INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES

Vol 12, Issue 10, (2022) E-ISSN: 2222-6990

Determinants of Unemployment - Empirical Evidence from Commonwealth of Independent States

Vaidean Viorela Ligia, Stavila Daria

Faculty of Economics and Business Administration "Babeș-Bolyai" University Cluj-Napoca Romania

Email: viorela.vaidean@econ.ubbcluj.ro, stavila.dariaa@gmail.com

To Link this Article: http://dx.doi.org/10.6007/IJARBSS/v12-i10/14948 DOI:10.6007/IJARBSS/v12-i10/14948

Published Date: *10* October 2022

Abstract

The purpose of this study is to make an overview of the unemployment situation in the Commonwealth of Independent Countries, realizing an analysis of the implemented policies, of the macroeconomic factors influencing its trends in the last 20 years, using specialized theories and research papers. This study uses simple and multiple regression analysis of a balanced panel data set to validate the relationship between unemployment and numerous factors of interest. Findings are robust, considering multiple testing on various axis, such as changing the dependent variable unemployment with a similar proxy and adding other control variables. Our results help the assessment of the general degree and relationship between various factors, shaping the evolution of unemployment, which might be useful for policymakers as well as for regular individuals, who want to understand better why unemployment is sharp in this area. Still, the analysed relationships cannot sufficiently help improving the great problem posed by unemployment in these countries, as there are multiple nuances, micro- and macro-economic factors that make the overall state of the economy very unstable, hence difficult to predict, leaving avenue for future research directions of ours.

Keywords: Unemployment, Commonwealth Of Independent Countries, Economic Prosperity, Developing Countries, Panel Data

Introduction

An effective indicator of how a state can improve its economic condition is the way it uses its available, limited resources, including labor. Maintaining permanent employment is one of the priorities and objectives of the economic policies. Unemployment is a macroeconomic imbalance that is rising in the Commonwealth of Independent States (CIS) if compared with the European average. The labor market is the economic sphere in which labor demand and labor supply meet.

The main reasons for global unemployment, and especially those that characterize working conditions in the former Soviet countries, are the technological boom, new technologies that have reduced labor demand, making some professions almost extinct, the macro and microeconomic environment of the country, sub-sectoral contractions, and crises, which significantly unbalance the economy. Government policies, such as the minimum wage and the effectiveness of social security policies, seasonality in some areas of work (construction, agriculture, tourism), which are in fact one of the main drivers of activity in CIS countries, have also an indisputable influence on the evolution of regional and global unemployment.

In the ex-Soviet countries, the change of the economic vector happened unexpectedly, as the workers in those countries were less flexible in changing jobs, due to a long period of time spent in a regime in which the state decided for the individuals where and what activity to carry out. Thus, our study has as objectives:

- to identify the determinants of the unemployment rate in the 11 CIS countries, during the period 2000-2020;
- to draw policy implications for the validated determinants, peculiar to this area.

Our motivation in this subject is explained by the desire to uncover the essence of the unemployment phenomena in the emerging countries, this being a sharp problem nowadays, which leads to such negative consequences as poverty, political instability, social problems. The goal of this paper is to determine what stays behind unemployment. The way to discovery will be formed by using simple and multiple regression analysis of a balanced panel database. It's our firm belief that the obtained results in this research are original considering the existing literature in the field, which adds a new impact on the understanding of the unemployment phenomena in this part of the world.

The remainder of this paper is structured as follows: the literature review, the explanation of the data and methodology used by this study, the results obtained and their interpretation, ending with conclusions, limitations of the study and future research directions.

Literature Review

As a theoretical background for our research, we were inspired by the tremendous work of Dobronogov (2003), who gave a detailed perspective on the quality of implemented social security policies in ex-soviet countries, as poverty correcting mechanisms, assessing the factors that tangled the economic development of these countries, such as wide-spread corruption, inequality, share of rural population, inefficient level of real formal wage. His analysis of unemployment assistance and workfare programs showed that there is a sharp necessity for the replacement of the existing policies to adapt to the necessities of fast changing economy. Dugarova at the Symposium on Social Protection Systems (2016), confirmed the conclusions of Dobronogov, determining the main problem of the actual unemployment programs, which are low quality and productivity, and emphasized the necessity to adapt to particularities of each country, getting rid of the centralization and the scraps of the soviet imposed mentality. The issue, which is of wide interest for researchers of CIS countries is the poverty, Anna Kukharuk et al (2017) is the pioneer in assessing the competitiveness level of these countries, as an integration tool in market economy, using the

function of the ease of doing business rank and stability of macroeconomic environment. This work confirmed that CIS countries are coping with the economic instability in quite different ways and have achieved different results, depending on the vector of their activity after dissolution of USSR. These consequences are mentioned in the work of Simai (2006), as well as the encountered problems during the transition process, one of the most serious being the change of regime, employment insecurity and new social structures. He determined the main causes of poverty in this area: decline of output, hyperinflation, unemployment. There was conducted also an analysis of the consequences of the transition process, such as persistent structural unemployment, the growing inequality, the eroded social security systems after the fall of USSR, being concluded that yearly registered economic growth is too low to compensate for the occurred losses during ’90 and that the main reason of high level of unemployment of women and youth is the highly misogynistic society. For the last outcome were used gender income differentials.

The relational problem between output and unemployment have risen a lot of question during the last years, the most accurate explanation being given by the Okun law, and its specific application to CIS countries’ situation. Ibragimov et al (2013), using two-stage least-squares developed a method of applying the adapted Okun law to explain the situation of post-soviet countries, excluding the main issue of this model: exogeneity of regressors, assessing also that output growth rate is too sensitive to business cycle periods and cannot be explained using as main factor the unemployment rate. Izyumov et al (2002), analysing the presence of Okun law in CIS countries, came to the result that it can be applied only in case of economic reform leaders. Hence, one of the most important factors in the transition process is normalizing the unemployment rate. Pavlova et al (2005) conducted a comparison between the unemployment rate in Central and Eastern Europe and CIS countries and confirmed that the last ones experience a slower evolution, listing the main problems of the unemployment security system (under unemployment, unofficial employment). Hansen et al (1992) considered in their research the evolution of labour market of CIS countries, from the perspective of the labour ministries governance, taking into consideration also political aspects in the process of normalizing the economy, for example the armed conflicts in Azerbaijan, Armenia, Georgia, and Tajikistan. Also, there was assessed that economic structure of a country impacts substantially the way it deals with critical economic situations. Kazakhstan and Azerbaijan had an easier way in passing to a market economy, since they are rich in oil and gas.

A factor, which undoubtedly should be mentioned when speaking about the way of dealing with unemployment is the level of unemployment is education, an aspect in depth analysed in the book of Gupta et al (2016), which determined the importance of the improvements of the quality of the education in decreasing the unemployment level. The consequences on the social life and specifically on the patterns of the behaviour of the unemployed were revealed in the work of (Engerbersen, 2019). The cultural influences on the influences are also discussed in the research paper of Grosso (2011), who estimated a strong positive relationship between the power distance and unemployment rate and concluded that social side of unemployment is meaningfully explained by the cultural dimensions and connected variables such as poverty, crime, and political instability. This research is a follow up of the first exploration of the influence of culture on economy conducted by Yang and Lesterb (2000), who used the Hofstede questionnaire to assess the macrosocial variables in

different countries as well as employment protection, replacement, union coverage index etc. to provide an empirical conclusion that cultural dimensions significantly increase the prediction power in unemployment analysis.

Unemployment: Theoretical Approach

To further try to explain the reasons behind the massive unemployment in CIS countries, we are going to mention, develop and exemplify the primary concepts, that are positioned at the basis of this phenomenon.

For a long time, it is considered and confirmed by brilliant minds as Friedman, Phelps, Hayek that natural employment persists and is healthy for the economy. It is the difference between those who require a job at the current income and those who have the desire and can do so. The positive sides of unemployment are the natural movement of the workers between the work cycles; the incentive of workers experiences a boost in times of a relative constant feeling of job preservation and worry of becoming unemployed becomes a catalyser for increasing motivation to undertake a job. Unemployment can be seen as an important tool in the economy, representing spare labour force. Full employment determines the issue of changing the new jobs, and the economic growth will decline. Cognitively, a steady level of unemployment increases the labour discipline, as for people the risk of losing the job acts as a stimulus.

Unemployment beyond healthy limits leads to other great problems, which might need also more serios solutions: reduction in the living standards of the population and life quality, meaning a shrinkage of the lifespan, inaccessibility of education, lack of possibility to fulfil working potential, reduced access to qualitative products and services, including medicine, increasing isolation of some segments of the society. Another negative side is the loss of professional skills and abilities, which might result in even deeper difficulties of employment. Psychological traumas as alcoholism, drug addiction, suicides, increased crime rates are also consequences of unemployment which are very difficult to remediate. So, to summarize: the high level of unemployment drops in times when there is an increase of the economic power of the society, which becomes a catalyst of: the decreased volume of GNP; drop in the consumer demand; contraction in savings; impediments in the financing decisions; cutback in funding and in construction of goods; failure of skill eligibility of the discharged workers; regular drop in labor efficiency.

Increased level of unemployment leads inevitably to poverty. It sets confines to the economic development, as poverty does not attract loans and investments, decreases the quality of human resources, promoting migration and making the settlement of truly effective social security policies difficult.

The unemployment rate is computed by using the following percentage ratio:

$$Unemployment\ rate = \frac{Unemployed\ persons}{Economically\ active\ population} * 100$$

Unemployment in CIS: General Patterns

When speaking about unemployment most of the available job positions are in the service industry. This suggests that agriculture and traditional industrial production are no longer the main sectors of the economy. Approximately 60% of the workforce moves to the service sector, which creates a lot of competition, and the agricultural industry becomes understaffed.

For example, in Kazakhstan, industry specialization is developed mostly in the southern regions of the state, so the state creates jobs for the development of industry specialization in the north.

Unstable unemployment is also characteristic of single-industry towns. Due to the depletion of reserves of raw materials and solid minerals, as well as the development of automation, the interest in more labor is cut down, which has as consequence unemployment and a lack of jobs.

In the countries of the post-Soviet space, most of the vacancies are inherent in the male gender, due to the large amount of hard work. The labor market is not divided into demographic, sectoral and regional areas. Often, the specialties in which women can work are less competitive and low paid. Looking at statistics, we can determine that the only country from CIS, where the unemployment level is higher for men, is Belarus.

If speaking particularly, then the leader as for measures implemented by the government and the followed results is Kazakhstan, where the unemployment rate is decreasing steadily in the last years because of the active policies of promoting job centers and opening them everywhere. Uzbekistan on the other hand has the highest level of youth unemployment, country struggling with the creation of programs that might create new jobs and opportunities for young people. The detailed unemployment rates can be observed in Figure 1.

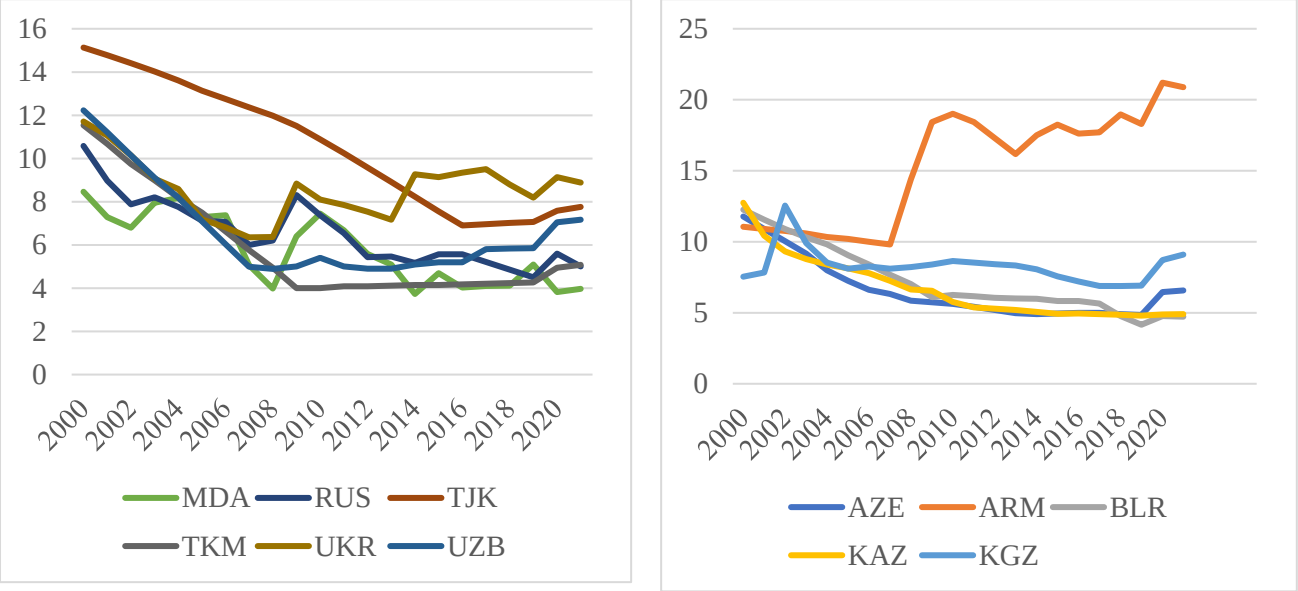

Figure 1: Unemployment rate in CIS as % of total labor force in 2000-2021; Source: World Bank Database, authors' processing in Excel

Factors Affecting Unemployment

In the following subchapters will be analysed the factors which are highly correlated with the unemployment phenomenon, which might cause and as well be caused by it.

Demographics and Unemployment

Demographic indicators are those indicators that are characterizing the state and qualitative composition of the population (birth rate, mortality, natural increase, fertility, etc.). Birth rate is the number of births per year respectively mortality is the number of deaths per year. The following indicators might also have a great influence on the unemployment evolution in a particular country: natural population, mechanical population growth (the difference between the number of immigrants and emigrants), sex, age, total fertility rate.

In Figure 2, there is presented the evolution of birth rate in CIS countries, where can be observed a sharp decrease during 90', due to the reconstruction and higher level of poverty. The average index in this area is 2.25, which is much higher than the average of European Union 1.5. So, does higher level of birth rate and poverty mean a substantial growth in unemployment? There are different studies focused on this topic, but almost all concluded that there persists a negative match between unemployment and fertility.

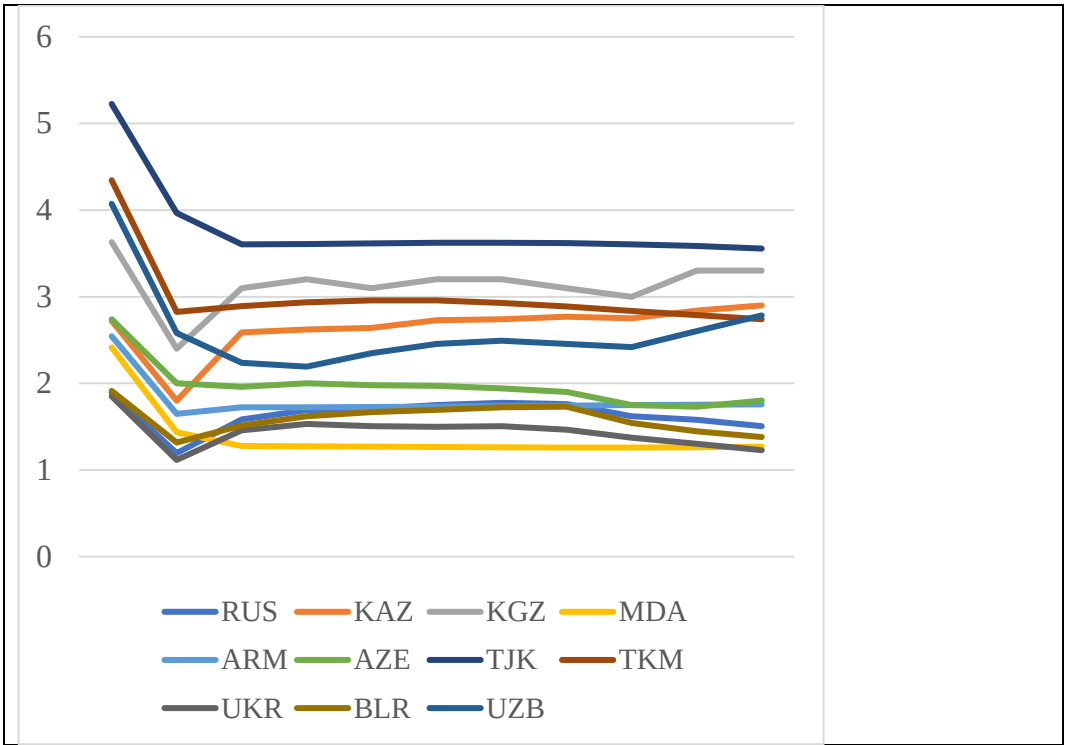

Figure 2: Birth rate in CIS in 2000-2021; Source: World Bank Database, authors' processing in Excel

As for mortality, the relationship with unemployment is even more indisputable. Timothy and Halliday (2014) concluded in their research that 1 percent increase of unemployment rate has as result a risen risk of death of 6 percent in one year. To do a quick check, what is the influence of unemployment on mortality. I compared two countries: one with lowest unemployment rate (Myanmar – 0.05%) and one with the highest (South Africa – 29.2%) and their mortality rates which are 8.4 and respectively 9.4 per 1,000 people, so the

difference is insignificant, and there cannot be made judgements based only on mortality rate.

As for connection between unemployment rate and gender there are still lots of debates. Regardless of the eminent improvements realized in the past 20 years, International Labor Organization data reveal constant injustice among women and men in labor market access, unemployment rates and working conditions. Laureova and Terrell gave a comprehensive overview of the women's position in times of economic recovery through an article which provides a great synopsis of the evolution of the gender differences in unemployment. Before the fall of USSR, soviet women had the highest labour participation rate in the world, but things quite changed in a short period of time. The decline in labour participation is more visible among women in older age groups, and those who have more children.

Age also is an important factor in assesing the unemployment. It is known that the highest levels of registered unemployment are the youth's one. The current labor market is plagued by issues such as growing young unemployment and low-quality youth employment. Hundreds of millions of young people are employed but yet live in poverty; the number of unemployed youngsters aged 15 to 24 has gradually increased over the last decade. Young people now make up half of the unemployed worldwide. The youth category is followed by 55-64 years old individuals, whose employment rate according to the OECD database was of approximately 60% from 2017 to 2020, compared to an approximate rate of 30% of youth labour participation.

Unemployment and Economic Growth

Economic growth alone cannot be seen as the main reason of a qualitative and quantitative raise of jobs, notably for the underprivileged, vulnerable part of the population. Rather, it is a precondition for an increase in the production, which might lead as a result to a boost in the demand of labour. As a result, the rate of economic growth sets a maximum value that can be attained by labour distribution's efficiency. The structure or nature of growth has also a significant importance. Economic growth influences the productive employment, which depends not only on its development and rhythm, but also on how effectively it is translated into the creation of jobs. Quantitative value of employment is not of great use alone, it should come along with productivity and the minimum wage that an employee can earn. The question if economic growth increases the employment rate has of concern of lots of scholars and Okun law has often been used as an instrument of projections and economic implications of employment policies. "A one-point increase in the cyclical unemployment rate is related with two percentage points of negative growth in real GDP," according to Okun's law. For transition economies, considering the Izyumov and Vahaly work, the relationship is the following: "Each additional percentage point in the unemployment rate above 4% has been linked to a three percent decline in real GDP." This connection was deemed unstable by them, fact which was confirmed by the Ibragimov et al, as Okun's law being not appropriate to apply to CIS countries specificity, as their economy is highly characterized by cyclicity.

A commonly used coefficient in assesing the economic differences across countries in Gini coefficient. It is ratio which measures the uneven distribution of income in a country, used in countries with developed market economies. It denotes the divergence from absolute

equality in the real distribution of income among individuals or families in a given country. Absolute equality is represented by a value of 0, and absolute inequality is represented by a value of 1. The level of annual income is usually taken as base for this indicator, but other criteria (property, real estate, etc.) can be also used. If the value is close to 1, this means that the greatest part of the income is available to a smaller part of the citizens and vice versa, if it is close to 0 this would mean that the total income is almost equally distributed. According to the World Bank statistics, Belarus (25.3%), Moldova (25.7%), Azerbaijan(26.6%) and Ukraine (26.6%) have one of lowest Gini coefficients in the world in 2022.

The GDP indicator is increasingly used by the governments of the CIS countries not only to analyze economic development, but also as a guideline in the formation of appropriate policies. For example, data on GDP are used to develop the draft state budget of countries, forecasting economic growth rates. In this regard, the ratio of GDP and the deficit (surplus) of the state budget, as well as the country's debt, is of great importance. Quarterly GDP estimates are used by national governments to take into account changes in economic conditions during the year. Government bodies that make decisions on economic and social policy issues are increasingly using indicators such as the share in GDP of national spending on education, health care, science, defense, and environmental protection. GDP indicators by regions, calculated in Russia and in a number of other CIS countries, are used to analyze the regional economy and to formulate the policy of interbudgetary relations. The results of international comparisons of GDP are used to study the relative levels of economic development of countries and determine their place in the regional and world economy, which is important in the context of making appropriate political decisions. Representatives of business circles, international organizations, science, mass media, CIS bodies (for example, its Executive Committee) are showing more and more interest in GDP statistics. The latter make decisions on deepening economic integration and coordinating economic policy.

Inflation and unemployment are usual partipants of a market economy, stepping hand in hand, having unimaginable socio-economic drawbacks for countries in which these processes take place. If discussing particularly about the unemployment, it is known that it can take a long period to lower the level of unemployment at high prices that can have an even more disastrous effect on the overall state of the economy than unemployment i.e., hyperinflation. The effects of unemployment can have very severe consequences, such as a decrease in income and purchasing power, an inability to improve their housing condition or living conditions, and increased requirements for patency in the vacancy competition, all of which involve a great deal of mental and sometimes even physical issues. This is only a surface-level analysis of the effects of rising unemployment, to put it another way. When it comes to inflation, the end consequence is an increase in overall pricing. (Inflation has a disastrous impact on many nations that are still in the process of establishing their economies. People literally become impoverished in a matter of hours, sometimes losing the few that have been accumulated over the years. The consequences of this situation are also difficult to predict, and some of them are as follows: the shortfall increases, production is completely muddled, the population's deposits exhaust. The most severe consequences are typically experienced by the weakest parts of the community. However, inflation, in the words of scientists and economists, "has been around since the very beginning of the market economy itself." It should also be noted that when economists address the two issues that were

brought up earlier, the topic of inflation continuously crosses with the topic of unemployment, and vice versa.

Migration, Minimum Wage, and Unemployment

Migration acts as an active instrument of labor market regulation on federal as well as on regional levels. Flows and directions of migration do not affect only the change in the working-age population, but also its demand through increased investment and the inflow of immigrants that increase competition in labor markets. The impact of the phenomenon of unemployment on the scale and nature of migration processes is diverse. The level and structure of unemployment, the capacity of the regional labor market has an impact primarily on the flows of permanent migration, leading to to a change of residence and territorial shifts in the distribution of labor resources. In addition, territorial disproportions in the demand for labor stimulate temporary external and internal labor migration. These types of migration have an indirect impact on shifts in population distribution. Steady from year to year, the flows of labor migrants through some time lead to the fact that part of labor migrants adapt to the new industrial and social environment and decide to move to a new place of residence. The economic crisis in Russia at the end of the last century led to a sharp deterioration in the situation on the labor market, an increase in unemployment and impoverishment of the population. The scale of unemployment reached its maximum in the late 1990s, amounting to more than 8 million people, in 1998 - about 9 million people, and in 1999 - about 9.5 million people, or 11.8%, 13.3 and 13% of EAN, respectively. As a result of economic growth, in the 2000s, unemployment gradually decreased and in 2012 amounted to 4.1 million people, or 5.5% of economically active population considering the data gathered during the research done by Topilin & Vorobyeva. Such dynamics of unemployment in the period from the late 1990s and in subsequent years was one of the factors that influenced migration processes and redistribution of labor resources throughout the country.

In the 1980s migration growth of the population of Russia (net migration) was about 150 thousand people per year: 880 thousand people arrived, and 730 thousand people left. The closeness of the country from the outside world had as result a restricted circulation of people between countries and - 99% of the migration, movement of people were carried out between the union republics. Immigration from the Soviet Union was happening very rarely in exclusive situations, with a maximum of several hundred of individuals yearly. Citizens usually migrated between the former republics of USSR more often from Ukraine, Kazakhstan, Belarus, and Uzbekistan. The fall of the USSR lead to the possibility of traveling outside its borders, so the movement of migration intensified. For the decade 1990-2000. in the CIS, there was a rapid curtailment of migration: the number of migrants decreased by more than 4 times. In 1989, the total amount of migration between the CIS countries, determined by the registration of arrivals, amounted to 2 million people. The number of immigrants was significantly more than that, as an additional 1.6 million persons migrated to an unspecified location in the year 1989. The majority of those involved are members of the armed forces and inmates, the routes of which were kept secret at the time. In 1990-1992 the movement of the population between the CIS countries was kept approximately in the same framework as in the late 80s. The "division" of the army, the panic repatriation that occurred immediately following the dissolution of the USSR, and the initial flows of Armenian refugees were the primary factors that had a significant role in sustaining the parameters of migration at that time. After 1992, the volume of interstate migration in the CIS has been steadily declining and

in 2000 amounted to only 480 thousand people, which is only a quarter of the 1989 level, and after adjusting for the special contingent, the migration decline seems to have been fivefold.

The minimum wage is a factor that acts as a factor which acts as an accelerator of the dynamics of migration and accordingly the unemployment rate. The state's adoption of the minimum wage as a means of providing assistance to workers with low incomes is the motor that drives the fight against social inequality. However, this does not always work because there is the notion that the minimum wage increases unemployment, particularly among employees with low levels of skills, and adds to the "leakage" of workers from the legal labor market, which in turn contributes to the expansion of informal employment. The minimum wage is an institution of the labor market that is the minimum allowable price for the work of an employee. It is introduced to smooth out income inequality among workers, who are typically low-skilled and whose work is valued quite low in the labor market. Additionally, low-productive workers are typically covered under this institution.

There are countries that have a single national minimum wage for all (OECD countries, developing countries); there are countries where regions have the right to set their own minimum wages depending on the climatic, economic, and other conditions of the regions (Russia, USA); and there are countries that do not have a unified national minimum wage, and in each region it is set separately. The mechanism by which the minimum wage is formed differs depending on the country: there are countries that have a single national minimum wage for all (OECD countries (Japan). In addition, the determination of the minimum wage can be delegated, depending on the nation, either to the legislative or the executive branch, along with the participation of labor unions, professional groups, and advisory committees (Kobzar, 2009). Increased underemployment in developing countries in the 1980s and 1990s led to increased attention to the inflexibility of labour markets, for example, in the form of minimum wage legislation. Such attention to regulation of the labour market was the result of a clear failure of inspired Keynesian policies to solve the problem of unemployment. To keep competitiveness in the global market, governments are taking steps to deregulate their labour markets in many developing countries. The conventional economic model predicts a falling employment rate in the presence of exogenous wage growth. When the minimum wage is increased, the number of people looking for work also increases. So, there’s a negative relationship between these two variables, as employers will be tempted to hire fewer workers if they should have higher salary.

Unemployment, Urbanization, and Poverty

It is believed that the growth of cities is a source of economic growth for the countries and welfare for citizens. However, GDP growth does not always affect the income of the population, so it is necessary to consider the factors that cause the urbanization of countries. Productivity growth in the trade sector attracts workers from the non-tradable sector, increasing the level of industrialization and urbanization at the same time. At the same time, there is an increase in the income of the population, which causes demand for goods and services, acting as a driver for further industrialization and urbanization. In most cases, the highest unemployment rates are found in countries where the economy depends on agriculture or the export of natural resources and has a poorly developed industrial production. In Figure 3 there can be observed that the highest level of urbanization was attained by Uzbekistan and Belarus and the lowest in registered Tajikistan and Kyrgyzstan. It

is worth mentioning that in case of each country the percentage of urbanization have not substantially increased during the last 20 years.

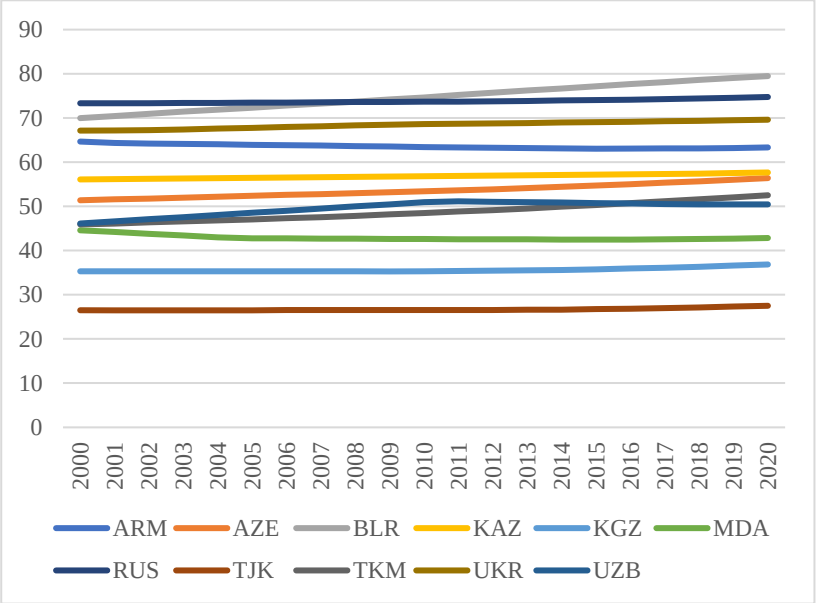

Figure 3: The evolution of urbanization (% of total population) in CIS countries. Source: World Bank Database; Authors' processing in Excel

Poverty and unemployment are two concepts that go hand in hand, the second one being at the core of the first one. For the poor, the possibility to get employed represents one of the most efficient ways to become better off. Therefore, providing productive employment opportunities is an important element in the process of poverty reduction and sustainable economic and social development. A high rate of economic growth has the potential to provide a rapid expansion in employment that is productive and generates revenue, which could contribute to a reduction in the amount of people living in poverty. However, the contribution of the process of economic growth to the alleviation of poverty is contingent not only on the rate of economic growth but also on the capacity of those living in poverty to respond to the growing demand for labor in employment categories that are more productive. This ability can be measured in terms of how well they are able to find work. Considering the data obtained from the World Bank Database the highest levels of poverty were registered in Kyrgyzstan, Moldova, and Uzbekistan.

Unemployment in CIS countries

Transition to a market economy

Market economy is an economic model mainly based on a voluntary exchange of resources between buyers and sellers, taking into account the laws of demand and supply. Starting with '90, after the dissolution USSR, the ex-soviet countries, began the long way towards what market economy is. Before the economy of the USSR was of a mobilization type, with an administrative-command system of management, with an extremely high level of militarization, monopolization, autarky and the gap amid the layer of economic development and the one of individual consumption of its citizens. In the 1970s there was an active merger of the official economy and the shadow economy (all sorts of semi-legal and illegal trading activities), where in the turnover of the latter, finances amounted to billions. Numerous attempts to reform the system have not brought successful results. Abrupt changes in the

system during the “perestroika” also changed the social order. During this period, the republics begin to create their own budgets and reduce their share in the Union budget. At the beginning of 1991, a monetary reform was carried out, according to which retail prices were revised (that is, increased). At the same time, this growth was compensated by the payment of amounts to the population, so a large amount of unsecured money appeared in the economy.

Consequently, the fight consisted of and still consists of developing a modern market economy in spite of the Communist Party's unbroken dominance over the country for the past seven decades, the monopolization of state property, and the directive-planned form of management. Market reforms in CIS countries have resulted in a significant decrease in social production, a drop in the standard of living of the entire population along with a sharp social differentiation in income, and the destruction of the social sphere, which includes education, medical care, science, culture, and social security.

It is possible to assess the economic success of the post-Soviet republics over the past 30 years by a variety of indicators - from the growth of average wages and pensions to changes in the availability of social services, health care or education. One can compare changes in labor productivity, level of education, increase or decrease in exports, etc. etc. But the problems of comparing countries by multiple indicators are well known - people can compare any objects by only one indicator. And if there are several indicators, then the comparison may not work.

One can use commonly accepted metrics in order to compare the economic achievements of the countries that were formerly a part of the Soviet Union. These indicators include nominal per capita gross domestic product at the official exchange rate or GDP at purchasing power parity per capita. After the fall of the Soviet Union, Georgia, Armenia, and Azerbaijan experienced the greatest growth in their purchasing power parity-adjusted gross domestic product (GDP) per capita. This was the case in all three of these countries. According to the real GDP growth Georgia has experienced a growth over the past 30 years by 5,8 times. This is an absolute record among all post-Soviet republics. Following Georgia, the maximum increase in GDP was received by Latvia and Kyrgyzstan. In these countries, it increased by 5,2 and 5,6 times, respectively. The per capita GDP growth rates in these countries are much higher than in the Baltic countries, which are traditionally considered to be the main economic beneficiaries of the exit from the USSR. Statistics provided by the IMF indicate that Armenia and Azerbaijan are currently in first and second place, respectively, in terms of the rise in GDP per capita, which is calculated at the exchange rate, and not just at purchasing power parity. The lowest GDP growth over the past 30 years has been recorded in Russia, Belarus and Azerbaijan. The increase in real growth rate in these countries was even lower than, for example, in Moldova. The relatively small economic successes of Russia over the past 30 years are not usually discussed in the domestic press. And the Ukrainian media do not make a big secret of their economic failures. But one thing the collapse of USSR made sure is that former republics certainly benefit from the emergence of new partners in international trade.

Table 1
Real GDP growth evolution in CIS

Country	GA	ARM	AZR	LV	BYS	UZ	KZ	TJK	MD	RU	UA	KGZ
Real GDP growth	5,8	4,5	2,3	5,2	0,5	5,4	3,9	4,5	5,2	2,9	3,6	5,6

Source: IMF Database

Social Security Programs: Unemployment

There are several types of unemployment and the means of dealing with them, depends on its particularities. The first most common ones are the coerced and free-willed unemployment. The first one materializes when a worker shows desire to find a working place but is not able to do it. Voluntary unemployment is connected to the unwillingness of an individual to undertake a job, in case of countries where the minimum wage is low. It has an upward trend in good economic environment and goes downwards in difficult periods such as recessions. Its scale and duration differ for people of various professions, skill levels, and considering different socio-demographic groups. There is also the frictional unemployment caused by constant changes in the distribution of society's resources between types and spheres of production of goods and services. These changes change the requirements for qualifications, knowledge, and skills. As a result, the employer does not find the worker he needs, and the worker does not find the employer, although the worker retains sufficient qualifications, his skills are not anymore required on the market. This situation was and continues to be highly sharp in post-soviet countries, as the model of economy has changed considerably, and a lot of professionals were not sufficiently flexible and have not adapted to the new patterns of the economy. The main sign of such unemployment is its short duration. Therefore, frictional unemployment is a phenomenon that is not impossible to eliminate, but it is also impractical. Hidden unemployment is typical mainly for countries with deep deformations of market mechanisms. For example, the absence of reasons to undertake a job gives rise to a decreased productivity. This implies that one job is inessential, and the level of hidden unemployment reaches 50%. Refill of the hidden unemployment is done by people who work occasionally, part time or weekly, as well as those who have despaired of finding jobs and, having lost the right to receive benefits, have refused to register at labor exchanges or specialized unemployment centres.

Combating the unemployment is one of the most ferocious and important goals of a state, because the success of this operation will directly show the level of the prosperity of the society. Auspiciously, politically, and socially is accepted the idea that the best way to fight unemployment is analysing the reasons of its occurring and prevent the following consequences by fixing the gaps in the system rather than focusing only on the result. If the decisions taken to improve the quality of the social security policies happen to be ineffective, this might trigger an avalanche of another difficult to deal with crisis situations.

If to take the example of Russia, one of the passive methods of fighting with unemployment is the payment of unemployment allowances, scholarships in the period of gaining of qualifications. Another efficient method of reducing the unemployment is building new possibilities for citizens by introducing new work places which will boost the size of the social products and as a result will satisfy the material needs of the population to a greater

extent, supporting and increasing, first of all, small businesses. The problem is that not every person is able to open and manage their own business, especially in CIS countries. To do this an individual needs to gain at worst initial capital to invest.

Reduction of structural unemployment is most facilitated by programs of professional retraining. These types of programs result in a workforce that is most appropriate to the vacant jobs. This task is achieved by the program of vocational education, information about jobs. Vocational education programs give information on-the-job and institutional training for all the classes of active population whose occupation is not any more up to date. These programs are put into action by the employment service. To combat unemployment, a system of public works is used, within which jobs are provided to the unemployed.

Data and Methodology

In the further case study is analysed empirically the phenomenon of the unemployment using potential explanatory variables listed and commented in the previous chapters. In this part of the research are justified theories empirically proved in other studies applied on the specific population of the countries of interest, the research instruments, the explanatory variables selected, and the results obtained because of multiple trials of processing the data obtained.

Table 2
Variables used and their influence on unemployment

Indicator	Reasoning for applying in the model / Variable used in research	Researches conducted before	Relationship
Level of education / school enrolment	Individuals with higher levels of education have a higher probability to find a job and respectively to have a higher salary than those who do not. *Primary completion rate, total (% of relevant age group)* *School enrollment, primary and secondary (gross), gender parity index (GPI)*	Mincer (1991) Kartseva (2002)	Negative
GNI / capita	Okun's law proved the relationship between those 2 variables. To decrease unemployment, economic growth rate should substantially increase. Showed by Izyumov that this is an adequate estimation for leaders, and not for poorly economically developed countries. *GNI per capita, Atlas method (current US$)*	Okun's law (1962) Izyumov et al (2002) Farsio et ai (2003)	Negative
Inflation rate	The inverse relationship between the processes of inflation and unemployment is explained by structural problems that arise in the labor market in the process of approaching the level of full employment. Was proved that this relationship is not valid in long- run.	Philip's curve (1958) Robert et al (1995)	Negative

	Inflation, GDP deflator (annual %)		
Population	Unemployment should normally decrease with the increase of the population if economic development is overall growing and improving. *Population density (people per sq. km of land area)*	Pilarski & Adam (2014)	Negative
Migration	Net migration = Nr. Of immigrants – Nr. Of emigrants These 2 variables might be autocorrelated. *Net migration*	DaVanzo & Julie (1978)	Negative
Personal remittances, received	Personal remittances increase general self-employment *Personal remittances, received (current US$)*	Anyanwu and Erhijakpor (2010); Kunofiwa Tsaurai (2020)	Negative
Alcohol	Higher is the level of alcoholism in a country, higher is the citizens' deprivation, depression, which leads to the unwilingness and incapacity to work. *Total alcohol consumption per capita (liters of pure alcohol, projected estimates, 15+ years of age)*	Forcier (1988); Jorgensen et al (2019)	Positive
Net official development assistance and official aid received	Development assistance generally speaking, aim at improving also employment conditions, so the overall state of the economy increase, but is up to every country to decide the way it allocates the resources and resulted efficiency. *Net official development assistance and official aid received (current US$)*	Dugarova (2016); Dobronogov (2003)	Indefinite (depending on country) Negative
Quality of medical assistance	A higher level of physical health lead to a better working performance both physically and mentally, hence the labor quality increases. *Immunization, measles (% of children ages 12-23 months)*	Pratap et al (2021)	Negative
Urbanization	*Urban population (% of total population)* Higher level of urbanization lead to a greater move of population to places where is the greater labor demand, though this work only to a level where the	Haq (2012)	Positive
		Sato & Zenou (2014)	Negative

	necessities for a bigger labor force isn't anymore needed.		

Thus, we can formulate the following research question: What are the determinants of unemployment specific to the CIS states?, which is based on the vast literature analysed. The following research hypotheses should be tested:
Hypothesis 1: Economic prosperity reduces the incidence of unemployment.
Hypothesis 2: Poverty causes unemployment to rise.
Hypothesis 3: Improving the quality of healthcare leads to lower unemployment.
Hypothesis 4: Public investment in education reduces unemployment.

Defining the response variable and the methodology of selection of independent variables

The population used is this study includes 11 countries, members states of the Commonwealth of Independent Countries (Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, and Uzbekistan), for which the following potential explanatory variables (see Table 1) were chosen in a timeframe of 21 years (2000-2020). Database was framed using the data available on the world bank website and official statistics site of the CIS countries.
For the entire period the variable Net Migration (% total population) was computed using the formula:

$$Net\ migration\ (\%\ total\ population) = \frac{Nr.\ immigrants - Nr.emigrants}{Total\ population}$$

Table 3
Descriptive statistics of variables

Variable	Abbr.	Mean	Std. Dev.	Min	Max
Unemployment	Unempl	8.0392	3.4522	3.7300	21.2060
Nominal wage	Nwage	359.7769	191.6434	27.0000	936.0000
GNI / capita	GNIcap	3460.3910	3129.0380	160.0000	15190.0000
Inflation, GDP deflator (annual %)	InflGDPdefl	13.9204	17.0935	-18.8450	185.2908
Life expectancy	Lifeexpect	69.6113	2.6864	61.9740	75.0870
Fertility rate	Fertrate	2.1333	0.7628	1.0780	3.9670
Mortality rate	Mortrate	26.4502	17.2429	2.9000	83.6000
Population density	Popdensity	55.9744	37.4686	5.5037	122.1129
Urban population (% of total population)	Urbpop	54.0509	14.8153	26.5010	79.4830
Immunization, measles	Measles	94.1364	9.0271	42.0000	99.0000
GPI	GPI	0.9864	0.0347	0.8713	1.0711
Primary completion rate	Primcomplr~e	99.3806	6.3713	88.0894	132.6766
Exports	Exports	40.7062	14.6774	9.1701	86.7521
Imports	Imports	47.8874	20.1046	12.4959	99.6689

Foreign direct investment (net inflows)	Fordirinv	447 * 10^6	107 *10^8	-402*10^6	748*10^8
Net official development assistance and official aid received	Aidrec	302 * 10^6	303 * 10^6	-250 * 10^6	155 * 10^7
Official exchange rate (LCU per USD)	ExrateUSD	344.8969	1290.6420	0.0877	10054.2600
Price level ratio of PPP conversion factor to market exchange rate	PPPexrate	0.3213	0.1109	0.1320	0.6345
Alcohol (consumption / capita)	Alcohol	7.3373	4.8165	1.8100	19.9500
GDP per capita	GDPcap	741888.90	2135277.00	91.5246	176000.00
GFCF	GFCF	7.3795	19.8419	-56.4518	87.6575
Gini	Gini	31.1062	4.6962	24.0000	42.3000
Poverty	Poverty	4.3993	10.5780	0.0000	61.6000
Net Migration (% total population)	NMGRPOP	-0.0655	0.4895	-5.2294	1.2129
Total tax and contribution rate (% of profit)	Taxcontr	50.7792	22.8072	18.5000	137.2000
Adjusted savings: education (% of GNI)	Edsav	4.4302	2.0535	2.1000	9.3748
Labour tax and contributions	Labtax	28.4975	8.8825	9.6000	44.3000

Source: Authors' processing in Stata

Looking at the descriptive statistics listed above, it is worth mentioning that the highest levels of unemployment are specific to Azerbaijan, which has an increasing trend over the past 7 years of approximately 4.139% per annuum. A greater situation is registered in Moldova and Turkmenistan, where the unemployment rate keeps a stable rhythm and has a yearly average value of 4% and an overall average decrease over the past 20 years of approximate -2.805% per year.

If analysing the factor which might have further the greatest explanatory power: GDP per capita, the highest values are registered in Uzbekistan, from 2012 and the lowest are in Belarus. Below you can observe the evolution of the GDP per capita for all CIS countries

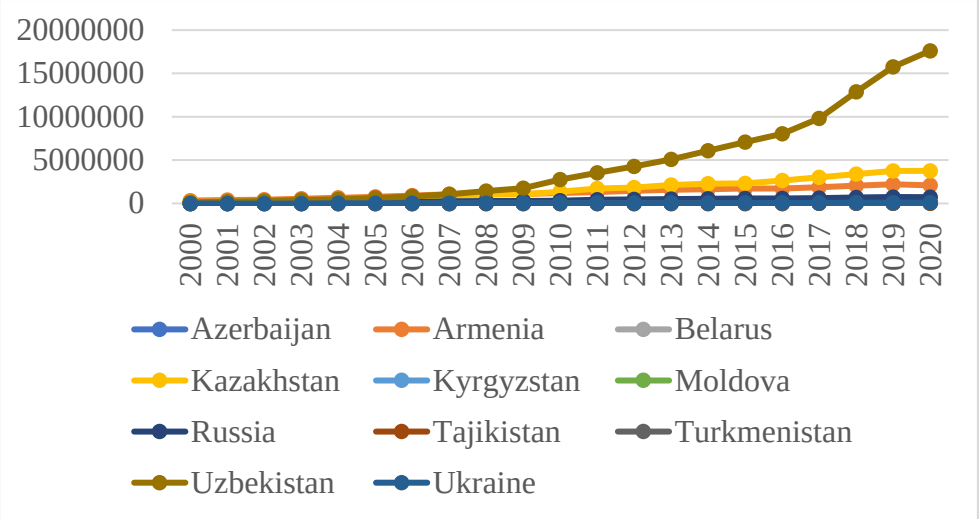

Figure 4 GDP level in Commonwealth of Independent States; Source: Authors' processing in Excel

Findings and Discussions

To determine the relationship between the unemployment and the explanatory variables, simple regression models and multiple regression models with balanced panel data were run, because of the character of the database: 11 countries are analysed in a timeframe of 21 years.

The OLS model is effective in this case because there are omitted variables and there are data in the database that are correlated between them, To make sure that omitted variables do not create a false correlation between the explanatory variables used in the OLS and to consider the possibility of heterogeneity of the countries, there will be a try to generate a Fixed/ Random Effects Model, depending on which of them is more efficient.

As an initial measure in determining a model, which could explain unemployment using the explanatory factors determined in previous chapters is placing unemployment in a simple regression with each independent variable in the following form:

- $Unemployment_{it} = a_{\square} + b * x_{it} + \varepsilon_{it}$

where: x_{it}- the value of independent variable in year t for country i;
a – constant/intercept,
b – slope;
ε_{it}- matrix of residuals.

These models are also ranked according to the decreasing value of the adjusted R^2 (explanatory power of the model). In the next step, these variables will be added in a more comprehensive regression for a complex model. The distribution of variables was also verified to meet the basic assumptions of multivariate data analysis (Hair et al., 2010), some variables were transformed using the logarithms to ensure a normal distribution of that variables. The results obtained can be seen in the table below:

Table 4

The estimation of the level of unemployment through simple regressions, OLS Method

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Constant	9.046 ***	9.160 ***	26.328 ***	5.999 ***	6.949 ***	7.514 ***	8.251 ***	15.067 ***	9.534 ***	7.578 ***	4.553 **	7.320 ***	7.613 ***	7.620 ***	10.263 ***	6.4404 ***	19.994 ***	4.9343 ***
Nominal wage	-0.003 *																	
GNI/capita		-0.0003 ***																
Life expectancy			-0.263 ***															
Mortality rate				0.077 ***														
Ln GPI					-40.018 ***													
Imports						0.012 NS												
Ln GDP/cap								-0.653 ***										
Adj. sav. (education)									-0.337 ***									
Ln Poverty										0.636 ***								
Ln Net migration (% population)											-0.787 **							
Fertility rate												0.337 NS						
Tax/contribution rate													0.014 NS					
Ln Exchange Rate														0.246 **				
Urbanization															-0.041 ***			
Population density																0.0286 ***		
Primary completion rate																	-.11606 **	
Exports																		.07719
R^2	0.027	0.084	0.042	0.149	0.204	0.005	0.00020	0.257	0.040	0.264	0.066	0.006	0.008	0.030	0.031	0.0961	0.0392	0.1068
Adjusted R^2	0.018	**0.080**	0.038	**0.145**	**0.197**	0.000	-0.005	**0.253**	0.036	**0.256**	0.056	0.001	0.003	0.025	0.027	0.0922	0.0335	0.1029

Source: Author's processing in Stata

Note: *** means 1% significant coefficient, ** means 5% significant and * 10%. NS – not

significant (above 10%); Source: Authors' processing in Stata

The values of the parameters a and b for all simple regressions have been determined using Stata11.

The interpretations of the simple regressions are the following:

- A 1 unit increase in *GNI per capita* will decrease the Unemployment with 0.00032 units ceteris paribus.
- At an increase of *life expectancy* with 1 unit, the unemployment will decrease with 0.263 units, ceteris paribus.
- At an increase of the *mortality* rate with 1 unit, the unemployment will increase with 0.077 units, ceteris paribus.
- At an increase of the *GPI* with 1 unit, the unemployment will decrease with 40.018 units, ceteris paribus.
- At a 1 unit increase in the level of *GDP / capita*, the unemployment will decrease with 0.653 units, ceteris paribus.
- At an increase of 1 unit in the level of *adjusted savings: education expenditure* (% of GNI), the unemployment will decrease with 0.337 units, ceteris paribus.
- For a 1 unit increase in the level of *net migration as percentage out of total population*, the unemployment will decrease with 0.787 units, ceteris paribus.
- At an increase of the *poverty* with 1 unit, the unemployment will increase with 0.636 units, ceteris paribus.
- An increase of the *official exchange rate* (LCU per USD), with 1 unit, will lead to an increase of the level of unemployment with 0.246 units, ceteris paribus.
- A 1 unit increase in the *Urban population* will be followed by a decrease of the unemployment level with 0.041 units, ceteris paribus.
- At an increase in the *population density* with 1 unit, the unemployment will increase with 0.2856 units, ceteris paribus.
- At an increase in in the level of *primary completion rate* with 1 unit, the unemployment will decrease with 0.116 units, ceteris paribus.
- A 1 unit increase in the value of *exports* will lead to an increase in the value of unemployment with 0.0772 units, ceteris paribus.

To determine whether one or another factor better explains the unemployment phenomenon, and which of them will better fit in the multiple regression estimation, Adjusted R^2 is used as a reasonable measure of goodness of fit. Looking and comparing at the simple regressions run before, it is visible that logarithm of the GDP per capita has the highest explanatory power. The correlation between dependent and independent variable is of medium negative intensity (-0.5064). This will be the first explanatory variable in the further forward estimation. The next variable will be chosen considering the decreasing Adjusted R^2, taking into consideration that independent variables should not be strongly correlated (below 35%) between them and should be significantly correlated with the Unemployment. Considering these criteria, only the following explanatory variables remained in the further steps of building the multiple regression, seen the correlation Table 5 below.

Table 5
Correlation between the most considerable independent variables

	Ln GDP / capita	Ln Poverty	Life expectancy	Education savings	Urbanization	Exchange rate
Ln GDP / capita	1					
Ln Poverty	-0.1313	1				
Life expectancy	0.3197	-0.1994	1			
Education savings	0.2355	0.0383	0.0605	1		
Urbanization	0.2141	-0.4410	0.3204	-0.0755	1	
Exchange rate	0.2707	0.0866	0.0026	0.3948	-0.070	1

Source: Authors' processing in Stata

Hence, the optimum model was established using intermediary multiple regressions till the optimum model, considering the increasing trend of the explanatory power. So, the following model was estimated:
$Unemployment_{it} = a + bx_{1it} + cx_{2it} + dx_{3it} + ex_{4it} + fx_{5it} + \varepsilon_{it}$, where the independent variables are natural logarithm of the GDP per capita, natural logarithm of the poverty, life expectancy, education savings and urbanization.

Table 6
The results of the multiple regression estimations, OLS Method

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) FEM
Constant	15.0670 ***	12.4349 ***	27.7519 ***	29.4767 ***	27.5752 ***	-5.5958
Ln GDP / capita	-0.6525 ***	-0.4432 ***	-0.3303 ***	-0.3888 ***	-0.3944 ***	-2.8474 ***
Ln Poverty		0.5535 ***	0.50199 ***	0.4982 ***	0.5698***	-0.1341
Life expectancy	-	-	-0.2386 ***	-0.2412 ***	-0.2309***	0.3127 *
Education savings	-	-	-	-0.2031 **	-0.1523 *	0.4857 **
Urbanization	-	-	-	-	0.01848 *	0.3863 *
R^2	0.2565	0.5183	0.5846	0.6076	0.6195	Within R^2 0.6746
Adjusted R^2	0.2532	0.5083	0.5715	0.5909	0.5990	Between R^2 0.0645
Panel diagnosis: Hausman test p=0.0000						Overall R^2 0.1068

Source: Authors' processing in Stata

The interpretations for the optimum model

- At an increase of 1% in the level of GDP per capita, the unemployment will decrease, in average, with -0.6525 units, ceteris paribus.
- At an increase of 1% in the level of poverty, the unemployment will increase, in average with 0.5535 units, ceteris paribus.
- An increase of the life expectancy with one year will lead to an average decrease of the unemployment with 0.2412 units, ceteris paribus.
- If the adjusted savings for education increase with one unit, the unemployment will decrease in average with 0.2031 units, ceteris paribus.
- An increased with one unit urbanization level will lead to an average increase in unemployment with 0.01848 units, ceteris paribus.

To test if this distribution is heteroskedastic, the residuals graph and the Breusch-Pagan Test was conducted. So, we should reject the null hypothesis of homoscedasticity as p-value = 0.0004, which is below the standard 0.05, accepting that there is heteroscedasticity in the residual of this regression model.

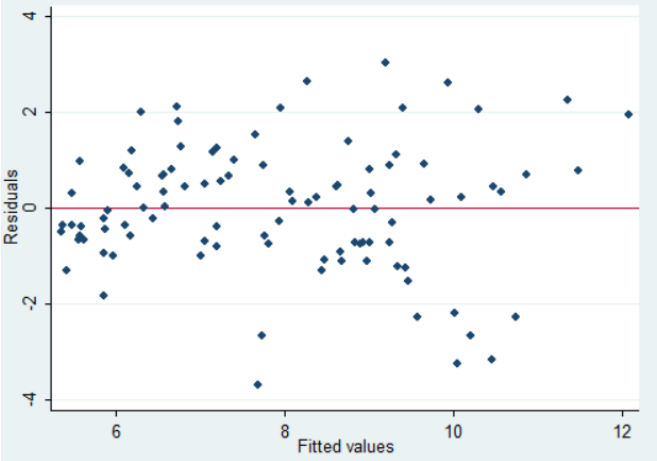

Figure 5: Distribution of the residuals: real vs fitted values; Source: Authors' processing in Stata

Another way to establish an optimum model and to check if Ordinary Least Squares Model is reliable, is Fixed Effects Method (FEM) and Random Effects Method (REM), in the first the variables are assumed to be fixed and in the second some variables are expected to show some random variation. To determine which of these 2 methods has a stronger predictive power, the Hausman Test was conducted. The null hypothesis is that the model has random effects. As mentioned in the table above, the p-value of the test = 0.000 < 0.05, so the Fixed Effects Method is more appropriate in determining the Unemployment. In the table above there are detailed results for all FEM coefficients. (1.04)

Robustness checks

To verify the results, couple of robustness checks were performed: (a) another variable which might act as a proxy for unemployment i.e. (unemployment rate as a % of youth, male, female population); (b) alternative explanatory variable(s); (c) a supplementary independent (control) variable

(1) To check whether the results obtained are robust, an alternative dependent variable was introduces as a proxy for unemployment: unemployment as a percent of the total male labour force. So, the OLS regression is estimated again the main model by using the same

explanatory variables: the logarithmic value of the GDP per capita, logarithmic value of the poverty, life expectancy, education savings and the level of urbanization, these variables being correlated with the dependent one. Looking at the (5) OLS and comparing the signs of the coefficients that are the same in both models, it can be confirmed that the model is robust. A FEM regression was also run, taking the same steps as in the previous case.

(2)

Table 7

Robustness check 1

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) FEM
Constant	11.1729 ***	7.9344 ***	-40.917 ***	-34.5653 ***	-43.6275 ***	-5.5958
Ln GDP / capita	-0.2712 ***	0.12676 *	-0.2334 *	-0.449 ***	-0.4756 ***	1.2614
Ln Poverty		0.3367 *	0.5009014 ***	0.4869 ***	0.8282 ***	0.7661 **
Life expectancy	-	-	0.7609 ***	0.7518 ***	0.8005 ***	-0.1186
Education savings	-	-	-	-0.7478 ***	-0.5057 ***	0.01077
Urbanization	-	-	-	-	0.0881 ***	-1.9509 ***
R^2	0.0454	0.0324	0.2909	0.4105	0.5144	Within R^2 0.2464
Adjusted R^2	0.0412	0.0123	0.2685	0.3854	0.4882	Between R^2 0.0069
Panel diagnosis: Hausman test p=0.0001						Overall R^2 0.0683

Source: Authors' processing in Stata

(3) It is considered as an alternative measure for checking the robustness of the findings of the initial OLS model: substitution of one of the main explanatory variables, which also has the highest impact in the predictiveness of the model and the strongest correlation with the unemployment: GDP per capita with a similar proxy: GNI per capita. In this case also is added the difference between the inflows and the outflows of the money from the foreign countries, resulting in an even higher explanatory power of the model than in the first model. So, below there are the results of the changed regression:

Table 8
Robustness check 2

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS
Constant	15.1146 ***	12.523 ***	27.3932***	29.0964 ***	27.1977 ***
Ln GNI / capita	-0.6574 ***	-0.4514 ***	-0.3387 ***	-0.3984 ***	-0.4038 ***
Ln Poverty	-	0.5552 ***	0.5048***	0.5016 ***	0.57304 ***
Life expectancy	-	-	-0.2321***	-0.2339 ***	-0.2238 ***
Education savings	-	-	-	-0.2056 **	-0.1548 *
Urbanization	-	-	-	-	0.0184 *
R^2	0.2585	0.5183	0.5885	0.6120	0.6239
Adjusted R^2	0.2553	0.5083	0.5755	0.5955	0.6037

Source: Authors' processing in Stata

The signs are the same as in the first panel data regression, so this is a confirmation of the robustness of the model. In this case, one percent increase in the level of GNI per capita will lead to a decrease in the unemployment with 0.6574 units on average, ceteris paribus.

(4) To confirm our main findings, a robustness analysis on the third axis is conducted, by adding a supplementary control variable to the initial regression such as the Gini coefficient and Total tax and contribution rate as a percent of the total profit (these variable shows how burdened are the local businesses by the local tax authorities). These variables are not strongly correlated with other explanatory variables (check done for avoiding the multicollinearity) but were not strong enough correlated with the dependent variable to be included in the initial regression but looking below at the new regressions it is visible that they increase the predictability of the model and confirm the signs of the OLS obtained initially.

Table 9
Robustness check 3

	(5) OLS	(6) OLS	(7) OLS
Constant	27.5752 ***	37.262 ***	38.841***
Ln GDP / capita	-0.3944 ***	-0.3226 ***	-0.2595 ***
Ln Poverty	0.5698***	0.679 ***	0.8236 ***
Life expectancy	-0.2309***	-0.3322 ***	-0.3384 ***
Education savings	-0.1523 *	-0.1706 *	-0.1994 **
Urbanization	0.01848*	0.0297 ***	0.0027 **
Gini	-	-0.1244 ***	-0.1993 ***
Tax contribution	-	-	0.0136 *
R^2	0.6195	0.6507	0.6992
Adjusted R^2	0.5990	0.6280	0.6744

Source: Authors' processing in Stata

Conclusions

The improvement of the economy is described by how productively the available means, as well as labour resources, are used. Maintaining permanent employment is one of the priority goals of economic policies. A market economy is characterized by an established level of unemployment. And although the number of unemployed changes every year, M. Keynes said that under capitalism there can be no system that determines full employment.

The findings of this study showed that in case of CIS, most of which are emerging economies, they should tend to an increase in the level of GDP per capita, by starting a more effective allocation of resources' policies, improving the level of social security policies, considering the aspects of each country and tend to decrease the overall level of poverty. A good idea also might be the harmonization of the population living in the urban and rural areas by creating conditions that will help citizens finding jobs in both areas as well as increasing the expenditures on the education. Of course, these conclusions are limited due to the complexity of this topic, as we mentioned at the beginning of this research, but its goal was accomplished as the general desirable move of the economy of CIS countries was established. And even though the overall situation improves steadily after the collapse of the USSR, the citizens of most of the countries consider that the state of the economy was better in the soviet period as well as the individuals' particular well-being, according to a survey conducted by one of the most well-known and trust-worthy Russian newspaper Kommersant. So, another step that should be taken in dealing with difficulties with employment should be the fight with the nostalgic minds of the citizens, who are still expecting that the state will take all the vital decisions for them.

The relationships obtained between unemployment and different factors of interest are in accordance with the ones obtained in the previous conducted studies. The limitations of this study include the impossibility of using a longer time frame, due to the missing data for the period 1991-1999. Future research directions include the use of micro-economic data, with regional potential, to promote their development in terms of oil resources held, their geographical location, and so on.

References

Abduvaliev, M., & Bustillo, R. (2020). Impact of remittances on economic growth and poverty reduction amongst CIS countries. *Post-Communist Economies*, *32*(4), 525-546.

Anson J. (1991*), Demographic Indices as Social Indicators Planification A: Economy and space*; 23(3):433-446. doi:10.1068/a230433

Anyanwu, J. C. (2010). *Do international remittances affect poverty in Africa?* African Development Review. 22(1), pp. 51-91

Currie, J., & Schwandt, H. (2014). Short-and long-term effects of unemployment on fertility. *Proceedings of the National Academy of Sciences*, *111*(41), 14734-14739.

Dobronogov Anton. (2003), *„Social protection in low income CIS countries",* Lucerne Conference of the CIS-7 Initiative

Dugarova, E. (2016). A new social protection model in the CIS countries: From social assistance to labour activation. In *International Symposium "Social Protection Systems–Tying the Knots". Bonn* (pp. 5-6).

Farsio, F., and Quade, S. (2003), "*An Empirical Analysis of the Relationship Between GDP and Unemployment", Humanomics*, Vol. 19 No. 3, pp. 1-6.

https://doi.org/10.1108/eb018884

Forcier, M. W. (1988). Unemployment and alcohol abuse: a review. *Journal of occupational medicine*, 246-251.

Goldin, N. (2015). Key considerations in youth workforce development. *Center for Strategic and International Studies.*

Halliday, T. J. (2014). Unemployment and mortality: Evidence from the PSID. *Social Science & Medicine*, *113*, 15-22.

Hair, J. F., Black, W. C., Babin, B. J., and Anderson, R. E. (2010*) Multivariate Data Analysis.* 7th Edition, Pearson, New York.

Heleniak, T. (2004). *Migrația diasporei ruse după destrămarea Uniunii Sovietice*. Journal of International Affairs , 57 (2), 99–117.

Izyumov, A., & Vahaly, J. (2002). The unemployment–output tradeoff in transition economies: Does Okun's law apply?. *Economics of Planning*, *35*(4), 317-331.Jovanovic, B., & Petreski, M. (2014). Monetary policy, exchange rates and labor unions in SEE and the CIS during the financial crisis. *Economic Systems*, *38*(3), 309-332.

Kartseva, M. A. (2002) *„Durata șomajului în Rusia.: Învățămîntul superior reduce șomajul?"* – Moscova, Şcoala Nouă Economică, Working paper # BSP/2002/058

Melkumyan, A. S. (2005). UNEMPLOYMENT AND ACTIVE EMPLOYMENT POLICY. *ANNALS OF AGRARIAN SCIENCE*, *3*(3), 224-228.

Mincer, J. (1991) *„Education and unemployment" NBER Working Paper No. w3838*

Okun, A. M. (1962) *„Potential GNP: Its Measurement and Significance."* In Proceedings of the Business and Economic Statistics Section of the American Statistical Association. Alexandria, VA. American Statistical Association, 89-104.

Pavlova, O., & Rohozynsky, O. (2005). Labor markets in CIS countries. *CASE Studies and Analyses*, (311).

Pilarski, A. M. (2014). " *Does Population Growth Cause Unemployment, or Economic Development, or Both?".* Population and Development in Poor Countries: Selected Essays, Princeton: Princeton University Press, 2014, pp. 289-316.

Siegelbaum, L. H. (2004). The condition of labor in post-soviet Russia: A ten-year retrospective. *Social Science History*, *28*(4), 637-665.

Simai, M. (2006). Poverty and inequality in Eastern Europe and the CIS transition economies.

Tsaurai, K. (2020). Investigating personal remittances-unemployment-inequality nexus in emerging markets. *Euro Economica*, *39*(1), 113-127.

Haq, W. (2012) *"How can urbanization be the cause of unemployment across the world?" Conference: Emerging issues of Social Sciences in Pakistan*

Philips, W. (1958) "*The Relation between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861-1957",* Quaterly journal Economica

Yang, B., & Lester, D. (2000). An exploration of the impact of culture on the economy: an empirical study of unemployment. *The Journal of Socio-Economics*, *29*(3), 281-290.

Sato, Y., & Zenou, Y. (2014) *How urbanization affects Employment and Social Interactions*; Lucrarea de discuție nr. 7914

Kommersant article. (2021) "Back in the USSR: Are Residents of Former Republics Better Off 30 Years Later?" ; accessed on 15.04.2022

Daugherty. (2022), How the Minimum Wage Impacts Unemployment, Investopedia Article, accessed on 1.03.2022

OECD article. (2013) Migration picking up but rising unemployment hurting immigrants, accessed at 4.02.2022.

World Employment Social Outlook Trends for Women. (2018), presentation at Global Snapshot, International Labor Organization 2018