2016-2019 average

Unit of measure: Number of working hours

Occupation	Austria	Hungary	Slovakia
1. Managers	41,13	39,80	40,25
2. Professionals	35,55	38,05	37,78
3. Technicians and associate professionals	35,48	38,48	38,45
4. Other medium skill level	35,43	38,63	38,75
5. Other low skill level	30,10	36,98	31,43
Total average	35,54	38,39	37,33

Source: Self-made chart (ILOSTAT, 2020e)

To sum up, employees of the Austrian economy work less hours in a week than Hungarian and Slovakian ones, however, they earn more to a great extent. It means among others, that Austrian workers do their jobs in a more efficient way. Partly because they have access to better technologies, but on the other hand they are also better qualified, as it is confirmed in Chapter 3.3.

4.3 Analysis of labour costs

The analysis and comparison of labour cost differences between Austria, Hungary and Slovakia aim to approach the focus point of the essay from a different perspective. Gross and net incomes- as it is mentioned earlier- are biased by many factors and are difficult to measure on macroeconomic levels, because each country has different system of taxation, employee benefits, tax allowances etc. Consequently, I looked for an indicator which is more suitable for comparison: the labour costs. In addition, according to the main international organization of labour statistics (International Labour Organization), labour costs, at both national and international level, are crucial factors in the measurement of competitiveness. (International Labour Organisation, 2021a) "Also, the measurement and analysis of non-wage labour costs have become an important issue in debates on labour market flexibility, employment policies, analyses of cost disparities, and comparisons of productivity levels among countries." (International Labour Organisation, 2021a)

Another study, issued by the European Commission (European Commission, 2012), describes the concept of labour income with three main approaches:

- a) Total compensation paid by employers
- b) Gross earnings
- c) Net earnings

In this study, the total compensation (labour costs) is noted to be the most relevant for comparison.

4.3.1 The components of labour costs

The short and brief definition of labour costs has already been described in the paper in the previous chapters. (All wages paid to employees, supplemented by the costs of employee benefits and payroll taxes paid by an employer.) The longer definition – determined by the International Labour Organization (International Labour Organization, 2020b)- is the following: Labour costs include

- Remuneration for the work performed
- Payments in respect of time paid for but not worked
- Bonuses and gratuities
- The cost of food, drink and other payments in kind
- Cost of workers' housing borne by employers
- Employers' social security expenditures
- Cost to the employer for vocational training
- Welfare services and miscellaneous items, such as transport of workers, work clothes and recruitment
- Taxes regarded as labour cost

Remuneration for the work performed is also called „direct wages and salaries” which include wages and incentives paid to time-rated workers (employees that earn a fixed salary eg monthly), earnings of piece-workers (payments according to performances), premiums paid for overtime, late-shift and holiday work. (International Labour Office, 2016)

Remuneration for time not worked involves annual vacation or other paid leaves, public- and other recognized holidays, other time off granted with payment (eg marriage, birth of a family member etc), severance and termination payments. (International Labour Office, 2016)

In case of bonuses and gratuities we can distinguish between year-end and seasonal bonuses, profit-sharing bonuses and additional payments to vacations. (International Labour Office, 2016)

The food, drink and other payments in kind category is quite clear, consequently, it does not need any further explanation or sub-categories.

Employers sometimes also pay for housing expenditures of employees. These payments cover costs for dwellings and other housing costs. (International Labour Office, 2016)

A wide range of social security expenditures are paid by the employers. These expenditures, that differ in each country, are mainly statutory social security contributions, non-obligatory contributions to private social security schemes and insurances, direct payments to employees in respect of absence from work (eg due to sickness, maternity leave), other direct payments to employees regarded as social security benefits, cost of medical care and health services, severance and termination payments- where regarded as social security expenditure. (International Labour Office, 2016)

Costs of vocational training, include „fees and other payments for services of outside instructors, training institutions, teaching material, reimbursements, of school fees to workers etc.” (International Labour Office, 2016)

Costs of welfare services are defined as the costs of canteens and other food services, costs of education, cultural and recreational facilities and services and grants to credit unions and cost related services. (International Labour Office, 2016)

Taxes regarded as labour costs are taxes and payrolls in connection with employment. (International Labour Office, 2016)

4.3.2 Purchasing Power Parity (PPP)

Before going into details about the comparison of labour costs, one crucial concept should be explained: the Purchasing Power Parity (PPP) and its role in our analysis. The main reason why proper description of the PPP concept is needed is to avoid the quite common misunderstandings and misuses of the theory. A clear definition of PPP is given by Eric Marlier and Anthony B. Atkinson, in their publication with the title *Income and living conditions in Europe*, 2010. "Purchasing Power Parities (PPP) convert amounts expressed in a national currency to an artificial common currency that equalises the purchasing power of different national currencies (including those countries that share a common currency)" (Marlier & B. Atkinson, 2010)

The main problem that PPP intends to solve is that countries have different national currencies which makes the national and international macroeconomic indicators difficult to measure and compare. First of all, the analyzed values should be presented in a common currency. If all the selected countries have the same national currency, such as the Euro within

the Eurozone, no further steps are needed towards the standardization of the data. However, if the selected countries do not have the same national currency, the PPP theory indicates that analysts should choose a „third” currency, which none of the selected countries have as national currency. The „third” currency is called the artificial common currency.

The question arises: why do we need this artificial common currency instead of simply converting all values to one of the national currencies of the participating countries? Although, this question could be answered in multiple ways, from different aspects, therefore, I intend to highlight only one of them. For the conversion of these different national currencies, we would have to use an exchange rate and „these rates are influenced by many factors, such as the flows of international trade or speculative capital movements, and need not reflect the price structures that prevail in the various countries.” (Marlier & B. Atkinson, 2010) As a solution- as Marlier and Atkinson claim-“ PPP do not only convert all values into a common standard, but also adjust them for differences in price levels across countries.” (Marlier & B. Atkinson, 2010)

This paper uses Euro as a basis of comparison in Chapter 4.1, because Austria and Slovakia both have Euro as their national currency. However, Hungary’s national currency is the Hungarian Forint which creates opportunities for discrepancies in the calculations due to the fact that Hungary’s data is evaluated based on changing currency exchange rates, while values of data of the other two countries are stable. The next part of the study aims to solve the possible imperfections of using Euro as a basis of comparison.

Based on this theory I decided to use US dollar as an artificial common currency for the comparison of labour costs between Austria, Hungary and Slovakia, because on one hand none of the three countries have it as national currency, on the other hand the basic PPP theory is explained in US dollars. In addition, USD is among the world’s strongest currencies and it is often used in international transactions as well. (Gross and net wages of a single person earning a 100% of the average are denominated in Euro due to the lack of data available in USD or in any currency other than the national one.)

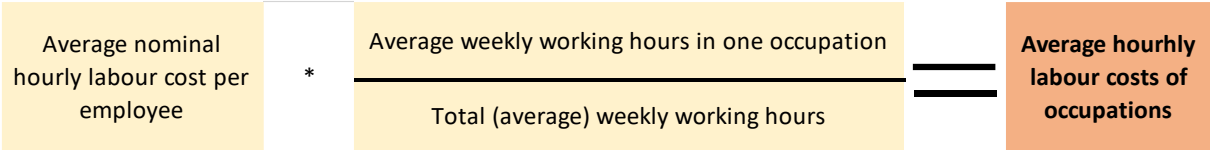
4.3.3 Comparison of labour costs

The comparison of labour costs is a crucial point of the research, since it brings us closer to find answers to the first research question: How much income *and labour cost differences* can be identified between Austria-Hungary and Slovakia? This sub-chapter describes and visualises data that is collected according to occupational skill levels, as well as in annual aggregate forms.

To begin with, I used the advantage of the availability of mean nominal hourly labour costs per employee, given as an annual average, on Eurostat statistical webpage. Based on the above mentioned Purchasing Power Parity theory, the analysed data is expressed in US dollars. A summary table of the collected data can be found in the attachment, named as Appendix Table 3.

Inspired by the calculation methods used by OECD, this study intends to determine the average hourly labours costs of each occupation level. OECD-as it is explained on their website, as part of the statistical databases (<https://stats.oecd.org/>) – devides the national accounts based total wage bill with the total number of employees in the given period and multiplies this number with the quotient of average usual weekly hours worked per full-time employee divided by average usually weekly hours for all employees. (OECD, 2021a) The result of the calculation gives the weighted average annual wage cost per full time employee. In order to provide a better understanding of the transformation of this method into this study, the formula below illustrates the logic that is used later on.

Chart 9: Formula of average hourly labour costs of occupations



Source: Self-made

Average nominal hourly labour costs per employees are given by Ilostat, as it is mentioned above. This number should be multiplied with the quotient of average weekly working hours in one occupation divided by the total (average) weekly working hours of employees. The result of the calculation gives the average hourly labour cost of an accupation level in the given period (year). As a method of simplification, I only calculate with data concerning the year 2019. Results of the calculations are presented in Table 4 below. As we look at the results, we can observe that, not surprisingly, there is a tendency of Austrian labour cost being notably higher at each category. In 2019 Austrian employers’ labour costs concerning managers are 8,9 USD per hour, while in Hungary and Slovakia these numbers are only 2,31 and 2,96 US dollars. The second highest labour cost in Austria, in 2019, are demanded by technicians and associate professionals. (7,81 USD per hour versus 2,23 USD per hour in Hungary and 2,86 USD per hour in Slovakia.) However, the difference compared to category 2. and 4. is quite negligible in Austria. The total amounts of the calculated labour costs can also

be seen at the bottom of the table. These sums reflect the total average hourly labour costs per employee which are also given in Appendix Table 3 and serve as a check point for calculations. Austrian labour costs per employees (38,9 USD) are 3,11 times higher than Hungarian (11,1 USD), while 2,72 times higher than Slovaks (14,00 USD). Slovakian employee labour costs are 1,26 times higher than Hungarian. Consequently, the calculated hourly labour costs in 2019 clearly meet our expectations, especially concerning the differences among the three countries. Not surprisingly, managers take the lead in case of the most labour cost spent on them by employers. In 2019 Technicians and associate professionals tend to be slightly more „expensive” to employers than employees of the category above them, Professionals. To sum up, this descriptive analysis provides an insight into the structure of the distribution of labour costs spent on employees.

Table 4: Average hourly labour costs of occupations 2019

Currency: USD

Occupation	Austria	Hungary	Slovakia
1. Managers	\$8,90	\$2,31	\$2,96
2. Professionals	\$7,79	\$2,20	\$2,83
3. Technicians and associate professionals	\$7,81	\$2,23	\$2,86
4. Other medium skill level	\$7,78	\$2,22	\$2,91
5. Other low skill level	\$6,63	\$2,13	\$2,43
Total average hourly labour cost per employees	\$38,90	\$11,10	\$14,00

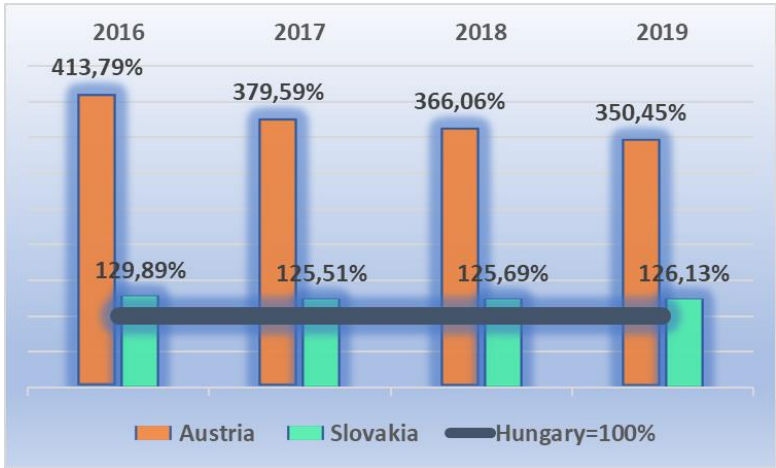
Source: Self-made chart (ILOSTAT, 2021a)

In the next phase of the analysis I compare Austrian and Slovakian mean nominal hourly labor costs per employees to Hungary. The main reason for choosing Hungary as a reference basis is that Austria, as a reference basis, would not provide any new result. On one hand, a pre-assumption based on general economical knowledge can be made that Austrian earnings and labour costs are considerably higher than Hungarian and Slovakian. On the other hand, the results calculated in Table 4 also support this argument.

Chart 10 (below) compares the hourly average labour costs per employees within the given period, between 2016 and 2019. Hungary, as mentioned before, serves as a reference basis, therefore I take Hungarian labour cost as a constant 100%. This method is quite similar to the one used in Chapter 4.2, regarding the comparison of weekly working hours of employees. The main question is: *How many times are Austrian and Slovakian hourly average employee labour costs higher than Hungarian?* The differences are measured in percentage. The main aim of this chart is to visualize the great differences with a method that represents a useful alternative to simple data tables or bar graphs. This part of the paper measures the discrepancies and thereby it creates room for a new topic in case of a possible extension of the study: the possible explanations of the differences.

Chart 10: Comparison of mean nominal hourly labour cost per employees

Unit of measure: Percentage (%)



Source: Self-made chart (ILOSTAT, 2021a)

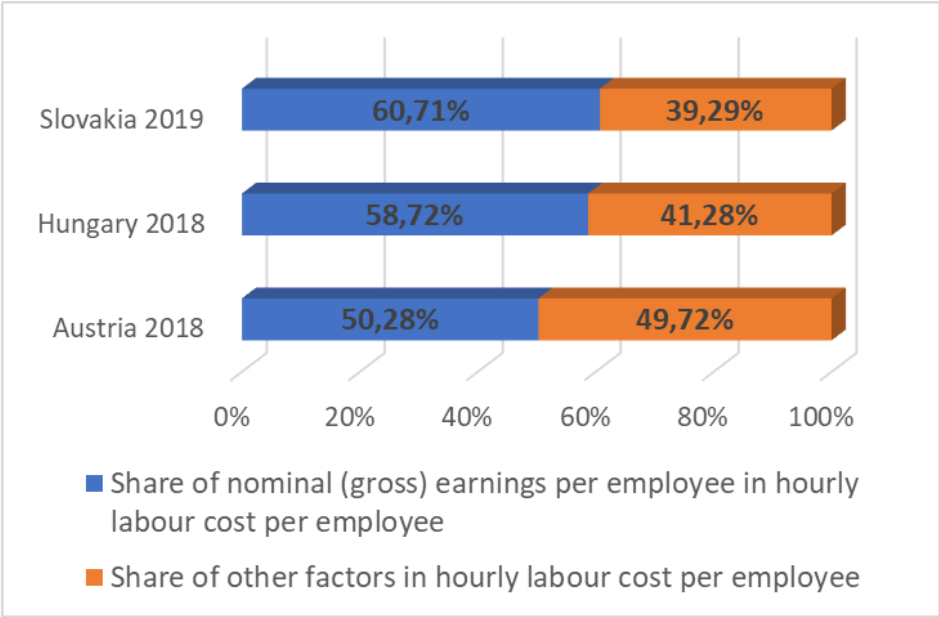
In order to help better understanding, here is an example of how to read the chart: in 2016, a Slovakian employee costed hourly 1,2989 (129,89%) as much as a Hungarian employee, provided that we measure data in the same currency. The analysis reveals that Austrian labour costs are over 3,5 times higher than Hungarian in each year, although a diminishing tendency of discrepancies can be observed. We can consider it as a narrowing of the gap between Hungary and Austria, however, this assumption should be interpreted only with caution, due to the many aspects that are not taken into consideration in this study. Unexpectedly, Slovakian labour costs are also higher to a relatively great extent, with the average difference 126,8% throughout the years. This rate in case of Austria is 377,47%.

As is it mentioned above, labour costs consist of many factors. Altogether they are the sum of all the costs of employers regarding the employees. More specifically, all wages paid

to employees and the costs of employee benefits and payroll taxes paid by an employer. In order to go into details a little deeper, I examined the share of nominal (gross) hourly wages per employees in the years for which I found available data. The main goal of this approach is to provide useful details about the share of components of labour costs. Since I did not find available data for the same year for all the three countries, this analysis supports understanding and observation, but it does not serve as actual comparison. Furthermore, the graph intends to emphasize that comparison of labour costs is NOT equivalent to the comparison of wages, however, it creates a good basis for analysis. Chart 11 reveals the situation of employees in case of gross earnings.

Chart 11: Share of gross earnings per employee

Unit of measure: Percentage (%)



Source: Self-made chart (ILOSTAT, 2021b)

Share of nominal (gross) hourly earnings of employees in hourly labour costs were 50,28% in Austria and 58,72% in Hungary in 2018, while 60,71% in Slovakia in 2019. Despite the fact that the *shares* are lower in case of Austria, hourly labour costs altogether (measured in US dollars) are much greater than in the other two countries, due to many reasons, such as higher wages, employee benefits and payroll taxes. In conclusion, a higher share of complementary costs to wages (Hungary) does not necessarily mean that the amount of total labour cost spent on an employee is higher.

Due to the lack of available information about gross hourly earnings of employees I made my own calculations based on the previous data, in order to estimate the missing wage values. I made one important assumption: let us suppose that the given shares (Chart 11) are constant in each year between 2016 and 2019. By fixing these shares I estimated the annual average gross hourly earnings per employees. I multiplied the mean nominal hourly labour cost per employees (Appendix Table 3) by the fixed percentage share in each year, for each country. The results of calculations are revealed in the Appendix, named as Appendix Table 4. The estimated average gross hourly earning between the period 2016 and 2019 was \$19,10 in Austria, \$7,79 in Slovakia and \$5,94 in Hungary.

After calculating hourly average labour costs of employees according to occupational levels I compared the labour costs of Austria and Slovakia to Hungary. Both approaches support the expectation that Austrian labour costs are significantly higher than the other two's. On the other hand, the findings about Slovakia are quite remarkable, since the country is leading to Hungary in most categories. Afterwards, the paper aims to replace the missing information about gross hourly earnings of employees, by self-made estimations. The fundamental aim of this sub-chapter is descriptive analysis so that the reader can gain new knowledge with actual examples about the topic.

5 THE EFFECTS OF COVID-19

As previously mentioned, the COVID-19 pandemic and the necessary protection measures against it are damaging almost every segment of the global economy currently, and it will possibly have a huge effect on the near future as well. This chapter investigates the recent effects of the economic crisis caused by the pandemic on earnings, labour costs, working hours and unemployment.

5.1 The effects of COVID-19 on earnings in 2020

Up to date, official data on this topic is only available in gross incomes. It is also important to note that the data provided by Tradingeconomics (a website of economic indicators) is denominated in local currencies, therefore only relative comparison of the countries is possible (comparison of percentage changes). Furthermore, no information regarding Austria is available yet. While examining the changes, the reference basis is always the same month of the previous year. (For example July 2020/ July 2019.)

Coronavirus effects can already be measured in case of the drop in the wage increase rates in the first five months of 2020, in Hungary. The greatest decline happened during the strictest lockdown measures, in April 2020, falling from 9% to 7,8%. (Appendix chart 7) Surprisingly, according to Tradingeconomics, average gross wages in Hungary increased 15,6 percent over a year earlier in June 2020, after a short recession caused mainly by COVID-19 between January and May. In addition, „15,6 percent is the biggest wage increase since January of 2003, due to one-time HUF 500,000 bonus received by health care workers.” (Tradingeconomics, 2020)

Slovakia had a more moderate income increase rate than Hungary, even before the outbreak of the COVID-19 pandemic. (Appendix chart 6) Unlike Hungary, a constant decrease in the growth rates of income can be observed in Slovakia after January 2020. In July 2020 gross average earnings only grew by 3% over a year earlier. Slovakian gross incomes tend to be significantly affected by the crisis caused by the coronavirus.

Both countries can still manage to keep their wages growing despite the global economic crisis situation, although Hungary shows better results at the moment than Slovakia.

My own expectation in connection with the decline in incomes due to COVID-19 is that earnings are going to continue to fall in 2020 and these phenomena will not stop in 2021 either. In addition, I expect an even more intense slump at the beginning of 2021 since companies and other organizations are planning new budgets for each year, starting from January, and currently a severe cut of budgets is anticipated in each field.

5.2 The effects of COVID-19 on working hours in 2020

"Altogether, 94 percent of the world's workers currently live in countries with some sort of workplace closure measure in place." (International Labour Organization, 2020a) Almost every country of the world economy has to face lockdown measures in 2020 due to the latest coronavirus pandemic. In Austria, Hungary and Slovakia the strictest lockdowns took place rapidly in the end of March 2020, when COVID-19 reached Europe. The virus was considered as very infectious, unknown and life-threatening. The most effective tool to fight an unknown disease is to try to stop the spreading of it. In our case it was carried out by putting whole cities and countries under „quarantine”. Quarantine in the first months of 2020 did not only mean separating infected people, but also forcing everyone to stay at home. Schools, universities and workplaces were closed down immediately. Remote working, the so called „home office” became the new way of doing business. At least at those companies and organizations that had the technological infrastructure for it. Not everyone was so lucky, especially in less-developed countries. Companies without home office opportunities sent hundreds of employees to unpaid leave. This phenomena obviously caused severe drops in the number of working hours. In this sub-chapter I intend to investigate which country is affected the most in case of loss of working hours.

The data collected refers to the four quarters of 2020, the period of the beginning of the strict lockdown measures (Q1) and the period when the impact of workplace closures was the most serious (Q2), causing economic shocks, followed by a period when countries slowly started to ease lockdowns and moved towards a hybrid system, the so called „partial lockdowns (Q3), then the period of the second wave of the pandemic when strict lockdown measure came into force again (Q4). It is important to note that the observed data refers to all kind of working hour losses in general, but in this chapter I apply the assumption that working hour losses due to other factors in 2020 are negligible. In the next part of the paper I give a more detailed analysis of the reasons of absences from work.

The method of calculation applied is based on a volumene index method: the fourth quarter(Q4) of 2019 always serves as a reference basis. Number of working hours of Q1,Q2, Q3 and Q4 of 2020 are divided with the hours worked in Q4 2019. I examine the loss of working hours according to occupations.

The working hour loss-part of the crisis peaked in Q2 of 2020. Austrian employees had particularly high working hour losses during this period, as it is presented in Chart 12. Surprisingly, Managers are estimated to have a -16,95% decrease relative to the fourth quarter of 2019, followed by Technicians and associate professionals (-13,88%), Professionals (-10,2%), Other low skill level workers (-12,54%) and Other medium skill level workers (-7,05%). By contrast, Hungary and Slovakia experienced a smaller decline. (Chart 13 and Appendix chart 8) As a tool of comparison, I present Hungary below Austria since Hungary is estimated to have the mildest disruption in case of working hours in the first half of 2020. In the second quarter of 2020 Austrian employees experienced much greater working hour losses in each field than Hungarians (and Slovaks). Hungary's average (for Q1 and Q2) of the total loss of working hours is 1,55% while Austrian employees had an average loss of 6,86%. (Own calculation, (ILOSTAT, 2020e) The greatest reduction that have occurred in Hungary in Q2 of 2020 was among Managers with a decrease of 6,23% which is more than 10 percent less than the loss of Austrian Managers, similarly to the category of Technicians and associate professionals. (Austria: -13,88%, Hungary: -3,14%) The decline in the hours of Professionals in Q2 2020 is also considerably lower: only -3,66% versus Austria's -10,2%. The results of Slovakia are quite similar to Hungary. The greatest reduction that have occurred in Q2 of 2020 was among Medium skill level workers with a decrease of 4,17%, followed by Professionals with -4,16%.

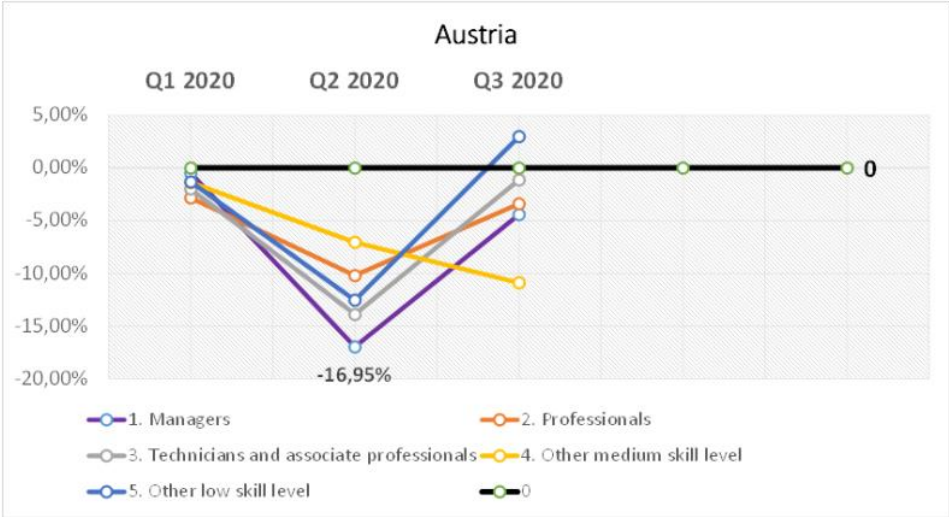
In the third quarter of 2020 workplaces that were fully locked down (eg restaurants, factories) slowly started to re-open. Daytime curfews were replaced by night curfews or, for example in Hungary, during this period there were no curfew at all, even clubs were open during the night, with some limitations. As a consequence, working hour losses sharply decreased. In addition, it turned into positive in case of „Other low skill level” workers, meaning that their number of working hours increased compared to Q4 2019.

The fourth quarter of 2020, the arrival of the second wave of the pandemic which caused death or permanent damages (post-COVID symptoms) to hundreds of thousand of people within the three countries, brought back the strict restrictions and lockdowns. All entertainment, sport and other freetime facilities, as well as educational institutions had to close. Strict night curfews also came into force. Companies were already prepared for the lockdown situation, the

home office network was built up mostly everywhere. As a consequence, in Hungary, losses were more moderate compared to Q2 2020 in all categories. In Slovakia, managers and other medium skill level workers lost more hours than in Q2 2020. There is no available data regarding Austria yet.

Chart 12: Loss of working hours of employees in Austria, 2020

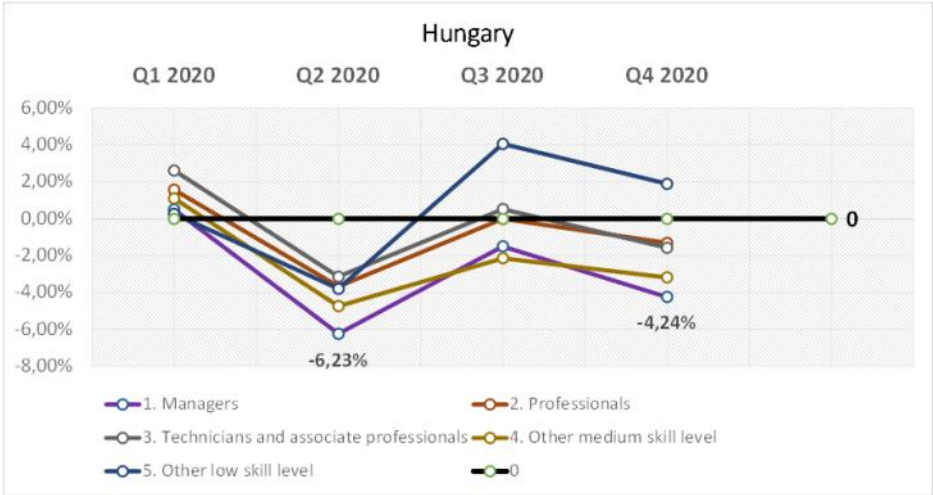
Unit of measure: Percentage (%)



Source: Self-made chart (ILOSTAT, 2020e)

Chart 13: Loss of working hours of employees in Hungary, 2020

Unit of measure: Percentage (%)



Source: Self-made chart (ILOSTAT, 2020e)

Surprisingly, after calculating the average losses for the periods, during which data is provided, Austria had the most substantial losses between Q1-Q3 2020 (-1,6%, -12,12% and -3,37%). Hungary had +1,21%, -4,31% and +0,19% for the same period, while Slovakia -1,31%, -2,79% and +1,43%.

What are the main factors that caused these above mentioned differences? How can less developed countries present better results than Austria? First of all, tourism and hospitality is one of the most important fields of the Austrian economy. Due to the lockdowns of borders and restrictions of free time activities and traveling, employees in the tourism and hospitality sector lost their jobs or, the 'luckier' ones were sent to unpaid leave. Both contributed to the huge losses of working hours of low skill level workers. Secondly, economists of modern economies realized that in a crisis situation companies should reduce the salary and working hours of the most expensive employees in the first place, namely, the managers. This is a radical and unpleasant, but still cost-efficient way of trying to keep jobs of other employees on lower levels. Moreover, Technicians and associate professionals simply could not work during the strictest lockdowns because their jobs cannot be done remotely, from home. "While higher-earning workers often worked from home, lower-earning workers often had to stop working"(OECD, 2020a) As for Hungary, the explanation for less severe loss of working hours in this occupation level is that factories and other workplaces where employees can only do their jobs by their physical presence, were not closed down. Some safety measures were introduced, but in general the activities did not stop.

The main finding of this sub-chapter is that the loss of working hours will not broaden the gap between the three countries, since Austria does not show better results than the other two.

5.3 Absences from work by reason-2020

In order to further observe the working hour related effects of COVID-19, I investigate the four main reasons for absence from work in 2020, determined by Eurostat:

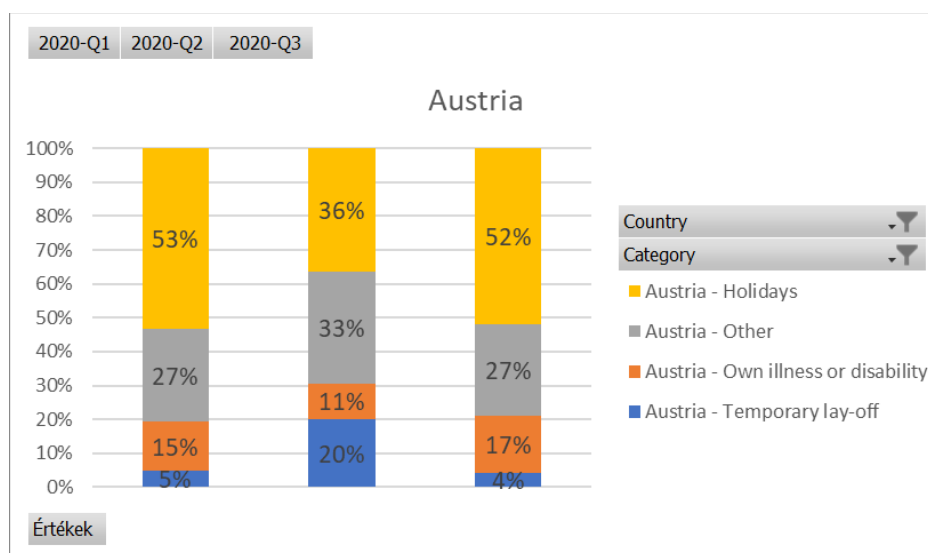
- Holidays
- Own illness or disability
- *Temporary layoff*
- Other

Some absences can be planned in advance, such as holidays, but other unplanned absences like temporary layoffs, can cause substantial losses to a company. However, in practice, planned absences are not always particularly desired by employees, especially if the company faces economic difficulties. Employers sometimes make it compulsory to go on holidays, therefore, "holidays sometimes may mask actual lay-offs", which is a crucial limitation of the current analysis. (Eurostat, 2021ab) In this sub-chapter the emphasis is on the share and changes in temporary layoffs, on one hand because they partly explain the severe slumps in the number of working hours, on the other hand the last chapter of the paper introduces job retention programmes, more precisely the so called „Kurzarbeit” which provides the basis of temporary layoffs.

Statistical data refers to the *number of people* that were absent from work during the given periods and their percentage shares. Inspired by the method applied by Eurostat (Eurostat, 2021ab), I created bar charts that reveal the main reasons of absences from work. In order to avoid repetition, Hungary’s and Slovakia’s charts are only available in the Appendix.

Chart 14: Absences from work by reason in Austria, 2020 Q1-Q3

Unit of measure: Percentage (%)



Source: Self-made chart (Eurostat, 2020c)

The share of temporary layoffs is only significant in Q2 2020 in each country (Austria 20%, Hungary 18%, Slovakia 20%). The sharp rise in the second quarter of 2020 is due to the previously mentioned strict lockdown measures that were applied in order to slow the spread of the new, deadly virus. In Austria the number of absences from work rose from

29,3 thousand (Q1 2020) to 136,3 thousand (Q2 2020) which is 4,5 times as many as it was in Q1. Slovakia experienced a crucial change in the number of absences. The originally 5,9 thousand rose to 112,2 thousand employees that were temporarily laid off which is almost 20 times as many as it was in the first quarter of the year. Hungary did not show substantial changes between these periods, although the total number of absences, including all the four categories, were quite low before the outburst of the crisis. (2020 Q1: Austria 621,1 thousand absent employees, Hungary 242,8 thousand absent employees). In third quarter 2020 the restart of economic activities enabled a steep downturn in the shares of temporary layoffs. However, we do not know how much of the employees were sent on compulsory holidays during this time of the year, because holidays were used as an asset of crisis management of companies, especially in Austria and Hungary.

The results underline that Austria is hit by the highest number and share of temporary layoffs, therefore, this factor will not broaden the gap between the three countries.

5.4 Changes in the costs of labour

Since the comparison of labour costs is a crucial point of this research, I find it important to examine whether the crisis caused by the COVID-19 pandemic had any significant effect on the costs of labour. The main questions of this sub-chapter are the following:

- Can any substantial effect of COVID-19 be observed in the change of labour costs?
- If yes, will it broaden the gap between Austria, Hungary and Slovakia?

The main method applied is the *Laspresyes index*. Indexes are defined in the Hungarian course book of economic statistics written by Hunyadi László and Vita László as the quotient of two aggregates that originate from different time periods or different places. (Hunyadi & Vita, 2008) Many types of indexes can be distinguished, but from this study's point of view, volumen and price indexes are important. A volumen index is the quotient of two (fictional) aggregates that only differ in quantity (the time period is fixed). A price index is the quotient of two (fictional) aggregates where the quantities are fixed and the prices are changing. (Hunyadi & Vita, 2008) The fixed components of the indexes can be the base period (base period index) or the current period. In case the current period is fixed the index is called Paasche Price or Volumen Index. Regarding the research, the other methodology is relevant, which fixes the base period. It is called the Laspresyes index. (Hunyadi & Vita, 2008) The formulas of the Laspresyes volumen index (I_q) and the Laspresyes price index (I_p) are given below.

Chart 15: The formula of Laspreyes index

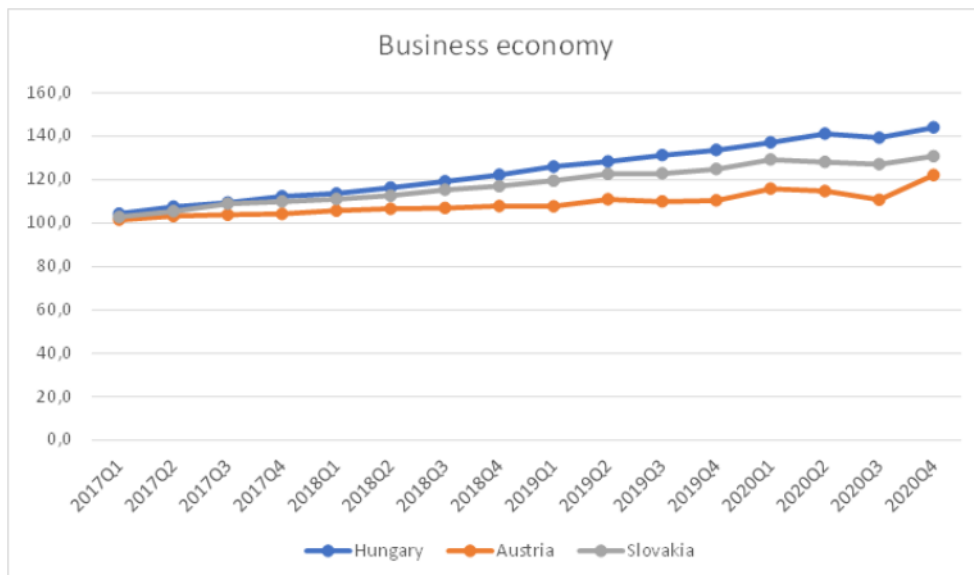
$$I_q^0 = \frac{\sum q_1 P_0}{\sum q_0 P_0} \quad \text{és} \quad I_p^0 = \frac{\sum q_0 P_1}{\sum q_0 P_0}$$

Source : (Hunyadi & Vita, 2008)

The index applied in this paper is a specific variation of the Laspreyes price index. Instead of prices the calculations measure the changes in the hourly labour costs per employees. The fixed component (q) is the number of working hours (in the corresponding quarter of the year). The collected data is published by Eurostat. The organisation highlights that chain-linked Laspreyes indexes are applied in the statistics. (Chain-linked means that period „0” is always the previous period.) Why do we need this method in the research? The main advantage of it is that Laspreyes index measures the changes in aggregates which simplifies the calculations to a great extent. Otherwise we would have to use individual measurement methods that could lead to false results.

Chart 16: Changes in the labour costs, Laspreyes index, 2017-2020

Unit of measure: Percentage (%)



Source: Self-made chart (Eurostat, 2021a)

As it is indicated at the top of the figure (Chart 16), the analysis only refers to the business economy, while other factors are excluded. The line chart shows quarterly changes in the labour costs between 2017 Q1 and 2020 Q4. The index constantly increases until the third quarter of 2018. Although slight downturns were experienced by Austria in 2019 (Q1 and Q3), more significant changes can be observed during the period of the COVID-19 pandemic. In the second quarter of 2020 the first wave of the new coronavirus hit the world economy. The growth of labour costs started to stagnate, which means that it was still rising, but with a smaller degree. In the second quarter of 2020 total labour cost of all employees in Austria increased by 14,7% compared to 2020 Q1, assuming that the number of hours worked are fixed (Laspreyes index). In the next period, 2020 Q3 the increase was only 10,7%. In Hungary the slump appeared in the third quarter of 2020, while in Slovakia already in the second. In 2020 Q4, the last period of the year, crisis management effects already show themselves. Countries started to work on the rescue on their own economies right after the outburst of the crisis (2020 Q2), but macroeconomical changes are slow processes that only show their effects later. By the end of 2020, despite the second wave of the pandemic, Austria, Slovakia and Hungary managed to stabilize their economies and stopped the downturns of the labour costs as well.

It is important to highlight that labour cost consist of many elements that were explained in Chapter 4, therefore no exact findings can be made based upon the changes of them. Both growth and decrease can be beneficial or disadvantageous to the economy. For example it can increase due to the rise in wages, but higher prices caused by a general inflation can also push up the employee related costs. On the other hand, cost or tax reductions can lead to substantial drops in the labour costs. Consequently, the measurement of changes in the labour costs only serves as a guidance towards a further, more detailed analysis.

To sum up, the virus lead to some changes in the labour costs, but it effected the three countries approximately equally. The results of this analysis support the idea that the economic crisis caused by the COVID-19 pandemic will not broaden the gap between Austria, Hungary and Slovakia.

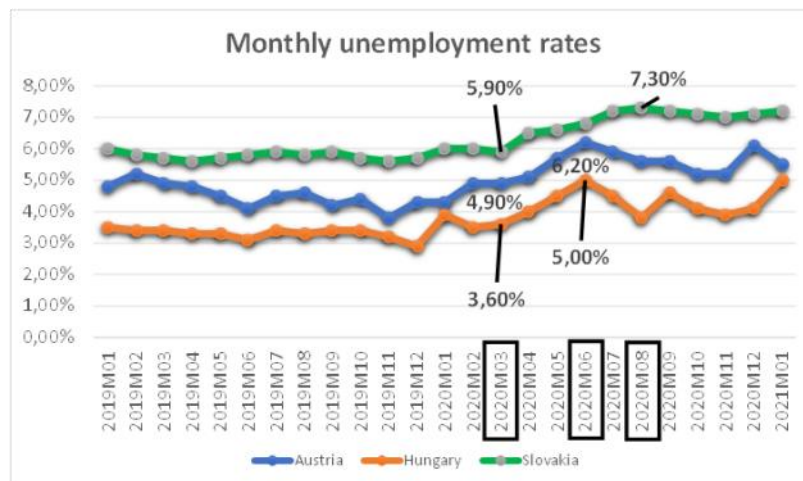
5.5 COVID-19 and the unemployment rate

The unemployment rate is an important macroeconomic indicator that reveals crucial facts about the labour market. The concept *unemployment* rate refers to the number of unemployed as a percentage of the labour force. (The labour force is the economically active population during a given period) (International Labour Organization, 2020b) I chose this indicator as a tool of analysis, because I expected in advance that the COVID-19 crisis has significant effect on unemployment. In addition, the comparison of unemployment rates opens up a new perspective for the investigation of the possible differences between Austria, Hungary and Slovakia.

Chart 17 is a self-made line chart that shows the monthly unemployment rates. In order to have a suitable reference basis, the analysis starts with a period that was before the COVID-19 pandemic (2019 M1- 2020M2), then it is followed by the period of the virus, until data was available, 2021 M1. The focus of the examination is from 2020 M3 to 2021 M1.

Chart 17: Comparison of unemployment rates, 2019-2021

Unit of measure: Percentage (%)



Source: Self-made chart (ILOSTAT, 2021c)

Not surprisingly, the lowest unemployment rates within the focus period (2021 M3- 2021 M1) were in March 2020 in each country, when the crisis had just started and could not have a fast negative impact on unemployment yet. Unexpectedly, as the figure shows, Hungary constantly has the lowest unemployment rate, before and during the crisis. It is a remarkable result, because general expectations would put Austria to the best position, considering its Western-European relations, excellent positions of its employees in international job markets and the better standard of living in the country. The Hungarian government puts a huge

emphasis on keeping the unemployment rate constantly low. For example many kind of subsidies and tax allowances are available. In addition, Hungary applies the German „Kurzarbeit” crisis management system since 2020 so as to prevent the termination of employees and save jobs that are endangered by the pandemic. The paper explains job retention programmes and Kurzarbeit later, in Chapter 6. According to an article published by the Hungarian government on its official website Hungary had one of the lowest unemployment rates in Europe at the end of 2020. The government claims that is it partly due to the successful stimulus packages (particularly the job retention programmes), created in order to handle the damages caused by the COVID-19 pandemic. (Kormany.hu, 2020)

The rates started to increase as soon as the crisis burst out in March,2020. In Slovakia the highest rate was measured in August (7,3%), in Austria and Hungary unemployment peaked earlier, in June. (6,2% and 5%) (ILOSTAT, 2021c) The peaks were followed by downturns and increases in each country. We can observe that although the rates are changing due to the effects of the COVID-19 crisis, but the tendencies in the differences between the countries stay the same. Slovakia always has the highest unemployment rate, followed by Austria and than Hungary. As a conclusion, the virus has a significant impact on the unemployment rates, but it will not broaden the gap between the three countries.

6 JOB RETENTION PROGRAMMES

6.1 What do we call a job retention program?

"The unfolding COVID-19 crisis is challenging people, households and firms in unprecedented ways. Containing the pandemic and protecting people is the top priority. But disrupted supply chains, containment measures that are limiting economic and social interactions and falling demand put people's jobs and livelihoods at risk." (OECD, 2020b) In order to save their economies governments introduced so called „stimulus packages” all over the world. Job retention programmes are inevitable parts of these stimulus packages.

According to the definition of International Labour Organization "Fiscal stimulus programmes are defined in this context as additional government spending, income transfers or forgone revenue (tax cuts). The recipients of such transfers and tax cuts are households, workers and firms." (International Labour Organization, 2020a) Stimulus packages aim for instance to mitigate the fall in consumption by providing income support for workers. As a consequence, demand shortages are prevented in sectors where activity is allowed to continue or once closed sectors are re-opened. Governments also provide subsidies and other incentives to prevent further business closures. (International Labour Organization, 2020a)

Job retention programmes (or job retention schemes) are the most essential parts of stimulus packages since they enable governments to preserve jobs at firms that are experiencing a temporary reduction in business activity and to support the incomes of workers whose working hours are reduced. (International Labour Organization, 2020a)

6.2 New concepts in connection with losses in income and working hours

Job retention schemes can take two forms in general: short time work programmes and wage subsidy schemes. Short time work is often mentioned as temporary layoffs as well and is well known from the German term „Kurzarbeit” since the main concept is originated from Germany. Within short time work schemes employees' working hours are reduced and they are partly compensated by the state for their losses of income. It is a type of direct subsidy. An important regulation regarding companies that use the advantages of short times work subsidies is that employees cannot be dismissed during the subsidised period, they can only be temporarily layed off. This rule only refers to layoffs in connections with the crisis situation. Other layoffs based on additional conditions (such as bad behaviour, committing crime etc) are allowed. "A crucial aspect of all JRS is that employees keep their contracts with the firm even if their work is suspended. This allows firms to hold on to workers' talent and experience and

quickly ramp up operations once economic activity recovers." (International Labour Organization, 2020a) In case of wage subsidy schemes the state subsidises hours worked and can also top up the earnings of workers on reduced hours.

Job retention schemes already existed before, but they were only implied by the most developed economies. For instance Austria already had such schemes before, unlike Hungary and Slovakia. Encouraged by the global crisis caused by COVID-19 many countries introduced their own short time work or wage subsidy schemes, aiming to provide subsidies to firms to cover all or part of the cost of hours not worked. I would like to emphasize that the main problem is not only the lack of financial assets of firms due to the crisis, but the lack of work as well. The most common cause of loss in revenues is that many employees does not have a task to do because of the lockdown measures all over the world, therefore they cannot make any value added. In addition the huge decline of demand in several fields also contributed to great difficulties.

6.3 Job retention measures in Hungary, Austria and Slovakia

Every country has diverse conditions and is affected by the coronavirus crisis in various ways, consequently their job retention programmes are distinct (country-specific), although based on the same fundamental principles. In this sub-chapter I intend explain the main ideas of job retention schemes of Hungary, Austria and Slovakia.

6.3.1 The Hungarian short time work scheme

Hungary applies the form of „Kurzarbeit” or short time work programme that was introduced by the Hungarian government in March 2020. Some fundamental criteria are given for companies so that they are able to have this type of grant. First of all, the employer can employ workers with a reduced working time schedule, but cannot lay them off permanently. Secondly, the maximum length of the subsidy is 3 months, plus it can be extended with one additional month. During the subsidised three months the average number of contractual working hours must be at least 25% of the former amount, yet cannot be more than 85% of it. For example a full-time employee with a pre-coronavirus contract of 40 working hours a week need to work at least $160 \cdot 25\% = 40$ hours a month and is allowed to work maximum $160 \cdot 85\% = 136$ hours a month, if the company aims to take the opportunity of the Kurzarbeit grant. (PWC, 2020)

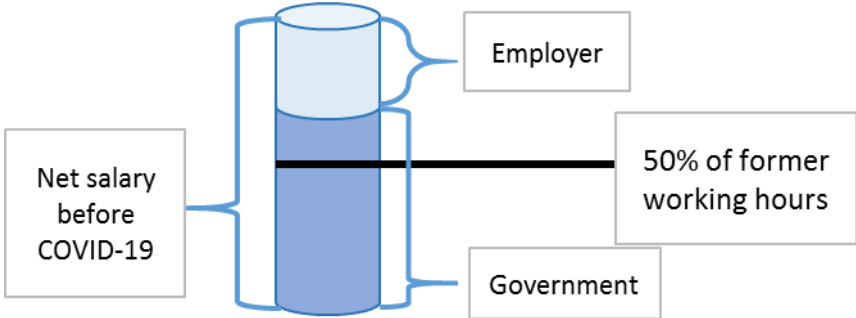
To make the understanding better, I set up self-made illustrations (Chart 18 and 19) about how much of the salary of an employees the state finances and what are the basic principles of achieving it. It is important to note that these illustrations and explanations are only frameworks.

In practice, various cases, versions and exceptions exist according to the attributions of the company.

The basic process depends on to what extent the number of contractual working hours of an employee is reduced. Two forms can be distinguished: the first is when the three-month-average working hours exceed 50% of the former amount of hours worked in a month. This scheme is illustrated on Chart 18. The other case is when the three-month-average working hours do not reach the 50% threshold (Chart 19).

In the first form the state finances the earnings of the employee according to his reduced working time. The employer is obligated to compensate the employee for his loss, in other words, supplement his salary up till the net income before COVID-19 emergency situation. For example let us suppose that an employee had his contractual working hours reduced from 40 hours a week to 30 hours a week due to loss of revenues caused by the lack of demand as a consequence of the COVID-19 pandemic. In this case the employee’s three-month average working hours would be 120 hours a month which is suitable for the cannot be more than 85% (136 hours) criteria. Furthermore, the remaining monthly working hours (120) exceed 50% of the former amount of working hours (160) The government takes over the responsibility to pay the salary after 120 hours a month and the employer is obligated to compensate the employee for the loss of 40 hours a month, by supplementing the amount of governmental grant until the former net salary.

Chart 18: Hungarian Kurzarbeit with compensation by the employer

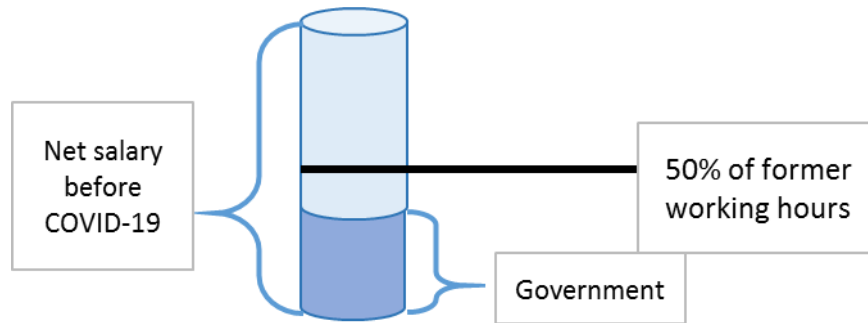


Source: Self-made chart (PWC, 2020)

In the second case when the three-month-average working hours do not reach the 50% threshold it is only the government’s responsibility to provide the earnings of an employee according to the reduced number of working hours. For example if an employee used to work 40 hours a week (160 hours a month) before the outbreak of coronavirus and this number is

restricted to 15 hours a week (37,5%, 60 hours a month), the state finances the salary paid for 60 hours a month. The employer can compensate his employee for his losses, but he is not obligated to do so.

Chart 19: Hungarian Kurzarbeit without compensation by the employer



Source: Self-made chart (PWC, 2020)

Some regulations are determined in connection with the maximum amount of subsidy as well. If the drop in working hours is less than 50% the maximum grant can be 70% of the former net salary. In case the reduction is between 50% and 75% the amount of subsidy is limited to 75 000 Hungarian forint per month. If the drop exceeds 75% of the former working hours the threshold is 112 418 Hungarian forint per month. (PWC, 2020)

6.3.2 Short time work scheme in Austria

The government of Austria introduced similar measures to Hungary, although they already had an existing short term work scheme before, so they only needed to adjust it to the current situation. This updated scheme is called corona-Kurzarbeit. Just like in Hungary, this type of subsidy can be claimed for a maximum of three months period. Contrary to the Hungarian rules, Austrian short time work support can be extended by 3 months (Hungary only allows one extra month). From 1st October 2020 it can be further extended over 6 months. (mondaq.com, 2020) During the subsidised months the average number of contractual working hours must be at least 10% of the former amount, but cannot be more than 90% of it. Working hours are flexible which means that the distribution of them are the decision of the employer as long as the monthly average is at least 10% of the pre-COVID-19 amount. (For example five eight-hour-long working days than three weeks off.) This kind of flexibility is advantageous for several reasons. For instance employers can reduce the number of people staying in the office at the same time at firms without home office opportunities. In addition there are some fields where the crisis created a lack of tasks to do, making it unnecessary to keep employees working. Regarding the maximum amount paid as subsidy by the government the limit is 5370

Euro a month. The Austrian state finances up to 80-85 or 90% of the former net income of the employee, depending on various aspect based on individual cases. (mondaq.com, 2020)

6.3.3 Job retention program in Slovakia

By contrast to Hungary and Austria, Slovakia applies a kind of wage subsidy scheme to protect their employees. The government pays 80% of employees's salary in case the employer have had to close its facility due to the COVID-19 pandemic. The maximum amount paid to one employer is 1100 EUR per employee altogether. (kinstellar.com, 2020) Contributions regarding other firms that were not closed, but had losses in their revenues depend on how much they were affected. The state determined a scale based on the percentage drop of revenues. If the drop is between 20% and 40% the contribution per employee is 180 Euro. Between 40% and 60% decrease in revenue companies can claim 300 Euro per employee. Between 60% and 80% it is 420 Euro and if the losses exceed a 80% drop, a firm can apply for 540 Euro per each employee. (kinstellar.com, 2020) The maximum that can be paid in this way is 200 000 Euro per employer per month and 800 000 Euro per employer in total. (kinstellar.com, 2020)

6.4 The total number of jobs supported by governmental measures

This chapter aims to summarize the share of local units that requested and actually used governmental support in order to be able to pay the earning of their employees. The data includes short time work schemes, temporary layoffs and wage subsidies as well. The data revealed represents stocks (total number of jobs benefiting from the measure) at the end of each month. (ILOSTAT, 2020a) Firstly, I would like to define local units "The local unit is an enterprise or part thereof (e.g. a workshop, factory, warehouse, office, mine or depot) situated in a geographically identified place. At or from this place economic activity is carried out for which - save for certain exceptions - one or more persons work (even if only part-time) for one and the same enterprise." (ILOSTAT, 2020a) Data is only available for the period between March and May 2020. According to the calculations of International Labour Organization, 27% of Austrian local units requested and used state grant in April 2020, followed by Slovakia with 17% and Hungary only with 0,8%. (ILOSTAT, 2020a) However, this data can be misleading since it does not cover every month properly. For example in Hungary the share is quite low in April because companies started to request and use subsidies in May and June. Taking the lack of data into consideration, I can only make observations instead of deductions: the Austrian government seems to spend more on subsidising local units than the Hungarian and the Slovakian.

7 CONCLUSION

The research aims to examine and illustrate wage and labour cost differences between three countries from the same region: Austria, Hungary, Slovakia. These countries have a similar land size and an approximately similar size of population, nevertheless Austria seems to be on the lead in case of various kind of indicators such as gross and net income and effectiveness of working hours. The emphasis of the study is on the measurement of quantitative and percentage share differences, as well as looking for explanations of the main driving forces of Austria's success.

The main methods used in this survey are descriptive analysis and comparison of data collected from statistical websites. After defining the research questions and describing the main concepts, the paper gives an overview about the number of employees in each country. In order to make it more comparable, instead of yearly data, an average of four years (2016-2019) is given, broken down by occupations. (Types of professions according to skill levels.) Subsequently, the share of employees of each occupation stage within the total number of employees in a country is also analysed. The most essential part of the survey is Chapter 4. In Chapter 4.1 mean annual gross and net earnings of a single person without children, earning 100% of the average are presented. The research divides comparison into two parts. The first shows the quantitative sums of the gross incomes next to each other on a column chart. The other tool of comparison, supporting the presentation of net income differences, is another column chart where an additional line is integrated on the top with the European Union average. The paper continues with the examination of the number of working hours actually worked by employees. A specific method used in this sub-chapter is taking Austria as a reference basis in case of mean weekly hours actually worked by employees. Austria represents 100% and the emphasis is on how much higher or lower is the quantity of weekly working hours in Hungary and Slovakia, according to occupations. Furthermore, while discovering the effects of COVID-19 on employees, some new ways of calculations are applied. While observing the COVID-19 impacts on working hours, the fourth quarter of 2019 is used as a reference basis so that the latest available data can be compared to it. Furthermore, a crucial statistical indicator, the chain-linked Laspreyes index is presented in Chapter 5.4 so that the possible changes in the labour costs can be observed properly. Another key issue that cannot be left out from a deep examination of incomes and labour costs is the unemployment rate which is analysed at the end of the COVID-19 related effects chapter. The end of the survey allows a little more insight to

the concepts and main requirements of job retention programs as parts of economic stimulus packages.

Based on the results originated from the previous aspects I intend to give the answers for my research questions. The first question is of the greatest importance: *How much income and labour cost differences can be indentified between Austria-Hungary and Slovakia?* Considering the mean gross earnings between 2016 and 2019, Austrian incomes are approximately three times higher than in Hungary and Slovakia separately, in each year, although a slight reduction can be observed in the difference during the years, mostly because the world economy was in a growth stage which contributed to the boost of the Hungarian and the Slovak economy. The investigation of net annual average earnings leads to similar results. Austrian net incomes do not show a significant change between the years of 2016 and 2020, as they are constantly extremely high. In addition, mean net yearly earnings of Austrian workers are even substantially above the European Union average. Surprisingly despite the fact that Slovakia has smaller size of population and a lower amount of employees, annual mean net earnings are permanently higher than in Hungary. Regarding the comparison of labour costs the second part of Chapter 4 revealed some interesting results. In the observed period (2019) Austrian labour costs per employees were 3,11 times higher than Hungarian, while 2,72 times higher than Slovakian. Slovakian labour costs per employees were 1,26 times as many as in Hungary in 2019. Not surprisingly, managers turned out to be the most „expensive” employee category in each country. On the basis of the shares of gross earning in the labour costs I estimated the average gross hourly earnings between the period 2016 and 2019 (\$19,10 in Austria, \$7,79 in Slovakia and \$5,94 in Hungary). All aspects support the expectation that Austrian incomes and labour costs are significantly higher than the other two’s. On the other hand, the findings about Slovakia are quite remarkable, since the country is leading to Hungary in most categories

The second research question is oriented towards investigating *the possible effects of the COVID-19 pandemic on employees and labour costs*. In case of working hours surprisingly Austria is hit the most. Even more unexpectedly, managers’ working hours are hit the hardest among Austrian employees. Slovakia also experienced big losses in working hours in the first two quarters of 2020. While looking the effects of COVID-19 on earnings, I learned that wages in Hungary are still on the rise, but with a moderate degree, not as much as it used to be before COVID-19. Slovakia seems to be in a stagnation, but still does not experience a slump in earnings. These results can be explained as the consequences of job retention programmes of the countries. (Income related data about how much Austrian earning are effected is not

available yet.) Furthermore, the results of the analysis of absences from work by reason show a great increase in the second quarter of 2020 in the number of employees that were temporarily laid off in Austria and Slovakia. It can be related to the job retention measures. In Chapter 5.4 the chain-linked Laspreyes index establishes the stagnation of the growth of labour costs as a consequence of the COVID-19 crisis. Not surprisingly, increases in the unemployment rates proved the negative economic effects of the virus as well.

Finally, I aimed to investigate which countries are hit the most by the crisis caused by the COVID-19 pandemic and if the crisis will broaden the gap between the three countries. Due to the lack of available data about the changes in the growth rates of gross wages in Austria, no obvious statement can be established concerning the gap between the countries. In case of the average number of weekly working hours actually worked by an employee Austria experienced the most severe losses within the first three quarters of 2020. Consequently, the loss of working hours will not broaden the gap between the three countries, since Austria does not show better results than the other two. The results of the investigation of absences from work by reason underline that Austria is hit by the highest number and share of temporary layoffs, therefore, this factor will not broaden the gap between the three countries either. Furthermore, the COVID-19 crisis lead to some changes in the labour costs, but it effected the three countries approximately equally. The results support the idea that the labour cost changes caused by the COVID-19 pandemic will not broaden the gap between Austria, Hungary and Slovakia. Regarding the unemployment rate, we can observe that the rates are changing due to the effects of the virus, but the tendencies in the differences between the countries stay the same. Slovakia always has the highest unemployment rate, followed by Austria and than Hungary. As a consequence, COVID-19 has a significant impact on the unemployment rates, but it will not broaden the gap between the three countries. In conclusion, the results of Chapter 5 do not show any relationship between the economic effects of COVID-19 and the possible widening of the already existing huge gap between Austria and the other two countries. More accurate examination of the possible correlations could be carried out in the extension of the study.

To sum up, as main findings I would appoint the followings. In Austria, both gross and net yearly average earnings are approximately three times higher than in Hungary, furthermore, Slovakia has half of the size of population and the number of employees of Hungary and is still able to present higher levels of net incomes on average between 2016 and 2019. Hungary and Slovakia tend to keep up the wage levels of their employees mainly with governmental support (financial and strategic), while Austria already has a stable economic system that enables incomes to be constantly high. The observation of the number of working hours explained that

earnings and working hours are not linearly proportional, meaning that spending more time at work does not necessarily mean having higher incomes. In addition, Austrian employees work less than Hungarians and Slovaks, in case of weekly averages. According to this study, the key factors of higher incomes are a good share of highly skilled labour force, access to latest technologies and work efficiency. In case of incomes, a huge gap seems to appear between Austria and its neighbours, Slovakia and Hungary, although this gap can be narrowed if Hungary and Slovakia are willing to take further steps for their development, such as implying similar tools and strategic frameworks as Austria.

To extend this study of comparison, the research could be supplemented by additional research topics in the future. For instance spendings and savings of employees in comparison with net earnings and also compared to the other countries of the study. Moreover, calculating the cost of labour in each country would provide an interesting approach as well. Fresh available data about the effects of COVID-19 on incomes could also be added, including how much money governments spent on solving the income related issues of the current economic crisis.

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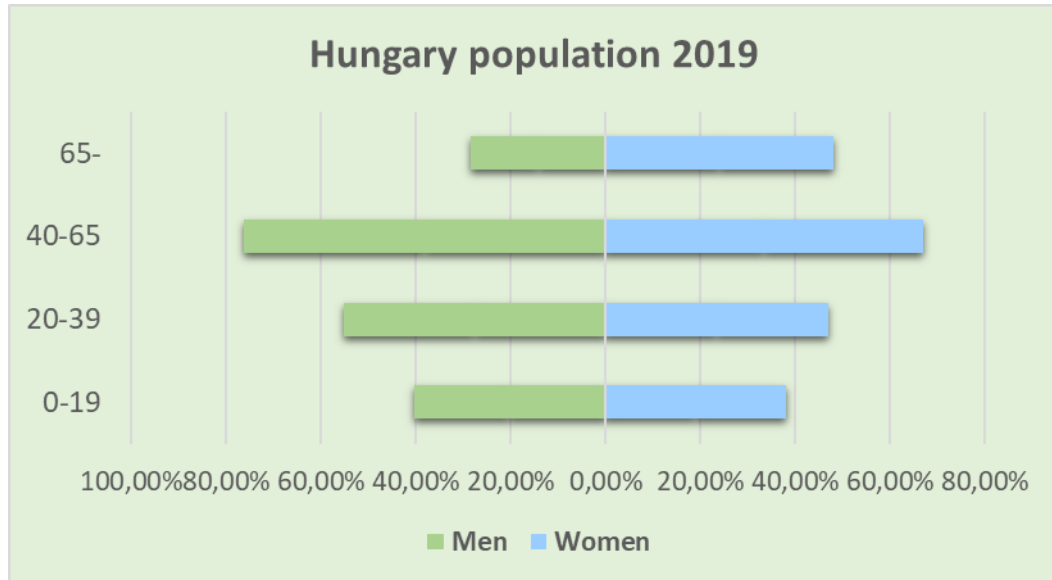
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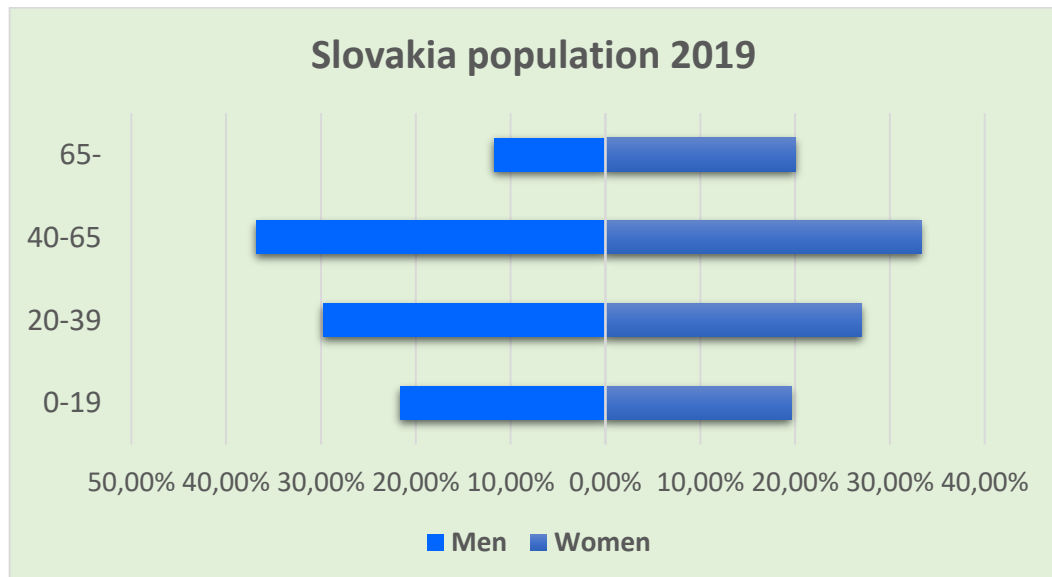
9 APPENDIX

Appendix chart 1: Age pyramid of Hungary, 2019



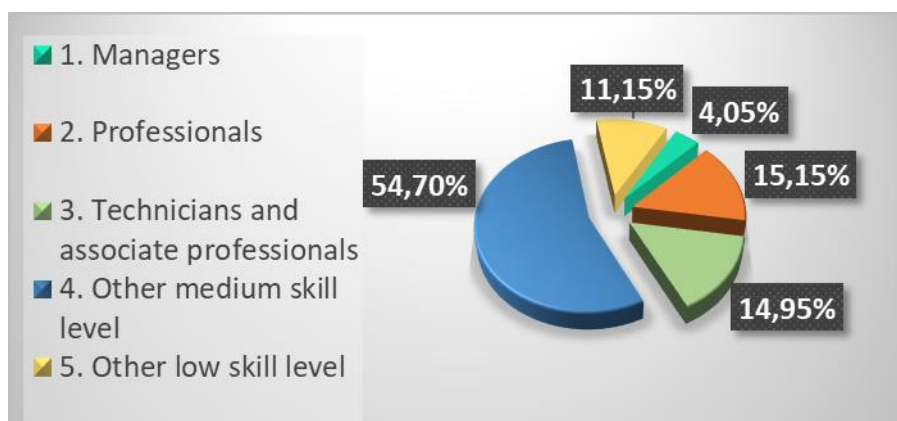
Source: Self-made chart (Eurostat, 2020d)

Appendix chart 2: Age pyramid of Slovakia, 2019



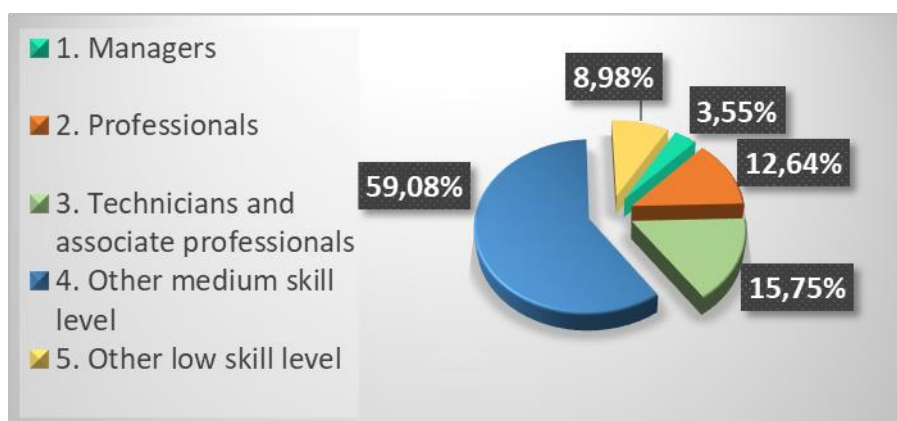
Source: Self-made chart (Eurostat, 2020d)

Appendix chart 3: Share of average number of employees by occupation in Hungary (%), 2016-2019



Source: Self-made chart (ILOSTAT, 2020c)

Appendix chart 4: Share of average number of employees by occupation in Slovakia (%), 2016-2019



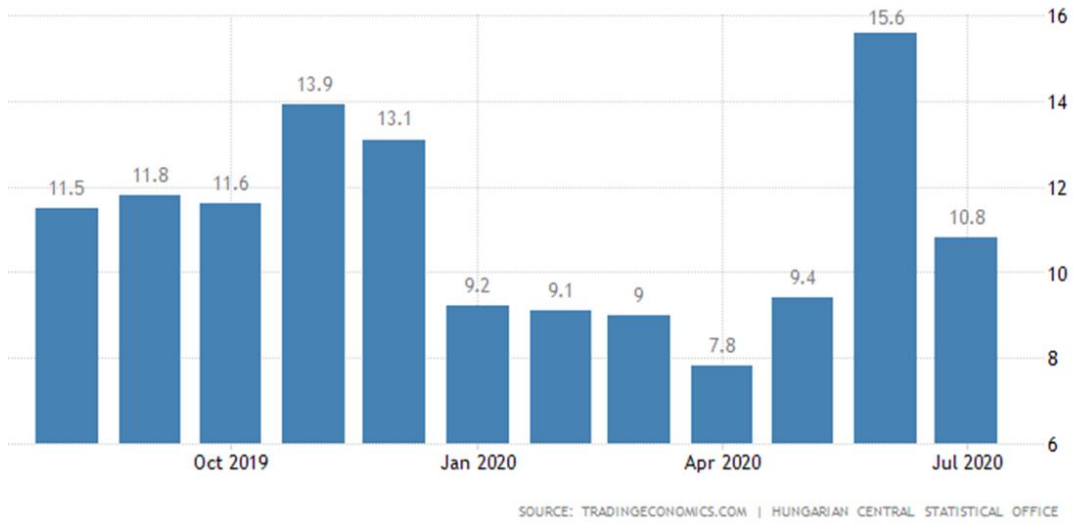
Source: Self-made chart (ILOSTAT, 2020c)

Appendix chart 5: Gross earnings of a single person earning 100% of the average, 2016-2019



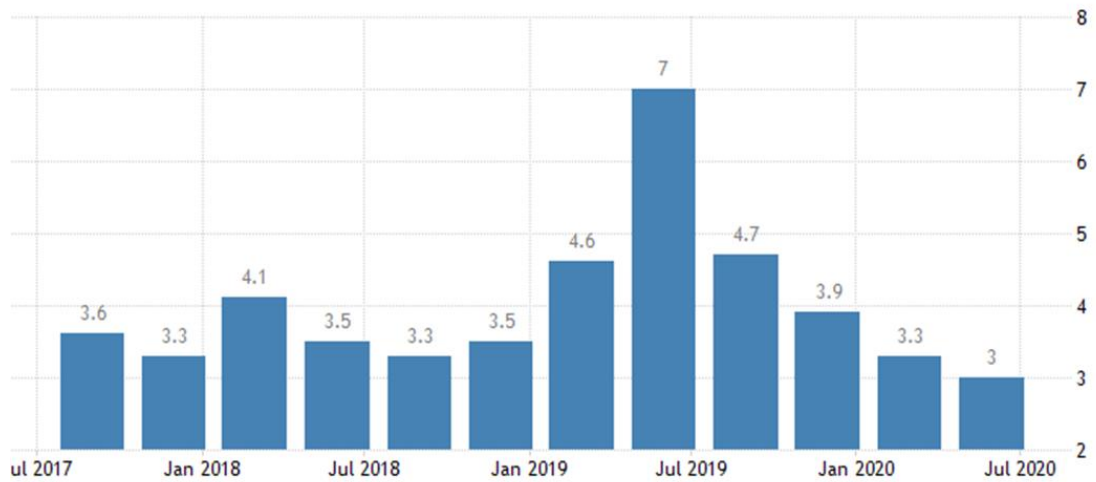
Source 1: Self-made chart (Eurostat, 2020b)

Appendix chart 6: Gross average wage growth, Hungary, 2020



Source: (Tradingeconomics, 2020)

Appendix chart 7: Gross average wage growth, Slovakia, 2020



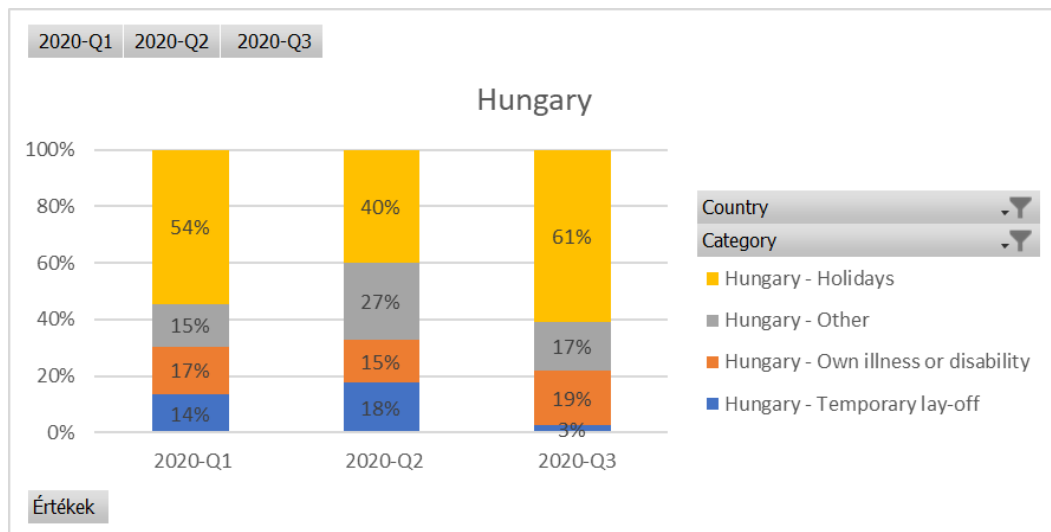
Source: (Tradingeconomics, 2020)

Appendix chart 8: Loss of working hours of employees in Slovakia, 2020



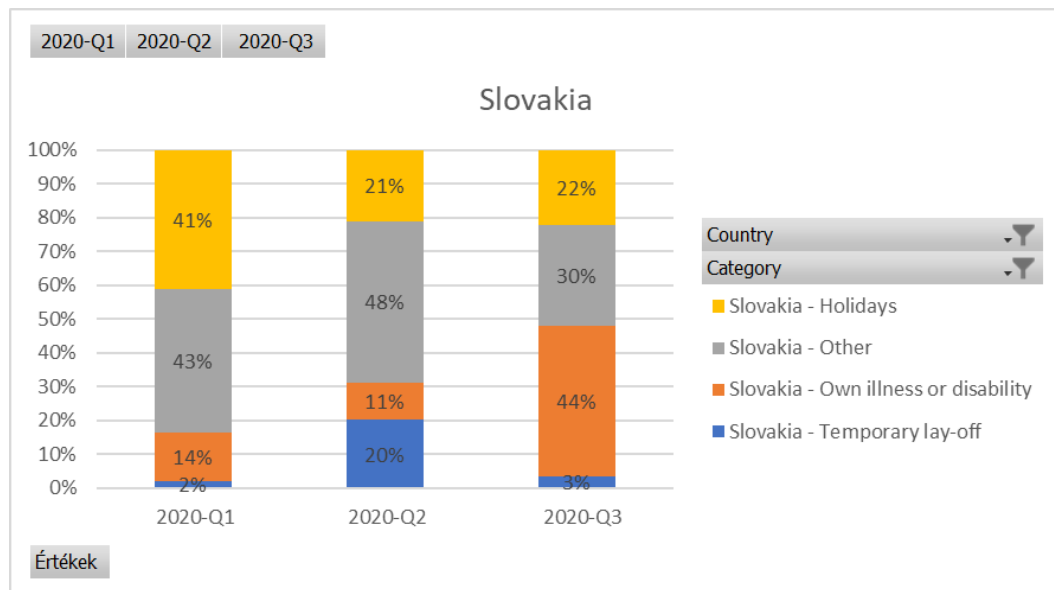
Source: Self-made chart (ILOSTAT, 2020e)

Appendix chart 9: Absences from work by reason, Hungary, 2020 Q1-Q3



Source: Self-made chart (Eurostat, 2020c)

Appendix chart 10: Absences by reason Slovakia, 2020 Q1-Q3



Source: Self-made chart (Eurostat, 2020c)

Appendix table 1: Share of average number of employees by occupation (%), 2016-2019

Occupation	Austria	Hungary	Slovakia
1. Managers	4,52%	4,05%	3,55%
2. Professionals	18,01%	15,15%	12,64%
3. Technicians and associate professionals	18,67%	14,95%	15,75%
4. Other medium skill level	49,74%	54,70%	59,08%
5. Other low skill level	9,06%	11,15%	8,98%
	Austria	Hungary	Slovakia
Total average number of employees 2016-2019	3 749,48	3 952,13	2 146,48

Source: Self-made chart (ILOSTAT, 2020c)

Appendix table 2: Change in annual net earnings (%), 2016-2019

Change in annual net earnings Single person earning 100% of the average				
	2016	2017	2018	2019
Austria		1,57%	1,79%	2,19%
Hungary		12,40%	7,02%	5,94%
Slovakia		5,51%	5,41%	6,84%
EU28 average		0,76%	2,48%	3,20%

Source: Self-made table (Eurostat, 2020b)

Appendix table 3: Mean nominal hourly labour cost per employee, 2016-2019

Mean nominal hourly labour cost per employees -annual				
Összeg / Value	Country			
Year	Austria	Hungary	Slovakia	
2016	\$36	\$9	\$11	
2017	\$37	\$10	\$12	
2018	\$40	\$11	\$14	
2019	\$39	\$11	\$14	

Source: (ILOSTAT, 2021a)

Appendix table 4: Estimated average gross hourly earning per employees-annual

Estimated average gross hourly earning per employees -annual			
	Austria	Hungary	Slovakia
2016	\$18,10	\$5,11	\$6,86
2017	\$18,70	\$5,75	\$7,47
2018	\$20,06	\$6,40	\$8,32
2019	\$19,56	\$6,52	\$8,50
2016-2019 Average	\$19,10	\$5,94	\$7,79

Source : Self-made table (ILOSTAT, 2021a) (ILOSTAT, 2021b)