Relationships Between the Variations in Net Migration Rates and Sustainable Development in Terms of Economic Prosperity: The Case With Western Balkans Countries and Turkey

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This paper focuses on whether the effects of sustainable challenges in terms of economic prosperity through GDP per capita and vulnerable employment have significant influence on the variation of net migration rate in five Western Balkan Countries and Turkey. Results from the panel PMG ARDL model showed that only the coefficient of vulnerable employment has statistically significant negative long-run effect on NMR variation. The short-run relationship indicates on significant individual effects over the NMR across all countries in the coming years. Also, research results confirm the causal link between the sustainable development variables and NMR variation for all these countries.

Keywords: net migration, ARDL, GDP per capita, vulnerable employment, Balkans, Turkey

INTRODUCTION

The structural and irreversible changes in mortality, fertility, family formation, childbearing, ageing and migration patterns have shaped the lives of many individuals and families across the world. Consequently, all of it contributed to redefining the social, economic and cultural parameters of what is called quality of life and sustainable human development. (Farah, 2005). Also political changes have recently affected demographics, impacting the economic and social stability of the countries where they occurred (Nierenberg, 2005). There is also a dearth of studies concerning the impact of economic crises on entire populations (Waltisperger & Meslé, 2005). The primary aim for all countries, especially for the poorer countries is economic development but in all instances these economic developments will not be happened without serious social changes (Schoenmaeckers, 2005). Thus, the analogious "potential" for migration is determined by differentials in the circumstances of life: economic, political, demographic, environmental, indeed all aspects that determine the relative attractiveness of life in one place relative to another (Teitelbaum, 2005, p.193). Hence, if such potential increases, one should anticipate more migration as groups of humans act in a predictable pattern that tends toward equalizing such imbalances. Emigration originates from countries experiencing a phase of socio-economic transition involving economic restructuring, disrupting patterns of agricultural or traditional industrial production, creating unemployment or reducing incomes (Boswell, 2002). More generally, emigration is likely to decrease when industrial development produces expanded employment opportunities for potential emigrants and returning migrants. Overall, from the theory and literature reviewed, it can be summarized that economic motives and conditions, and how they are perceived, are the primary cause of migration intentions. The economic prospects are important in both initiating and perpetuating migration (Avato, 2009). The

research paper aims to measure the variations of net migration tendencies and its interactions with the economic sustainable development indicators within six countries of origin or sending countries. Our focus is five Western Balkans countries and Turkey. Therefore, the relevance of the theory of sustainable development in terms of economic prosperity on variations in net migration will be measured. There are a few reasons to stress why this research for these countries is important? Firstly, all these countries are known as emigration or "sending" countries and furthermore the differences in income levels and labour market opportunities in these countries are much different than in case of most EU countries. Secondly, all of these countries just recently have finished the process of socio-economic transition. Thirdly, the tendency to study the economic *causes* and *impacts* of migration separately is good one since the migration decisions are also likely to be shaped by the development outcomes in sending countries and their communities. The paper is organized as follows: First, after this introduction part, in section 2 is explained the theoretical and hypotheses framework of the research. In section 3 is analyzed the context of the Western Balkans and Turkey in terms of net migration and economic sustainability. The research design and methodology approach are provided in section 4. Section 5 presents panel PMG ARDL estimation and discussion of the results. Section 6 contains concluding remarks.

THEORETICAL AND HYPOTHESES FRAMEWORK OF THE RESEARCH

Theoretical Background

Economists have proposed a variety of theoretical perspectives regarding migration. The basic economic theory postulates the rational expectations of economic agents to migrate and emphasizes that the economic agents are subject to the total costs and expected total benefits for their decision to migrate (Massey & Constant 2001). Teitelbaum (2005) points out that according to *Neoclassical Macroeconomic framework* international migration can be seen as driven by labor market conditions between countries and regions that have substantial differences in supply-demand labor circumstances[1]. Neoclassical economics focuses on differentials in wages and employment conditions between countries, and on migration costs; it generally conceives as an individual decision of movement for income maximization. At the macro-level, neo-classical economic theory explains migration by geographical differences in supply-demand labor conditions. The resulting differentials in wages cause workers to move from low-wage earnings regions and labour-surplus regions to high-wage earnings regions and labour scarce regions (de Haas, 2008). According to the Neo-Classical economics theory of migration, the decision to migrate is a purely individual one, made by a given migrant in response to the conditions at labour market. The neo-classical economics theory of migration ignores the fact that belonging to some social groups such as households and communities could have some influence on migrants (Nzima, et al., 2016).

The "*new economics of migration*", in contrast, considers conditions in a variety of markets, not just labor markets (Douglas, et al., 1993, p. 432). It views migration as a household decision taken to minimize risks to family income or to overcome capital constraints on family production activities. Also central to the new economics of labor migration are the ideas that the relevant decision-making unit in the migration process is typically the household, rather than the individual, and that the decision by the household to have one of its members migrate to a different location can often be understood primarily as a way to hedge against risk and overcome market incompleteness (Abreu, 2012). In addition, according to the new economics of migration, the population movement should be analyzed in the context of existing labor market imperfections in developing countries (which are the largest exporters of labor), but also in other markets: capital, rural products or educational markets (Brzozowski, 2012). Researchers representing the approach of the new economics of migration emphasize that the population movement is a form of investment and therefore it requires gaining resources that are not available in all family units. It means that in a family some members emigrate to look for a job abroad, offering an alternate flow of income for the entire family through remittances and so on.

Leading scholars advocating for the *sustainable livelihoods approach* argue that, only the participation of the poor in the development process can assist in understanding the real predicament of the poor (Nzima, et al., 2016). These poor people as Nzima et al. (2016) are discussing are using their

human rights in coming up with various livelihood strategies such as migration and many others in their efforts to free themselves from the chains of poverty. The sustainable livelihoods approach also emphasizes the importance of institutions, structures and processes. In perceiving migration as a *household livelihood strategy*, de Haas (2008) point out that household approaches seem particularly applicable in developing countries where for many people it is not possible to secure the family income through private insurance markets or government programs, increasing the importance of implicit contracts within the family.

Kurekova (2011) points for three advanced approaches for migration research. One of her approach most interesting for our research is the one that she suggests that different migration determinants prevail depending on the level of development of a country and a 'phase' of country's migration cycle. According to this approach of Kurekova (2011) some scholars connected demographic transition to mobility transition, taking both as functions of the stages of development. Such *'transitional models'* have been argued to be very useful in understanding how development processes are linked to specific forms of mobility and how mobility tends to rise rather than decline with development. The mobility transition theory fits rather well into the broader theoretical perspective on migration and development that we intend to develop in this research. By acknowledging that, it seems that migration tends to increase in particular in the early phases of "development", in which improvements in transport and communication, flows of knowledge, a perceived lack of local economic opportunities, and growing level of welfare increase both the capabilities and aspirations of people to migrate (de Haas, 2008, p.13). Although the character of migration changes, development processes do not so much lead to a general decrease in migration, but are rather associated to increased mobility in general (ibid, p.13).

Major Hypotheses Framework

As Peeters and Groot (2012) note, migration flows in most part have origin from countries with low GDP per capita, high young age dependency ratios and low labour market participation rates towards countries with high GDP per capita, high old age dependency ratios and high labor force participation rates among those in a working age. The unfavored conditions in the domestic economy, which contrasted with the relatively in good conditions economies of developed countries, can certainly be considered the factor that triggered the migration process (Brzozowski, 2012). Some researchers, point out that migration should be considered as a process naturally linked to and part of a broader process, as economic development process. Development has a overpowering influence on migration, the phenomenon described in the literature as "migration hump" (ibid, p.142). In attempting to clarify the relationship between migration and income, researchers proved that in the early stages of economic growth, the level of migration rises with the increase in per capita income. Regarding migration flows into Germany, Kahanec et al. (2009) showed that both GDP per capita and the unemployment rate are significant push-factors that described why people migrate. In addition, they confirmed that the concave pattern of GDP per capita was in line with the migration "hump" hypothesis (Kahanec, et al., 2009, p.16). In their work, Malaj and de Rubertis (2016) estimated a particular statistical model for Western Balkans migration flows, based on the gravity theory. According to the estimation results of their model, the dependent variable (migration stock) was negatively related with the GDP per capita in the origin countries, i.e. Western Balkans.

Renowned migration scholars have shown that migration theories have positioned from around a direct correlation between migration and development to an inverse correlation between migration and development (Nzima, et al., 2016). As further explain Nzima, et al. (2016), as workers move to rich countries, migration helps in bringing about wage equilibrium between capital poor countries and capital-rich countries. In this way poor countries achieve economic development through so-called phenomenon-factor price equalization. According to de Haas (2008, p.4): "Capital is expected to move in the opposite direction, thus in a perfectly neo-classical world, this process of "factor price equalization" will eventually result in growing convergence between wages at the sending and receiving countries". In the long run, as he adds, this process would remove the motivations for migrating. Using data from World Bank and UN for 45 years from 1960-2010, Clemens (2014) found that there was a marked inverted-U

relationship between emigrant stocks and real income per capita throughout the late 20th century, and the inverted-U became more evident as years passed[2]. Furthermore, in all years, there was no indication of a negative relationship between income and emigrant stock between the countries with PPP income per capita of roughly $600 and about $7.500, but in opposite, in the countries with this range of income, in fact, the relationship was positive (Clemens, 2014, p.4). The magnitude of the positive relationship was substantial. Early in the second half of the 20th century, richer countries in this range of income on average had emigrant stocks about three percentage points larger than the poorest countries. By the end of the 20th century, this difference grew to nine percentage points, and since then it seems to have continued growing. It is interesting to know that at higher levels of income the pattern reverses, namely, for countries with per-capita incomes above roughly PPP $7.000–8.000, there was a clear negative relationship in all years (ibid, p.5). This negative relationship was statistically significant at the 5% level as well. All countries within this range of income are defined by the World Bank as "upper-middle-income countries" or "high income countries". One of the main conclusions of Clemens's work is that rhe richest countries in the world on average had emigrant stocks about three to five percentage points lower than the middle-income countries with the greatest emigrant stocks. According to his summaries a broaden literature and recent data suggest something quite different: that over the course of a "mobility transition", emigration generally rised with the economic development until countries have reached upper-middle income, and only thereafter have started to fall. This pattern had quantified the shape of the mobility transition in every decade since 1960.

According to Malaj and de Rubertis (2016) unemployment and the relatively low salaries are also important determinants of international migration. Migration continues until the respective wages are in equilibrium between home and destination countries. There have been found adverse market imperfections as a result of structural economic barriers in the local economy. In addition, the economic analysis of the local economy is crucial if migration is to result in household poverty reduction. In order to estimate the structural relationship between migration flows and its determinants, Fertig and Kahanec (2015) used an adaption of the model of Hatton (1995) to time series cross-sectional data for EU-8 and EU-14, and eastern enlargement countries. The theoretical model was formulated by Fertig and Kahanec (2015) following the hypothesis that migration is an investment in human capital. Hence, the individual migration probability depends on the difference in expected utility streams in the country of origin and the destination country minus the costs of migration. Utility streams were assumed to depend on expected income, which is the product of the wage rate and employment probability in each country. The key result was that while migration costs and economic conditions matter for east–west post enlargement migration flows, policy variables explained a greater part of the observed variation. Glazar and Strielkowski (2010) analyzed possible incidence of Turkish EU accession on the emigration from Turkey to the European Union. They applied panel data estimators on the emigration data from EU-18 into Germany in order to construct possible future scenarios of Turkish migration to the EU. The results of Glazar and Strielkowski (2010) revealed that both the network effect and target country labour market conditions represent the strongest determinants for migration, whilst the effect of *per capita* income was actually relatively low. In particular, Turkish *per capita* income did not have nearly any effect on migration. Furthermore, a very low importance of opening the German labour market for Turkish migrants was found.

THE CONTEXT IN WESTERN BALKANS COUNTRIES AND TURKEY

International migration became a global phenomenon around 1960. As employers lack domestic labor supply in Europe and elsewhere they have started recruiting immigrants (guest workers). Labour migration was mainly from South Europe towards North and West Europe. For that period, international migration was generally viewed positively because of its economic benefits, from the perspective of both the sending and the receiving countries (Van Mol & de Valk 2016). Recruitment of migrants in East Europe was not possible because of the Iron Curtain. Willekens (2014) notes that only Yugoslavia allowed their citizens to migrate to West Europe. Frejka (2010) emphasizes that even before the wars of the 1990s, the former Yugoslavia was not a typical "East" European country as it was relatively

independent and more closer to Western countries than other East European ones. During the socialist period, international exchanges in the political, social, and economic spheres were sustained by the SFR Yugoslavia's emphasis on non-alignment, its engagement in the international policy scene, and the combination of elements of market and planned economies within its economic system (Lerch, 2018). It is also known that the Yugoslav governments promoted important flows of labour migration to Western Europe. The researchers from former Yugoslavia estimated a continuous growth in the stock of migrant workers living in Western Europe between 1964 and 1973, the year when 850.000 people has been recorded (Bonifazi & Mamolo 2004). The statistical sources of the most important European receiving countries which generally referred to the foreign population considered both together workers and inactive population. According their data, in the early 1990s, the overall number of Yugoslavian labour migrants and their family members exceeded 1.3 million people (ibid, p.521). Although Albanian society was isolated from the outside world under one of the strictest regime, it also contributed to a large number of migrants in the EU after 1990 (Lerch 2018). Until the end of the 1980s, migration was virtually non-existent in Albania. According to the World Bank Migration and Remittances Factbook 2011, the 'stock' of Albanian migrants for just 20 years has reached 1.438.300 abroad, equal to 45% of the population that currently was living in Albania, 3.2 million in 2011 (King, et al., 2011).

Explaining the migration context for Turkey, Dedeoğlu and Genç (2017) emphasize that the basis of the massive movement from Turkey to Europe was created by both Turkey and the Western European countries in the early 1960s. As the number of internal migrants was increasing in Turkey and the economy was not strong and industrialized enough to absorb them, at the same time, Western European economies were in a period of an economic boom that led them seek foreign labour. After signing of the bilateral labour agreements between Turkey and the European governments a large number of Turkish labour migrants started with emigration to Western European countries. The first agreement was signed between the Turkish and West German government in 1961 and its purpose was to provide the German economy with temporary unskilled labour, *"guest workers"*, while decreasing the Turkish unemployment (Dedeoğlu & Genç, 2017, p.2). In that context, the Turkish government also promoted emigration to obtain remittances from Turkish workers abroad. About 790.017 Turkish workers migrated to European countries between 1961 and 1974 (ibid, p.2). During 1975–1978, emigration from Turkey to Europe continued on the basis of family reunification and education of children. In the 1980s, the introduction of visas for Turkish citizens was a main reason many Turks to claim for asylum in order to move to Europe.

A decade of political, economic and social turmoil has started with the fall of the Iron curtain and wars in the former Yugoslavia (Boulineau, et al., 2016). Frejka (2010) highlights that the wars affected demographic trends significantly in Bosnia and Herzegovina, Croatia, Serbia and Montenegro, less so in Slovenia and in Macedonia. As a result, besides the impact of the wars also the complexity of political events in Bosnia and Herzegovina has affected both demographic trends and the availability of reliable statistics. Bonifazi, et al.(2006), noticed that the migration dynamics in the Balkan region during the 1990s was quite complicated and with anticipated medium-long term effects both for the receiving and sending countries. Forced migrations, displaced people and migration flows driven by a difficult economic environment in the countries of origin were considered to be the main types of migration recorded in the Balkan region during the last decade of 20th century (ibid, p.7). Boulineau, et al. (2016), add that at the end of the 20th century, outmigration was uncontrolled due to severe crises or forced movement because of wars. An important aspect of international migrations from the Balkan region in the 1990s worth mentioning seems to be the development of migration flows for labour purposes (Bonifazi, et al., 2006). As we know, in previous decades, this type of flow only involved Yugoslavia and Turkey, but during 1990s it has directly concerned countries such as Albania and Romania as well. Besides the economic crisis and the general context of uncertainty during the changes in the social system in the 1990s, a major social upheavals in the Western Balkans also happened. Lerch (2018) explain that in Albania social turmoil had erupted against the communist regime in the early 1990s, and a financial crisis that was caused by the collapse of fraudulent pyramid banking schemes led to a state of emergency in 1998. A series of pyramid savings schemes, which had been largely provided by emigrant remittances were seeking investment opportunities in the country where had a very limited formal banking system,

collapsed and a large share of Albanian households bankrupted (King, et al., 2011). As a result of the huge political upheavals of the 1990s migration a substantial population losses has occurred in some of the countries: Albania lost more than 21% of its population and Bosnia-Herzegovina 19%. (Avdeev, et al., 2011; Lerch, 2018). Pastore (2005) has pointed out that the large wave of asylum migration registered in the first half of the 1990s across Europe largely originated from traditional countries of emigration (such as former Yugoslavia and Turkey) and it was directed towards equally established receiving countries (primarily Germany).

The 2000s decade was characterized as a decade of progressive internal stabilisation, openness to a globalised economy and applications of these countries for EU membership[3]. Between 2000 and 2010, negative net migration affected all of these countries, some with a lesser range. The countries of emigration have been still concentrated in the Balkans during this period, and because of the benefits from returning refugees, Bosnia-Herzegovina and Serbia probably are exception. As noticed by Avdeev, et al. (2011), Albania was still the country with the strongest negative migratory growth, though during this period, it has fallen to −3.5%. Boulineau, et al. (2016), emphasize that migrations are underestimated due to non-comparable definitions of the resident population as a result to different censuses standards and where they existed, migrations data from the last censuses (2011) are still not published in the majority of these countries and the vital statistics (births, deaths) are inaccurate. The so-called "liberalisation" of the visa-regime took place progressively, namely in 2009 for Macedonia, Serbia and Montenegro and in 2010 for Albania and Bosnia and Herzegovina. As discussed by Malaj and de Rubertis (2016) visa liberalization for Western Balkan countries has obviously encouraged legal and illegal migration flows toward Western Europe. It is not certain whether Turkish citizens will be granted the right to visa-free travel to the EU. The handling of this issue will remain controversial (Dedeoğlu & Genç, 2017). Thousands of Turkish citizens immigrate to Europe for work, education or family reasons every year, while many others circulate between Turkey and European countries. Turkey ranked among the top countries sending students and skilled workers abroad. It is interesting that Turkish students prefer Germany, France and UK in addition to the USA. According to Dedeoğlu and Genç, (2017, p.3) on average more than 57.000 new members are evidenced as Turkish citizens legally present in EU-28 countries every year and more than 1.8 million Turkish citizens had valid residence permits in these countries in 2014.

The trend of the net migration rate, GDP per capita and total vulnerable employment for all these countries can be seen in figures (1-3). The data for net migration rate in figure (1) enables us to notice a negative trend for all countries over the whole period. There are some minor exceptions for positive net migration trends for Turkey after 2010 and for Serbia in early 1990s. We can see that the highest negative peak of net migration rate per 1000 belongs to Albania (-28.7) and Bosnia and Herzegovina (-35.0) in the early 1990s. The negative trend of net migration rate of about -10.0 per 1000 can be noticed also again for Albania (-11.5), Bosnia and Herzegovina (-8.4) and Serbia (-10.2) in the late of 1990s, and also for Macedonia (-10.1) at early 1990s and for Albania (-11.4) early 2000s. Economic development, with except for Turkey[4], is still at a low level, compared with the EU average, ranging from US$ 4774 per capita in Albania to US$ 7763 in Montenegro in 2017. However, the GDP per capita (at constant 2010 prices in US Dollars) has general trend of increasing over time for all countries, with some significant rising for Turkey and then Montenegro (See Figure 2).Albania is the country with highest total vulnerable employment as percentage of total employment from all the countries for the whole period (about 60%, see Figure 3). Turkey and then Bosnia and Herzegovina are the countries with the most noticeable decreasing of its vulnerable employment through the whole period (from about 60% to 30% and from 40% to 20%, respectively). Steady and constant values of the vulnerable employment (around 20% or less) through the whole period we have in Serbia, Macedonia and Montenegro (See Figure 3).

FIGURE 1
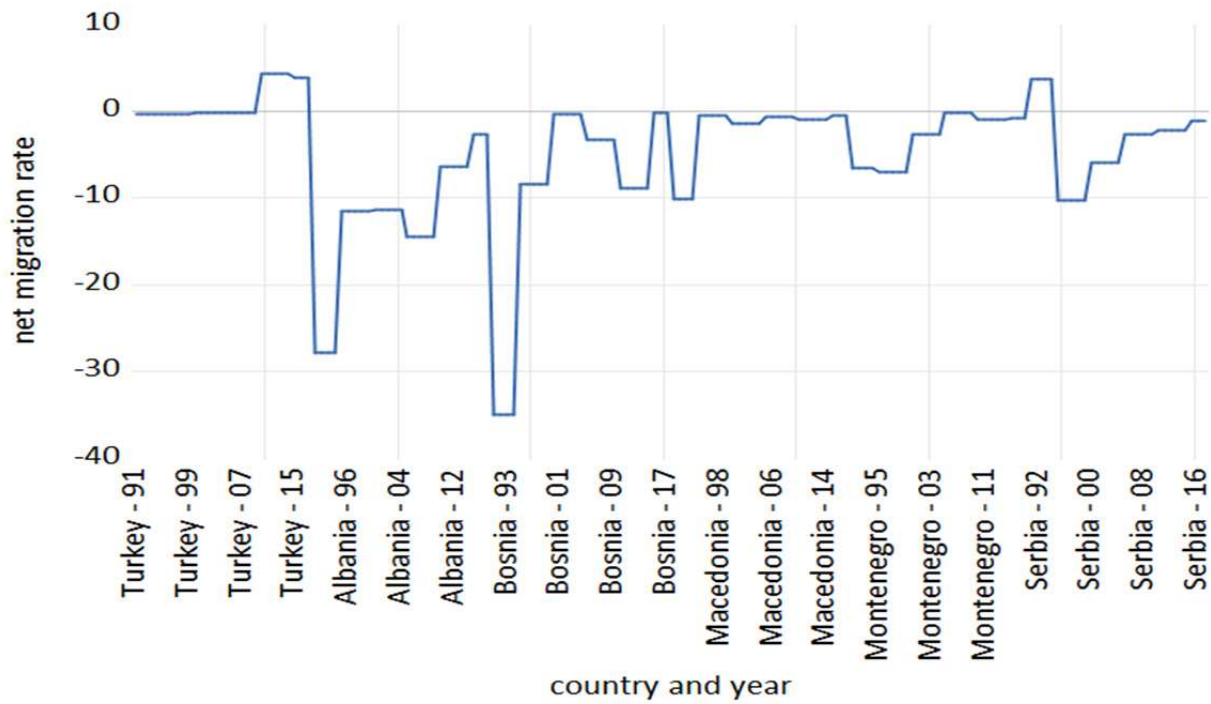**NET MIGRATION RATE IN WESTERN BALKANS COUNTRIES AND TURKEY (1991-2017)**

FIGURE 2
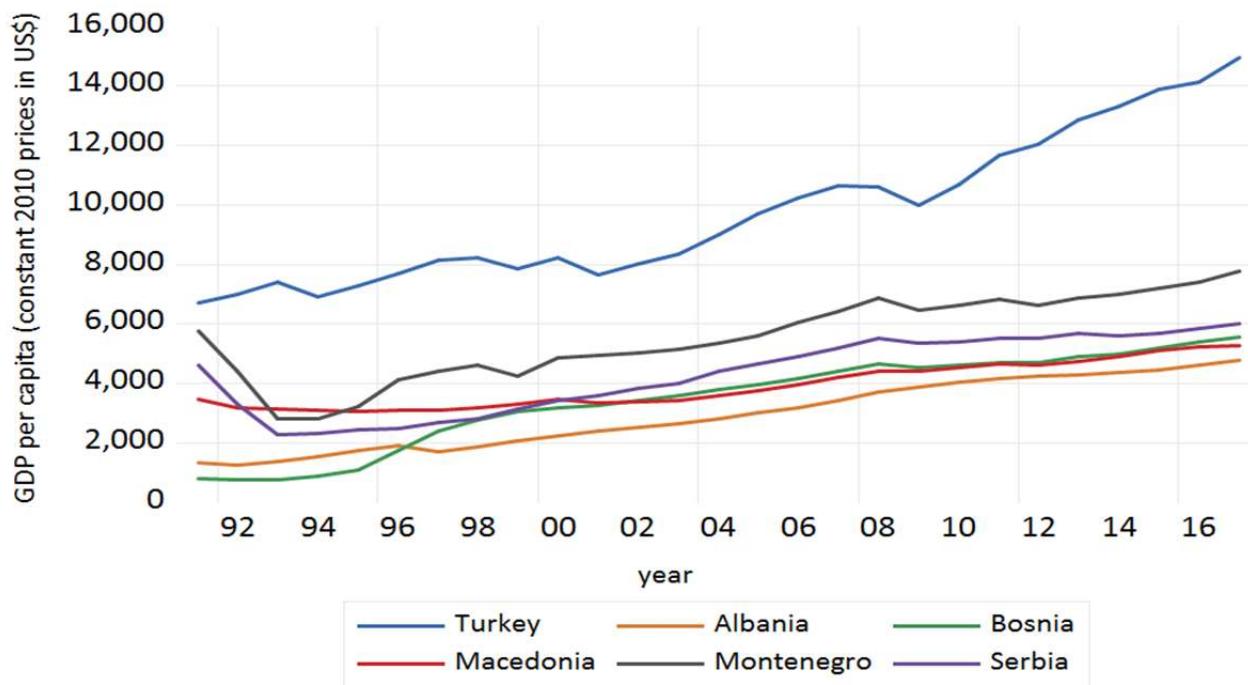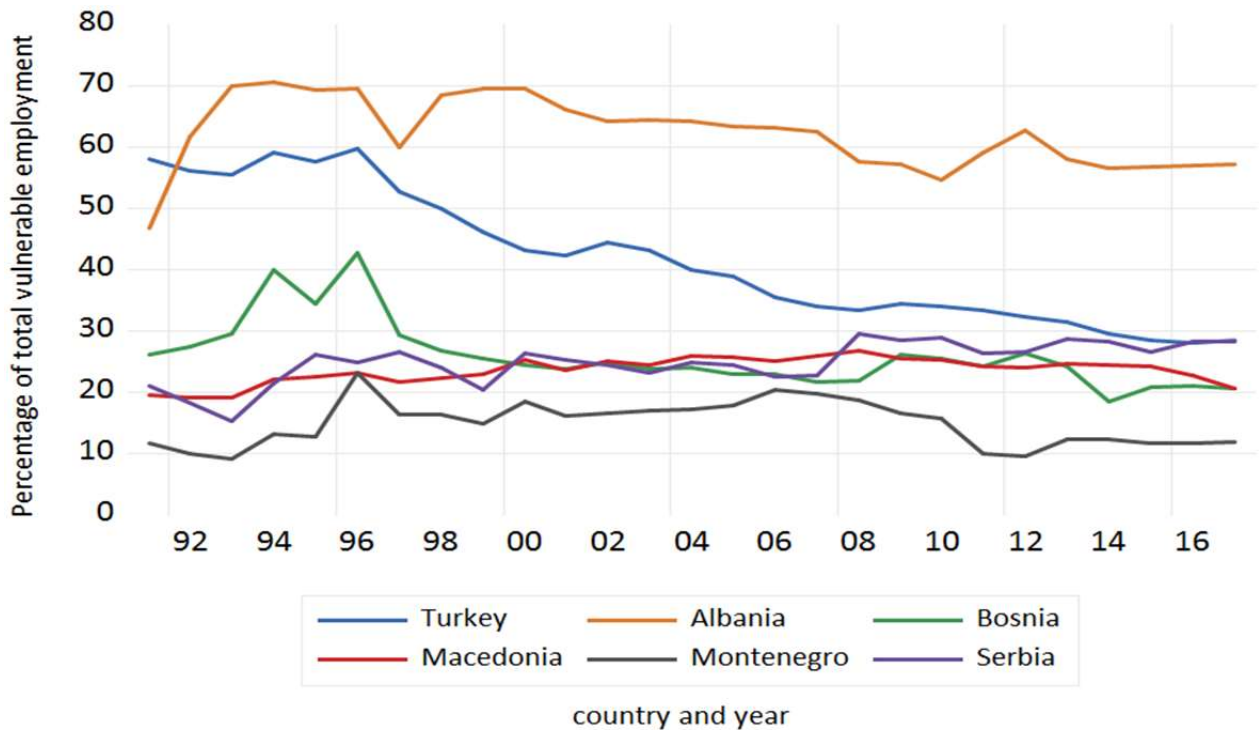**GDP PER CAPITA (AT CONSTANT 2010 PRICES IN US DOLLARS) IN WESTERN BALKANS AND TURKEY (1991-2017)**

FIGURE 3
TOTAL VULNERABLE EMPLOYMENT IN WESTERN BALKANS AND TURKEY (1991-2017)

country and year

RESEARCH STUDY DESIGN AND METHODOLOGY APPROACH

Conceptualization and Variable Measurement

When it is international, migration is a move from one country to another. By essence, international migration refers to mobility across national borders. In an effort to produce data on migrant flows that can be compared and aggregated at the world level, the United Nations (UN) defines an international migrant "as any person who changes his or her country of usual residence. A person's country of usual residence is that in which the person normally spends the daily period of rest" (Fargues, 2018, p.10). In addition, Malaj and de Rubertis (2016) define an international migrant as a person who lives temporarily or permanently in a country of which he/she is not national. Net migration is an indicator of the volume of migration between a given country and the rest of the world, whichever direction this may take. When migration gains exceed losses (i.e. more people enter the country than leave it), the figure is positive. It may also be negative, if more people leave than enter, or occasionally zero. "Net migration" corresponds to the difference between inward and outward flows for a given territory over a given period, but this figure can only be directly calculated by countries that keep population registers tracking migrant movements (Avdeev, et al., 2011, p.68). The other countries estimate their net migration more indirectly, at the time of a census, by subtracting the natural population change between two censuses from the total change in population (this is referred to as the "net migration balance"), (ibid., p.73). Net migration calculated in this way is less reliable, for it depends not only upon measures of migratory movements, but also upon the quality of the two relevant censuses and the accurate recording of births and deaths. Moreover, this mode of calculation tells us nothing about the composition of this balance. Thus, zero net migration may reflect either an absence of movement or an exact balance between inward and outward flows.

The key economic indicators in terms of sustainable development are considered as main determinants for the migration movements for these countries. GDP per head (also known as per capita) is

equivalent GDP per individual in the population which allows us to take into account the effects of changes in the population size (National Statistics of UK, 2013). Constant series are used to measure the true growth of a series, i.e. adjusting for the effects of price inflation (World Bank, 2019). This indicator is a basic economic growth indicator and measures the level and extent of total economic output. It reflects changes in total production of goods and services and it is a powerful summary indicator of economic development, even though it does not account for social and environmental cost of production and consumption (UN, 2007). GDP per capita is a core indicator of economic performance and commonly used as a broad measure of average living standard or economic well-being (OECD, 2015). In the growth ideology, economic growth is equated with welfare and even well-being, and gradually growth becomes considered as the source of all good (Haapanen & Tapio, 2016). In the 21st century growth critique, a great concern is expressed that the idea of sustainable development is too much assimilated into the dogma of economic growth. Some growth critics think that economic growth could be beneficial in countries where the standard of living is still comparatively low, but others recommend that non-Western countries avoid growth-dependency and encourage their citizens to create and pursue their own visions of success and well-being (ibid, p.2).

The "vulnerable employment" indicator is based on the broader indicator 'status in employment' which distinguishes between three categories of the total employed, (UN, 2007, p.78). These are: age and salaried workers (also known as employees); self-employed workers (employers, own-account workers and members of producers' cooperatives); contributing family workers (also known as unpaid family workers). The indicator may be broken down by sex. According to International Labor Organization (2018) own-account workers and contributing family workers have a lower likelihood of having formal work arrangements, and are therefore more likely to lack elements associated with decent employment, such as adequate social security and a voice at work (through effective representation by trade unions and similar organizations). Therefore, two statuses are summed to create a classification of 'vulnerable employment'. First, the vulnerable employment rate is the share of vulnerable employment in total employment. Second, vulnerable employment is often characterized by inadequate earnings, low productivity and difficult conditions of work that undermine workers' fundamental rights. Having a high proportion of unpaid family workers in a country can be a sign of weak development, little job growth, or a large rural economy (World Bank, 2019). Furthermore, this indicator provides information how many persons are vulnerable to economic risk because of weak institutional employment arrangements and also provides information on the informalization of labor markets, which may be associated with increasing and persistent poverty. High values of the indicator may also indicate a large agricultural sector in terms of employment, often associated with low labour productivity and economic growth rates (UN, 2007). According to the online interview in 2010 with the ILO chief of Employment trends unit, Lawrence Jeffrey Johnson, he clearly stated that while monitoring unemployment provides a good starting point to assess the health of labour markets in developed economies, particularly in developing economies it is essential to consider decent work deficits among the employed (Johnson, 2010). He further pointed that there were large deficits reflected in high rates of vulnerable employment and working poverty in most of the developing world. One of the three broad priorities of the UNDP to achieve inclusive and sustainable growth to the development needs of countries is: Supporting employment creation, decent work, and redistributive programs to address poverty, inequality and exclusion. Activities include promoting decent work, removing barriers in access to labor market opportunities, improving conditions and scaling up redistributive programs especially to support the social protection systems (UNDP, 2019).

Data and Methods

Migration studies as a field of study grew exponentially in the last decade. New researchers face a tremendous challenge as they sift through this huge record of output despite having the advantages of much more sophisticated and capable data tools in this era of digital systems and big data (Sirkeci, et al., 2017).We retrieved demographic and economic annual aggregate time data series compiled by international organizations: United Nations and World Bank databases (UN, 2019; World Bank, 2019). Data for the variable net migration rate are five year average data (1990-2020) obtained from UN

Population Division, DESA,World Population Prospects, the 2017. Economic variables data are annual aggregate time series data obtained from both UN and World Bank. This includes: GDP per capita (constant 2010 US Dollars) data from UN National Accounts main aggregate database and percentage of vulnerable employment from total employment in a country (modeled ILO estimate) from World Bank database. These data cover the period 1991-2017, and six countries were included: Serbia, Bosnia and Herzegovina, Macedonia, Montenegro, Albania and Turkey. GDP per capita (constant 2010 US Dollars) and total vulnerable employment as percentage of total employment are regressors and net migration rate per 1 000 population is our dependent variable.

The Pooled Mean Group (PMG) estimator of Pesaran, Shin and Smith (PSS, 1999) for ARDL models[5] with individual effects was employed. ARDL models are standard least squares regressions which include lags of both the dependent variable and independent variables as regressors. ARDL models have gained popularity in recent years as a method of examining long-run and cointegrating relationships between variables[6]. Thus, the results provide the dynamic relationships (short-run and the long-run relationships) between the variables tested. In panel settings with individual effects, standard regression estimation of ARDL models is problematic due to bias caused by correlation between the mean-differenced regressors and the error term (IHS, Global Inc., 2017).This bias only vanishes for large numbers of observations T. In these cases, a popular alternative is the Pooled Mean Group (PMG) estimator of Pesaran, Shin and Smith (PSS, 1999), (ibid., p. 924). This model takes the cointegration form of the simple ARDL model and adapts it for a panel setting by allowing the intercepts, short-run coefficients and cointegrating terms to differ across cross-sections. Under some regularity assumptions, the parameter estimates of the PMG model are consistent and asymptotically normal for both stationary and non-stationary regressors (Jenq Fei Chu & Siok Kun Sek, 2014). Mehmood, et al. (2014) explain that it is due to ability of Panel ARDL approach to accommodate variables with different levels of stationarity. The number of lags for each variable was detected automatically using the Akaike Information Criterion (AIC). The PMG model can be written as in eq. (1), (IHS, Global Inc. 2017, p. 924):

$$\Delta y_{i,t} = \emptyset_i EC_{i,t,} + \sum_{j=0}^{q-1} \Delta X_{i,t-j}{}' \beta_{i,j} + \sum_{j=1}^{p-1} \lambda_{i,j*} \Delta y_{i,t-j} + \epsilon_{i,t} \tag{1}$$

where

$$EC_{i,t} = y_{i,t-1} - X_{i,t}{}' \theta \tag{2}$$

It is assumed that both the dependent variable and the regressors have the same number of lags in each cross-section. It is also assumed that the regressors X, have the same number of lags q in each cross-section, but this assumption is not strictly required for estimation. PSS derive the concentrated (with respect to the long-run coefficients, θ, and the adjustment coefficients,$\emptyset_i$) log-likelihood log-likelihood function:

$$l_t (\varphi) = -\frac{T_i}{2} \sum_{i=1}^{N} \log(2\pi\sigma_i^2) - \frac{1}{2} \sum_{i=1}^{N} \frac{1}{\sigma_i^2} (\Delta Y_i - \emptyset_i EC_i)' H_i (\Delta Y_i - \emptyset_i EC_i) \tag{3}$$

where

$$\Delta Y_i = \left(\Delta y_{i,1}, \Delta y_{i,2}, \ldots \ldots \Delta y_{i,T_i}\right)'$$

$$EC_i = \left(EC_{i,1}, EC_{i,2}, \ldots .. EC_{i,T_i}\right)'$$

$$H_i = \left(I_{T_i} - W_i (W_i' W_i)^{-1} W_i' \right)^{-1} \tag{4}$$

$$W_i = \left(\Delta Y_{i,-1}, \ldots .. \Delta Y_{i,-p+1}, \Delta X_i, \Delta X_{i,-1}, \ldots .. \Delta X_{i,-q+1}\right)$$

$$\Delta X_i = \left(\Delta X_{i,1}, \Delta X_{i,2}, \ldots \ldots \Delta X_{i,T_i} \right)'$$

where, we define the j-th lags ΔY_i , ΔX_i as ΔY_{i-j} and ΔX_{i-j} , respectively (IHS, Global Inc. 2017, p.925). This log-likelihood can be maximized directly. However, PSS suggest an iterative procedure based upon the first derivatives. Initial least squares estimates of θ based on the regression $Y_t = \theta X_t$ (where Y_t and X_t are the stacked forms of $y_{i,t}$ and $x_{i,t}$) are used to compute estimates, using the first-derivative relationships, of $\emptyset_i$ and σ_i^2. These estimates are then used to compute new estimates of θ, and the process continues until convergence. Given the final estimates of θ, $\emptyset_i$ and σ_i^2, estimates of $\beta_{i,j}$ and $\lambda_{i,j}$ may be computed (ibid, p.925).Although this iterative procedure's estimates converge to the full likelihood estimates, their covariance matrix does not. Fortunately, PSS provide the analytical form of the estimate of the covariance matrix based upon the coefficient estimates.

PANEL PMG ARDL ESTIMATION, MAIN RESULTS AND DISCUSSION

In this study we employed PMG estimation introduced by Pesaran, Shin and Smith. It is assumed that an autoregressive distributive lag (ARDL) can be represented by eq.(5).In eq. (5), t trend $\sum_{i=1}^{p} \theta_i Y_{t-1}$ is dependent variable (NMR), ΔX_{t-i} is $k \times 1$ vector of regressors (independent variable VETPE, GDPPC for group). PMG estimation method proposed by Pesaran and Smith is obtained from autoregressive distributed lag models for each unit consisting of (ARDL) long-term average by using the coefficients of the long-term (Doğan, et al., 2014, p.651).The following basic ARDL (p; q) model in eq.(5) will be considered as the main equation:

$$Y_t = \alpha_0 + \alpha_1 t + \sum_{i=1}^{p} \theta_i Y_{t-1} + \beta' X_t + \sum_{i=0}^{q-1} \beta_i^{*\prime} \Delta X_{t-i} + u_t \tag{5}$$

Our study of the pooled mean group estimator follow the PSS estimating net migration rate functions for five Western Balkans countries and Turkey for the period 1991–2017. The series NMR contains 5 year average rate for each country. VETPE is a measure of total vulnerable employment and GDPPC is per capita income (in constant 2010 US Dollars). PSS estimated an ARDL(3,4,4) model with the second difference of NMR as the dependent variable and the differences of VETPE and GDPPC as the two dynamic regressors, with a constant as a static regressor.

TABLE 1
PANEL PMG ARDL ESTIMATION FOR NET MIGRATION RATE

Estimation method: ARDL (Auto regression distributive lags)				
Dependent variable: D (Net migration rate)				
Sample: 1995-2017. Included observations: 138				
Maximum dependent lags: 4 (Automatic selection)				
Model selection method: Akaike info criterion (AIC)				
Dynamic regressors: (4 lags, Automatic) : GDP per capita, Vulnerable employment				
Fixed regressors: C				
Numbers of models evaluated: 16				
Selected model: ARDL (3,4,4)				
Variable	Coefficient	Std.Error	t-statistics	Prob
Long Run equation				
GGDP per capita	0.0002	0.0001	1.4276	0.1569
Vulnerable employment	-0.2274	0.0370	-6.1386	0.0000
Short Run equation				
Cointeq01	-0.5444	0.1531	-3.5561	0.0006
D(Net migration rate(-1))	-0.0662	0.0906	-0.7310	0.4668
D(Net migration rate(-2))	0.0723	0.1279	0.5655	0.5732
D(GDP per capita)	-0.0018	0.0027	-0.6774	0.4999
D(GDP per capita(-1))	-0.0005	0.0023	-0.2125	0.8322
D(GDP per capita(-2))	0.0011	0.0019	0.5984	0.5511
D(GDP per capita(-3))	-0.0015	0.0024	-0.6300	0.5304
D(Vulnerable employment)	0.1689	0.1239	1.3464	0.1816
D(Vulnerable employment(-1))	0.0336	0.0996	0.3371	0.7369
D(Vulnerable employment(-2))	-0.1599	0.0910	-1.7562	0.0825
D(Vulnerable employment(-3))	-0.0657	0.1317	-0.4991	0.6189
C	2.4819	1.1506	2.1571	0.0337
Root MSE	1.2167			
S.D. dependent var	3.3816			
Akaike info criterion	2.9245			
Schwarz criterion	4.3348			
Hannan-Quinn criterion	3.4971			
Mean dependent var	0.5420			
S.E. of regression	1.6508			
Sum squared resid	239.8130			
Log likelihood	-162.8814			
*Total system (balanced) observations: 168 **Note: Final equation sample is larger than selection sample				

The results of the panel unit root test of individual effect indicate that, NMR, GDPPC and VETPE series are (I (1)). According to the causality results of the Granger Causality Panel Causality test, there is causality from GDPPC to NMR. This causality runs one-way from GDPPC to NMR. More clearly, we reject the null hypothesis that "GDP per capita does not Granger cause the net Migration rates". It was also found causality that runs one-way from NMR to VETPE. From the causality result can be concluded that GDP per capita causes, i.e., it is the cause of net migration rates. Accordingly, the claim based on the causality test is much stronger. This tells us that GDP per capita is a "Granger cause of net migration rates" because past GDP per capita rates explain net migration rates[7]. The similar explanation could be given also for the second one-way causality from net migration rate to vulnerable employment as percentage of total employment. Migration is well-known to affect the macroeconomic performance and labor market conditions in a country and therefore it is reasonable for existence of reverse causality as it was found. Hence, in this case, it can be pointed that there are potentially omitted factors that are correlated with the regressors. Furthermore, a Pedroni panel cointegration test was performed and there was an Automatic selection for lag length. This test provides several Pedroni panel cointegration test statistics which evaluate the null of no cointegration against both the homogeneous and the heterogeneous alternatives. In our case, seven of the eleven statistics do reject the null hypothesis of no cointegration at

the conventional level of 5%. Pedroni test shows the co-integration regression between the variables using ARDL method. From table (1) it can be seen that automatic selection (using the Akaike Information Criterion) was used with a maximum of 4 lags of regressors. Out of the 16 models evaluated, the procedure has selected an ARDL(3,4,4) model, 2 lags of the dependent variable, NRM, and by 3 lags (along with the level value) of both dynamic regressors D(GDPPC) and D(VETPE). The criteria graph shows the model selection value for the 16 "best" models. As we used the Akaike Information Criterion (AIC) criterion, figure (4) shows the 16 models with the lowest criterion value. The selected ARDL(3,4,4) model was only slightly better than an ARDL(4,4,4) model. It is notable that the top four models all use four lags of the independent variables, i.e., regressors.

FIGURE 4
**AIC (AKAIKE INFORMATION CRITERIA) GRAPH FOR ARDL MODEL**
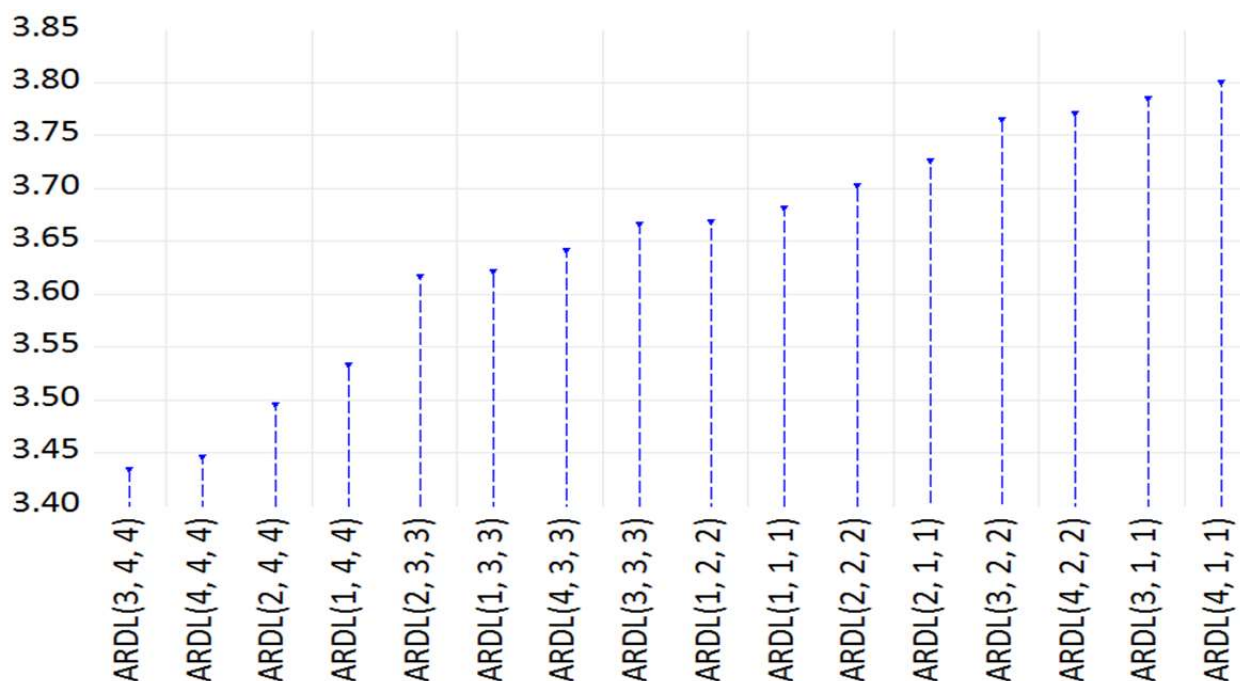
PMG is statistically most sophisticated and rigorous estimator, it validates the long run relationship between the GDP per capita and of total vulnerable employment on net migration rate. The largest impact on net migration rates is caused by VETPE (vulnerable employment as percentage of total employment).The influence of vulnerable employment on net migration rate is negative. We know that the economic effect of a macro or micro variables can come   in a delay of a specific time period i.e. the influence can come by the lagged values. In our case, the impact of both the percentage of vulnerable employment and of GDP per capita we have today in our countries could show its effect in future periods.

The coefficient on the vulnerable employment is an estimate of the long-run vulnerable employment elasticity, equals to -6.14 and it is negative (and strongly significant at 5% level).The coefficient on GDP per capita as an estimate of the long-run GDP per capita elasticity equals to 1.43 and it is positive but insignificant at 5% level. We would expect the long run vulnerable employment elasticity (the coefficient on the vulnerable employment) to be equal to at least -0.5, but the estimated value is slightly less at -0.23. A Wald test of unit elasticity was performed entering the restriction of $C(2) = -0.5$. This test rejects the null hypothesis of -0.5 unit elasticity. PMG estimator for this study has been valid for the short run (SR) and long run (LR). According to PMG in LR, only the coefficient VETPE is strongly statistically negatively significant at 5% level and GDP per capita is positive but not significant at 5% level (See

Table 1). The long-run coefficients show that only the LR impact of a change in VETPE (the percentage of vulnerable employment) on D(NMR) has significant effects. In long run only the percentage of vulnerable employment has significant impact on net migration rates. There is positive long run relationship between GDP per capita and net migration rates but insignificant at 5% level. It means that as GDP per capita will be increasing in the long-run in our countries the net migration rates will be also increasing but insignificantly. As we already pointed, in LR, the influence of VETPE on net migration rate is negative and strongly significant. In other words, the percentage of vulnerable employment will decrease the net migration rates, which in each of the countries are negative for almost the whole period (1991-2017). Thus, the percentage of vulnerable employment change will have an explicit negative influence on net migration rate in the future. It means that in the long-run, the percentage of vulnerable employment will decrease the net (negative) migration rates (probably because of the decreasing of its percentage during the period of our study and to the possibly prospected decreasing in the future as well) and its changes and effects will lead to a negative influence on net migration rates in the future and towards decreasing of the higher negative net migration rates.

D(NMR(-1)), D(NMR(-2)), D(GDPPC) and its lagged values and D(VETPE) and its lagged values have insignificant effects in the SR on D(NMR) at 5% level, i.e., their effects are meaningless. The result from table (1) shows that on the short-run, past GDP per capita and lagged-effects of GDP per capita have mostly negative and insignificant impact on net migration rates. The short-run coefficients of D (VETPE) are also insignificant at 5% level. Only D(VETPE (-2)) has significant effect in the SR on D(NMR) but at 10% level. The result from table (1) shows that on the short-run, past VETPPE and lagged-effects of VETPE (the percentage of vulnerable employment) have equally both positive and negative insignificant impact on net migration rates Thus, in SR, the variation due to past values of the percentage of vulnerable employment on net migration rates is weaker and insignificant.

FIGURE 5
STANDARDIZED RESIDUALS GRAPH FOR THE PMG ARDL MODEL
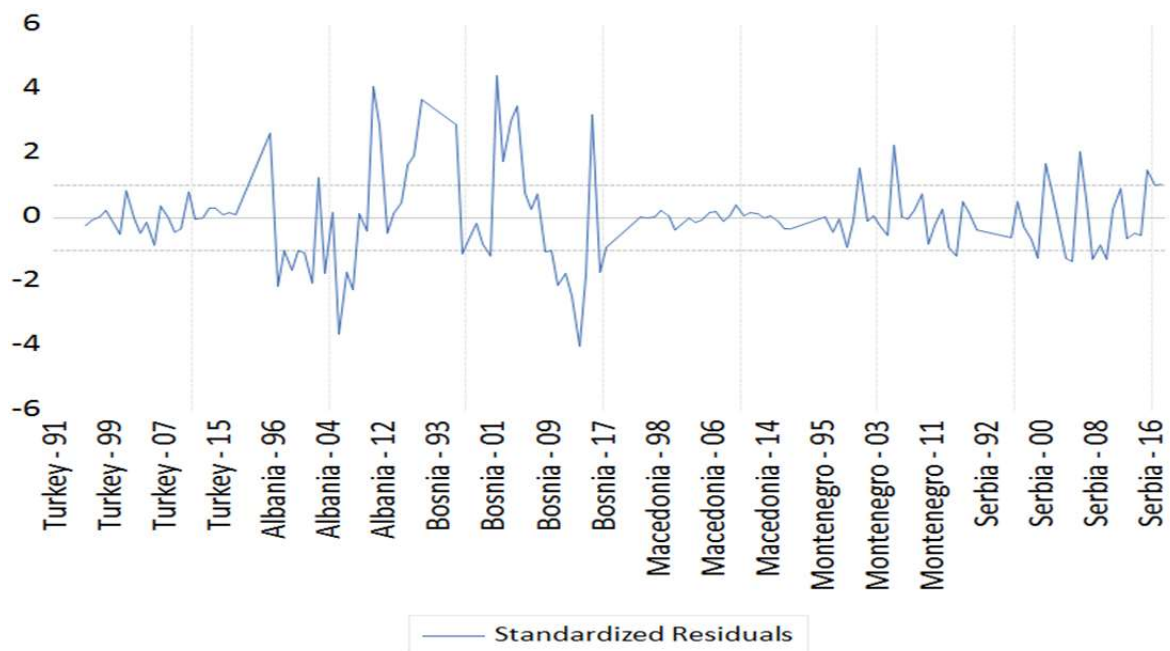
The intercept is reported in two parts; the first "C" in table (1) reports the average value of the intercept for all the countries in the sample. The residuals for the individual countries are given in tables (2-3). The average value of the intercept for all countries on net migration rates shows significant effect at

5% level (See Table 1).The residuals for the individual countries are showing significant effect at 5% level on net migration rate for Turkey and on the edge (0.564) for Macedonia, (See Table 2). In figure (5) the residuals are put into a group plot. As we can see from the residual plots in figure (5), each country's residual is centered around zero or little more. Only for Albania and Bosnia and Herzegovina can be noticed a strong deviation of the residuals.

TABLE 2
CROSS-SECTION SHORT RUN COEFFICIENTS WITH INDIVIDUAL EFFECTS: BOSNIA & HERZEGOVINA, MACEDONIA AND TURKEY

country	Bosnia		Macedonia		Turkey	
	Coefficient	prob	Coefficient	prob	Coefficient	prob
Cointeq01	-0.9298	0.0000	-1.0366	0.0000	-0.3679	0.0000
D(Net migration rate(-1))	-0.0385	0.1072	0.0792	0.0000	-5.8905	0.9972
D(Net migration rate(-2))	0.1558	0.0041	0.0091	0.0019	0.6348	0.0000
D(GDP per capita)	0.0049	0.0000	0.0018	0.0000	0.0007	0.0000
D(GDP per capita(-1))	0.0076	0.0000	0.0010	0.0000	-0.0023	0.0000
D(GDP per capita(-2))	-0.0059	0.0000	0.0020	0.0000	-0.0011	0.0000
D(GDP per capita(-3))	-0.0033	0.0000	-0.0006	0.0000	0.0011	0.0000
D(Vulnerable employment)	0.7353	0.0012	0.1116	0.0005	-0.0983	0.0001
D(Vulnerable employment(-1))	0.2026	0.0149	0.0613	0.0004	-0.0349	0.0004
D(Vulnerable employment(-2))	-0.4437	0.0009	-0.0168	0.0272	0.1231	0.0000
D(Vulnerable employment(-3))	-0.5894	0.0001	0.1105	0.0002	0.2605	0.0000
C	0.0113	0.9964	3.6961	0.0564	3.9053	0.0114

TABLE 3
CROSS-SECTION SHORT RUN COEFFICIENTS WITH INDIVIDUAL EFFECTS: MONTENEGRO, SERBIA AND ALBANIA

country	Montenegro		Serbia		Albania	
	Coefficient	prob	Coefficient	prob	Coefficient	prob
Cointeq01	-0.1978	0.0001	-0.1458	0.0008	-0.5884	0.0001
D(Net migration rate(-1))	-0.0156	0.6564	-0.5074	0.0001	0.0849	0.0278
D(Net migration rate(-2))	0.0545	0.1610	-0.1676	0.0012	-0.2526	0.0155
D(GDP per capita)	0.0008	0.0000	-0.0058	0.0000	-0.0135	0.0000
D(GDP per capita(-1))	0.0004	0.0000	-7.8305	0.0011	-0.0097	0.0000
D(GDP per capita(-2))	0.0002	0.0000	0.0042	0.0000	0.0075	0.0000
D(GDP per capita(-3))	0.0011	0.0000	0.0049	0.0000	-0.0124	0.0000
D(Vulnerable employment)	0.1032	0.0010	-0.0723	0.0206	0.2217	0.0103
D(Vulnerable employment(-1))	0.0037	0.7133	-0.3748	0.0002	0.3437	0.0022
D(Vulnerable employment(-2))	-0.0732	0.0038	-0.4044	0.0002	-0.1443	0.0152
D(Vulnerable employment(-3))	-0.1766	0.0000	-0.2086	0.0016	0.2093	0.0007
C	-0.0993	0.6232	0.4848	0.3472	6.8932	0.3599

In tables (2-3) we can view the individual cross-section short run coefficients. The results displayed show a spool containing each crosssection's coefficients, standard errors, t-statistics and p-values. GDP per capita (differenced level and in all lagged values) has a significant effect at 5% level on net migration rate for all countries. This effect is almost entirely negative for Albania and equally negative and positive

for Turkey and Bosnia and Herzegovina. Both together diferenced and lagged values of GDP per capita and VETPE have a significant effects at 5% level for all countries except for the differenced value of VETPE of Montenegro. With except of this differenced value of VETPE of Montenegro, all lagged coefficients of the percentage of vulnerable employment (VETPE) for other countries are significant at 5% (for Serbia are entirely negative and equally both negative and positive for Montenegro and Bosnia and Herzegovina). This implies that the short-run relationship exists across each of the individual country and it is significant. This indicates that the lagged values of GDP per capita and of percentage of vulnerable employment will have significant (positive and negative) individual effects over the net migration rate across all countries in the coming years. It is worth to mention also that it is expected negative impact from D (NMR (-1)) on net migration rate only for Serbia and positive effect for Albania and Macedonia in the coming years. A positive effect from D(NMR (-2)) is expected for Turkey, Bosnia and Herzegovina and Macedonia. There was not found any such effect on 5 % level for Montenegro.

CONCLUDING REMARKS

Even though the author have proposed a variety of theoretical perspectives, the neo-classical economy theory for migration was acknowledged as most relevant. At the macro approach, neo-classical economic theory explains migration by the substantial differences in the supply-demand labour between different circumstances.The founding economic theories of migration—sometimes collectively called the 'neoclassical' model—posit migration as a costly move from worse economic circumstances to better ones. Neoclassical economics focuses on differentials in wages and employment conditions between countries. The determinants which encourage migration within our research were marked with respectively, positive and negative signs, for instance positive signs for GDP per capita on LR and also on SR in coming years. In order to estimate the structural relationship between migration flows and its determinants, Fertig and Kahanec (2015) stresses the theoretical model that migration is a form of investment in human capital. The economic conditions of our countries were crucial determinant for migration. In practice, this means reducing of the household poverty, increasing the need for new and steady jobs for the people in these countries since they face with higher rates of unemployment in their countries, not enough decent employment and unfavorable income performances.

Furthermore, as was summarized from the new economics of migration, the population movement should be analyzed in the context of existing labor market but also it considers the conditions of a variety in other markets, not just labor market: capital, rural products or educational markets. It was observed that parameters signs of our ARDL model are according to these expectations and there was pure confirmation of the statistically significant effect of vulnerable employment on variations in net migration rate for these countries. There is enough evidence from our research now for researchers to be confident that the mobility transition exists, and for policymakers to focus on development instead of only developing migration policies and making (paper) strategies. According to the summaries of Clemens (2014), a broaden literature and recent data suggest something quite different: that over the course of a "mobility transition", emigration generally rises with economic development until countries reach upper-middle income, and only thereafter falls. These data do not necessarily demonstrate a transition path that any given country must take, but in our case it is true. In this regard it is just needed to look at the sign of GDP per capita on LR within our ARDL model and the rises of the GDP per capita levels within our countries which is towards the levels of upper-middle income countries.

Some other hypotheses within our research framework have been confirmed and are relevant for our countries (see for example, Peeters and Groot 2012; Brzozowski 2012; Malaj and de Rubertis 2016). Peeters and Groot (2012) have pointed out that migration flows will most likely be from countries with low GDP per capita and low levels of labor participation. Brzozowski (2012) stressed also that the crisis in the domestic economy, which contrasted with the relatively sound situation in the economies of developed countries, can certainly be considered the factor that triggered the migration process. Malaj and de Rubertis (2016) clearly emphasized that the unemployment and the relatively low salaries are also important determinants of international migration.

List of Abbreviations
ARDL: Auto Regression Distributed Lag models
PMG: Pool Mean Group estimator
GDP per capita: Gross domestic product per capita
EU-14: European Union with 14 member states
UN: United Nations
UK: United Kingdom
USA: United States of America
SFR Yugoslavia: Socialist Federative Republic of Yugoslavia
UNDP: United Nations Development Programme
PPP per income capita: Purchasing power parity (one of the ways to measure GDP)
PSS: estimation introduced by Pesaran, Shin and Smith
GDPPC: Gross Domestic product per capita
VETPE: Vulnerable employment of total population employed
NMR: Net migration rate
ILO: International Labor Organization
US Dollars: United States Dollars ($)
D(NMR): Differenced level of the Net migration rate
LR: Long-run
SR: Short-run

ENDNOTES

1. As Groenewold, et al., (2016) explain, people migrate because they are 'pulled' by demands and opportunities in foreign labour markets. This pressure is influenced by people's expected economic, legal and social status and other characteristics in destination countries.
2. This inverted-U relationship has been called the 'mobility transition', 'migration curve', 'migration transition' 'migration hump' and 'emigration lifecycle'. Source: Clemens (2014).
3. Turkey in 1987 applied for full EU membership with the intention of eventually providing free movement for all Turkish citizens. Turkey was finally recognized as a candidate for full membership in 1999, and since then its status has not changed.
4. Despite the fact that Turkish economy was very dynamic in the last years, the economic importance of Turkey in Europe remains low. Even if its rapid economic growth continues, Turkey remains a "poor neighbour" for the majority of the EU 27 states. Turkey's income per capita at market prices in 2015 was estimated at just 20 % of the EU 27 average. Source: Glazar and Strielkowski (2010).
5. Auto Regression Distributed Lag models
6. See more at: IHS (2015). EViews 9 Getting Started, Irvine, CA: IHS Markit, pp.34-37.
7. Nobel Prize-winning economist Clive Granger has found a statistical method known as "Granger Causality". X is said to be a Granger-cause of Y if it contains statistically significant information about the future values of Y. Here it is important to emphasize that this is true only for time series data. Source: Prantner, 2013, p.3

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