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THE EFFECT OF EMIGRATION ON FINANCIAL AND SOCIAL PENSION SYSTEM SUSTAINABILITY IN EU NEW MEMBER STATES: PANEL DATA ANALYSIS

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ABSTRACT. The paper brings the analysis of the emigration effects on financial and political sustainability of pension systems in 11 new European Union member states: Bulgaria, Estonia, Croatia, Latvia, Lithuania, Poland, Romania, Slovak Republic, Czech Republic, Slovenia and Hungary. The panel data analysis (fixed effects model) covers the crisis and post-crisis period from 2008 to 2017. The obtained results show that emigration growth is positively related to the pension expenditures (expressed as a share in GDP), thus having a negative impact on financial sustainability of pension system. On the other side, the emigration effect on social sustainability of pension system which is encompassed by the median relative income (65+) is not statistically significant. However, through including other socio-economic and political factors in econometric models besides the emigration (e.g. unemployment rate, education, political cycles, old-age dependency ratio, replacement ratio), the results have confirmed that there is a trade-off between the two goals of pension policies, i.e. between financial and political sustainability of pension system.

JEL Classification: J11, H55

Keywords: emigration, pension system, pension expenditures, adequacy, median relative income

Introduction

Throughout Europe, public finance is strongly under pressure of the 21st century challenges such as globalisation, ageing population, changing family patterns etc., but by far the greatest one is how to achieve stability of pension and health care systems which are under the largest social and financial pressure (Góra, 2013). The special emphasis in this paper is put on pension systems which are currently the topic of strong political interest, especially in Central and Eastern European countries (CEECs) where population ageing is determined by trends of both high emigration and low fertility. Along with fertility, migration is an important process which has a large effect on the population in countries. But the speed of their effects varies: while fertility is a relatively slow-moving process, migration changes relatively quickly as a result of economic circumstances (O'Donoghue, Redway & Lennon, 2010: 65). The combined effect of these trends results in a decline of the labour force and in an increase in

pension beneficiaries, which additionally lowers the internal returns of the PAYG system. Further, the reduced economic activity from labour outflows could also decrease tax revenues while the reduced cost of funds from the inflow of remittances leads to higher public spending, the combined result of which is an increase in government budget deficit and debt (Atoyan et al., 2016; Chami et al., 2008).

In this paper focus is put on emigration. While low fertility contributes to the increase of old-age dependency ratio, emigration could affect the pension system both directly and indirectly (OECD, 2018). Firstly, the outflow of young people undermines the current finances of PAYG pensions and accelerates population ageing in the country. Second, emigration could also have an indirect effect as returning emigrants which come back after a few years might not meet the eligibility conditions for earnings-related pensions, potentially leading to a larger expenditure on first-tier pensions (Zaiceva & Zimmermann, 2016).

The main goal of this paper is exploring the effects of emigration on the pension system sustainability in selected Central and Eastern European countries that are classified in the group of New Member States (NMS) of the European Union (EU). These are Romania, Latvia, Lithuania, Estonia, Bulgaria, Slovenia, Poland, Slovakia, Hungary, Czech Republic and Croatia. The paper is structured as follows. After the introduction section, we discuss two aspects of pension system sustainability which are considered to be two sides of the same coin and often conflicting, i.e. financial and social (political). Section 2 brings the existing theoretical and empirical findings on the effects of migration on pension system. In Section 3, a panel data analysis is performed on the sample of 11 NMS for the period 2008–2017, analysing the effect of emigration and other selected economic, political and social indicators on financial and social pension system sustainability. Section 4 concludes and offers recommendations for policy makers.

1. Financial and social (or political) sustainability of pension systems: two sides of the same coin?

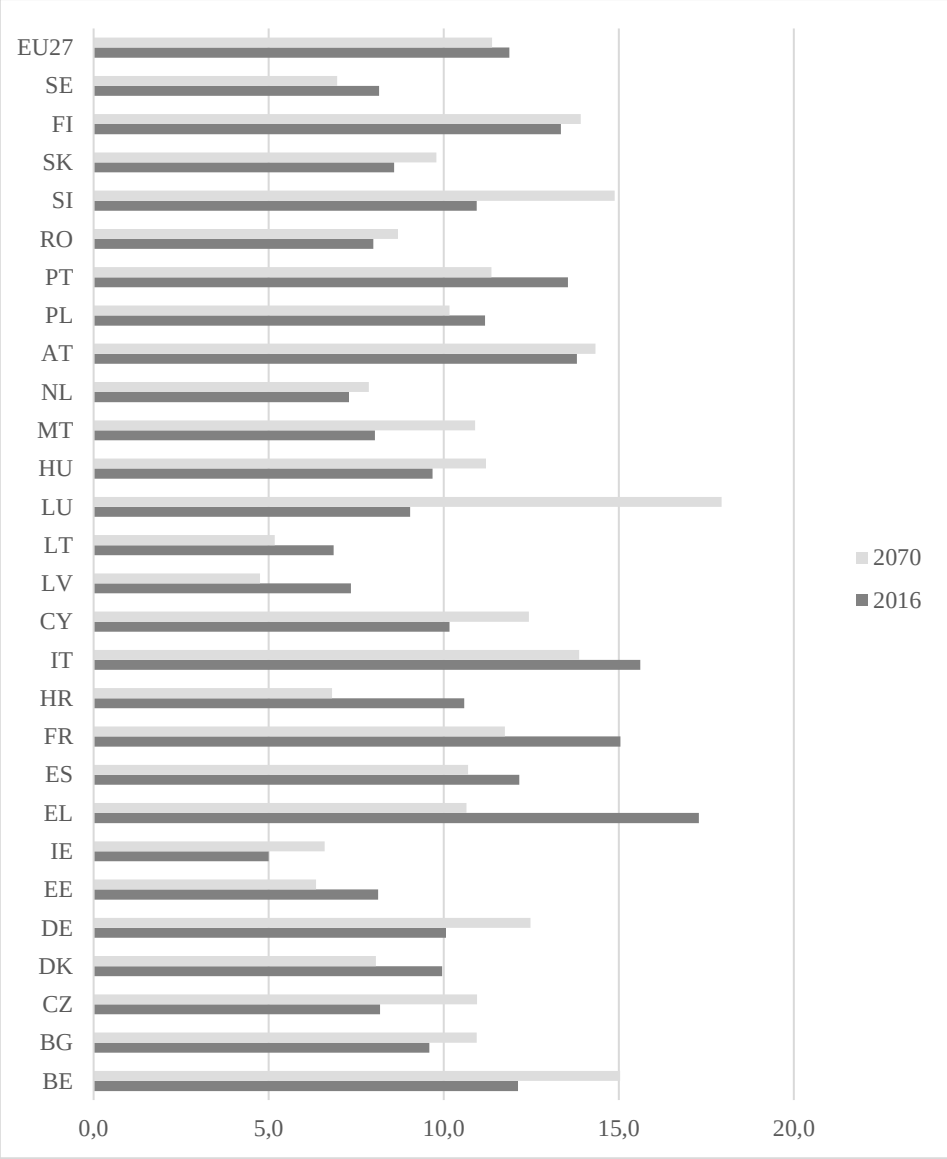
In terms of evaluation of pension systems, we could speak of two basic aspects. These are the financial (fiscal) and social (political) sustainability. Grech (2013) points out that, although pension system will be successful if it achieves its goals with the least pressure on public spending, by only following the goal of fiscal sustainability, policy-makers neglect the effects in terms of adequacy and stability in much broader terms. In a case that working-age population does not think that the current structure of public pension system is fair and adequate, they will try to either enter the unofficial labour market, cheat the tax system, or even leave the country (Mattil, 2006: 17).

The problems of pension system adequacy (referring to the prevention of old age poverty and to the substitution of lifetime earnings) and financial or fiscal sustainability, are high on the agenda of the European Commission, World Bank and OECD (Vukorepa, 2015: 284). The both of these dimensions of sustainability are in more details described below.

1.1. Financial sustainability

In the narrower terms, sustainability will be achieved if a pension system remains affordable in the long run, and from this aspect we can speak of an analysis of financial (fiscal) sustainability (Mattil, 2006). Much of the international research that is focused on pension reforms highlights the fact that prevailing demographic trends put pressure on achieving the financial sustainability of the systems (Ionescu & Jaba, 2013: 162). In this line of research, the analysis generally discusses the European Commission projections of public pension

expenditure for EU member states which are available to access within the European Commission's series of reports on costs of aging (European Commission, 2018). *Graph 1* thus shows data on the projected growth of pension expenditure (% of GDP) between 2016 and 2070 for all European Union member states.



Graph 1. Public pensions, gross as % of GDP, 2016- 2070
Source: Authors compilation based on The 2018 Ageing Report: Economic and Budgetary Projections for the EU Member States (2016-2070), European Commission (2018)

The data show that pension expenditures (as a share in GDP) differ between Member States, both in the base year 2016, and in terms of projections for the year 2070. If we look specifically at the NMS, the projected pension expenditure varies also within this group of countries.

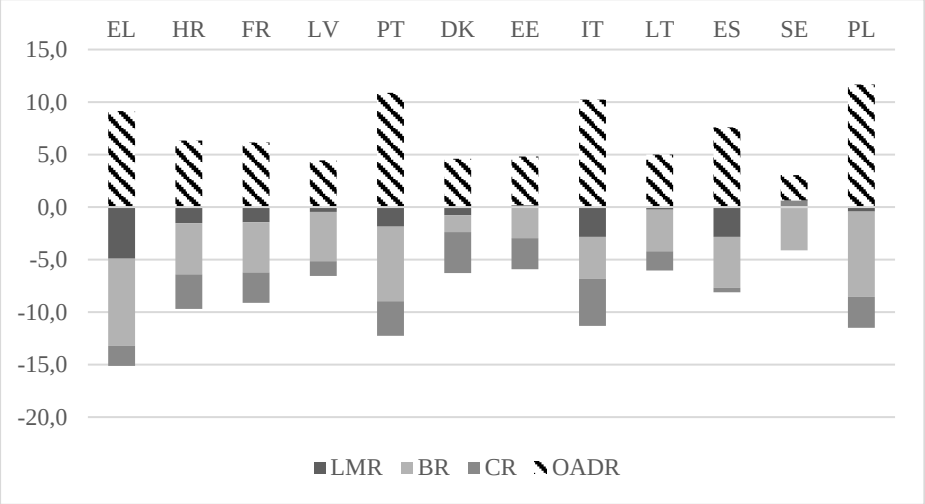
The countries with the share of public pensions in GDP above the EU average in 2016 were: Greece, Italy, France, Belgium, Spain, Finland, Portugal and Austria. Next, when analysing the projections for 2070, we can divide countries in three groups: the first one with a significant increase of pension expenditures (more than 1 percentage point) as % of GDP, the

second with a modest change (up to 1 percentage point) and those with a decrease of the public pension expenditure. The first group of countries includes Belgium, Bulgaria, Czech Republic, Germany, Ireland, Cyprus, Luxemburg, Hungary, Malta, Slovakia and Slovenia. In the second group of countries we include Netherland, Austria, Romania and Finland. Finally, in the third group of countries for which a decrease in pension expenditures is projected are: Sweden, Portugal, Poland, Latvia, Lithuania, Italy, Croatia, France, Spain, Greece, Estonia and Denmark. Taking into consideration such division, we could conclude that the most ambitious reforms in pension system in terms of achieving financial sustainability are expected in the third group of countries, with a projected decrease of public expenditures on pensions. On the other side, pension reforms, as any other reform, result in short term costs while benefits are often seen in the long run. One of the effects of reforms could be an increase in old-age poverty, which is already at high levels in many countries, and which could eventually challenge social or political sustainability of pension system. For example, almost more than 50% (in Bulgaria) and more than 30% of older people in Latvia, Lithuania, Estonia, Croatia and Romania are at risk of falling into poverty or social exclusion (European Commission, 2017:31).

1.2. Social/political sustainability

The financial issues are not the only factor that could cause a pension system collapse. Even more important, especially in the long run, is a low degree of credibility among the population. This dimension is related to the analysis of pension system sustainability in a broad term, i.e. political (social) sustainability (Mattil, 2006). Under the pressure of aging population and a resulting increase in the number of pension beneficiaries, there is a potential scenario in which older people that are not satisfied with the outcomes of pension system, begin to form anti-reform coalitions of voters and exert even more pressure on public finance in terms of higher spending on social transfers (Grech, 2013:143).

If we look in more detail data on the decomposition of the change (in percentage points) in pension expenditure as a cumulated change from 2016 to 2070 (*Graph 2*), we can see that, in the group of countries that record a projected decrease in public expenditure (Sweden, Portugal, Poland, Latvia, Lithuania, Italy, Croatia, France, Spain, Greece, Estonia and Denmark), negative effect of increased dependency ratio is mostly offset with a decrease in coverage and benefit ratio.



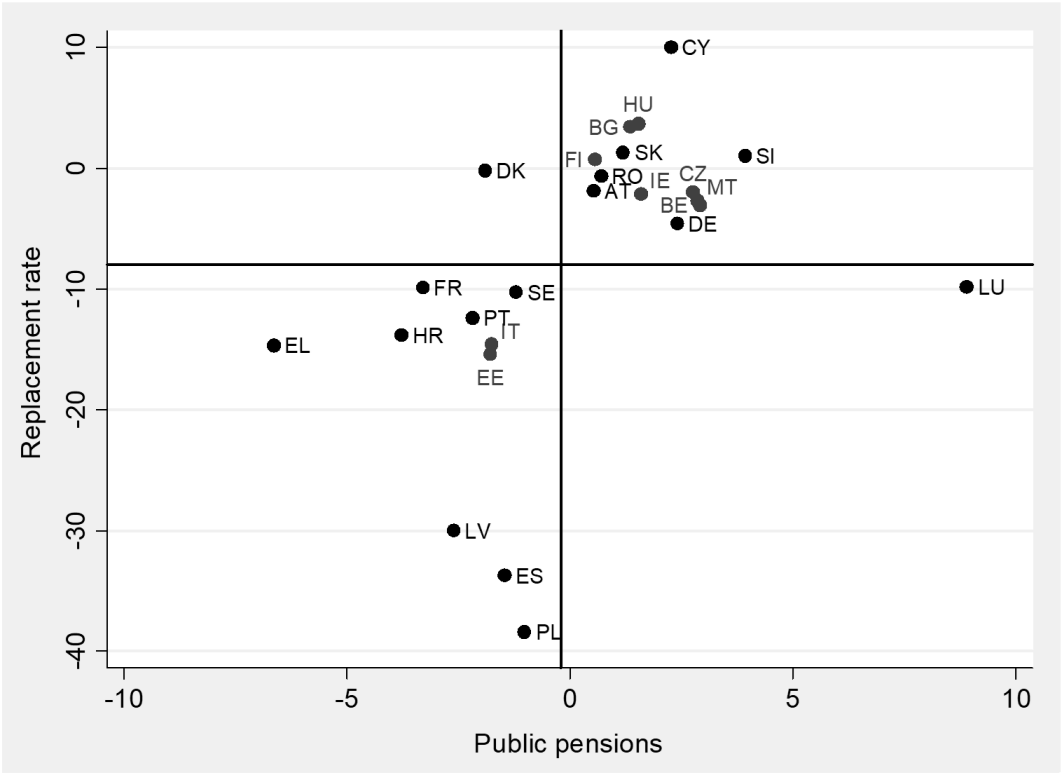
Graph 2. Decomposition of pension expenditures by factors (change in p.p. in 2016-2070 period)

Notes: LMR: labour market ratio; BR: benefit ratio; CR: coverage ratio; OADR: old age dependency ratio
Source: Authors' compilation based on The 2018 Ageing Report: Economic and Budgetary Projections for the EU Member States (2016-2070), European Commission (2018)

In other words, public pension expenditures dynamics is driven by divergent factors. Benefit ratio (average public pension payment relative to average earnings) shows that the financial sustainability is achieved through the fall in pension benefits, which goes hand in hand with potentially decreasing political sustainability due to the expected lower pensions in the future. Also, the coverage ratio which is defined as the number of pensioners relative to the number of people aged 65+, is expected to decrease in almost all observed Member States, as a result of measures that restrict access to early retirement and raise the statutory retirement age (European Commission, 2018).

One of the dimensions relevant for political stability of pension systems, i.e. adequacy of current and future pensions, reveals how pensions help in maintaining the income people for the duration of the retirement and thus prevent the risk of falling into old-age poverty (European Commission, 2017). The standard indicator for adequacy analysis is the replacement rate which shows the pension level in relation to earnings.

So, in *Graph 3*, we present the correlation of the 2016 – 2070 projected change in public pensions (as a share of GDP) and change in the replacement rate in the same period. Data show that the replacement rates are expected to decrease the most in countries with the largest projected fall in pension expenditures.



Graph 3. Replacement rates and public pensions (p.p. change in 2016-2070)
Source: Authors compilation based on The 2018 Ageing Report: Economic and Budgetary Projections for the EU Member States (2016-2070), European Commission (2018)

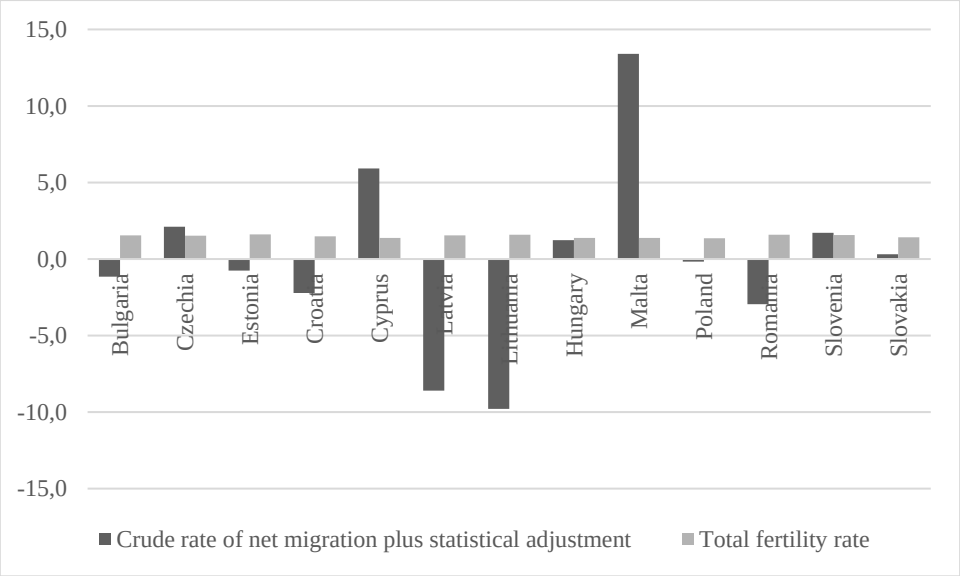
However, the replacement rate as the most used indicator of pension adequacy is faced with various criticism. The main refer to the fact that it covers only the smoothing of the consumption dimension, while neglecting the dimension of protecting the pensioners from old-age poverty (Chybalski & Marcinkiewicz, 2016: 99). Consequently, the authors (Chybalski & Marcinkiewicz, 2016) claim that the indicator of relative median income could better explain old-age poverty, suggesting that it should be used instead of the replacement rate indicator in the analysis. Moreover, it has to be kept in mind that political (social) sustainability is related to the perceptions of distributional equity, depending on the degree of income redistribution (both within and between generations) that is generally accepted in the society (Mattil, 2006).

Thus, although policies aimed at improving the financial (fiscal) sustainability are high on Member States' pension reform agendas, they must be combined with measures that ensure pension adequacy (European Commission, 2017). Precisely, as the main goal of pension reforms so far has been to achieve and preserve the financial sustainability of pension systems, only limited results were realised in the area of political (social) sustainability, i.e. income redistribution over longer period of time and between different groups in society. Nevertheless, in the process of reform evaluation, it is equally significant to take into consideration distributional effects of pension reforms (Mattil, 2006). Since in a democracy a majority of the voters is needed for a reform to be implemented, as well as assuming that the young defend their interests without any form of exit option, any reform that has a goal of cutting the unfunded pension system will be supported by the young and opposed by the old voters. Consequently, when a society starts to be ruled by elders, such reform will not be implemented at all or it will be reversed (Uebelmesser, 2004: 131). In the political economy literature, it is also well known that, the older the median voter gets, incumbents use an increase in pension spending, an increase in payroll taxes and increase in supply of public goods for the elderly (such as health-care services) as instruments in achieving their opportunistic goal of re-election (Zaiceva & Zimmerman, 2016:154).

Existing research shows that pension systems in EU countries face not only economic but also both social and political challenges. The 2018 Pension Adequacy Report (European Commission, 2017) which analyses the pension adequacy shows that the risks of falling into poverty and social exclusion of old people diverge across the Member States. In addition, the Report gives an analysis of long-term adequacy prospects and challenges by calculating the theoretical replacement rate which captures the scenario of people who start working today and who will retire in the future. Precisely, the analysis shows that the theoretical replacement rates after an uninterrupted forty years long career are expected to decrease, especially in Croatia and Poland. On the other side, increase is expected in Estonia and Bulgaria. But in the end, what does an adequate pension system means in terms of specific values of replacement rate? The ILO and the EU define an adequate replacement rate as a rate that is in the range between 45% and 66% for people who worked till the full statutory retirement age (Šonje, 2011:11); and according to data for 2016 countries which were in this range were Spain, Luxemburg, Greece, Portugal, Italy, Poland, Latvia, Malta, Slovakia, Hungary and France.

2. Impact of international migration on pension system sustainability: review of existing theoretical and empirical literature

As shown in previous section, public expenditure on pensions varies within the group of EU NMS, although they are all faced with same demographic problem of aging population, in particular regarding low fertility rates (*Graph 4*).



Graph 4. Fertility rates and net migration (2008-2017 average).
Source: Authors compilation based on Eurostat data.

The observed fall of total fertility rates triggers the progressive ageing of population, which further puts pressure on employees who are the ones that ensure funds for the sustainability of pension systems (Börsch-Supan, Härtl & Ludwig, 2014). In addition, the process of ageing is further intensified by the emigration. Precisely, although net migration data show high degree of cross-country heterogeneity, if we look the data for a longer period, in large number of countries net migration outflows are recorded. Such trends intensify the ageing problem from the aspect of putting upward pressure on public pension spending in the future. Thus, in Europe, increase in immigration is not seen as sufficient in order to compensate for the aging population process and all of its negative effects (Marinescu & Manafi, 2017: 48).

It has to be kept in mind that the effect of migration on pension system depends on the age and educational characteristics of migrants. Since young people that have higher educational attainment level and who are the needed as contributors in the pension system are more likely to emigrate, the effects of emigration on pension systems are inevitable (Sarfati & Ghellab, 2012). The older population that is left behind will put pressure on both pension and health spending (Clements et al., 2015). Thus, previously described migration trends, along with an effect in terms of increased risks on public expenditures, also contribute to the mismatch between available jobs and the qualifications and competencies of the workforce and an increasing incidence of poverty at work and in retirement, as well as social exclusion (Sarfati and Ghellab, 2012).

Atoyan et al. (2016:23), exploring the cumulative effects of emigration during 1990–2012 period in CESEE region show that emigration is correlated with higher spending on social benefits and public consumption, higher consumption-based tax revenue and lower income tax. Furthermore, the authors show that emigration results in an increase of social contribution revenue relative to GDP, as a consequence of net effect of higher wages and unemployment on one side, and higher labour tax wedge associated with emigration and remittances on the other side.

Marinescu and Manafi (2017) conducted the analysis for EU Member states divided in two groups of countries: first, EU/EFTA centre-receiving countries and second, EU/EFTA periphery-sending countries, excluding Switzerland, Cyprus, and Iceland. The authors analysed the effect of international migration on pension expenditure in the period from 2004 to 2013.

Their results showed that for the second group of countries, emigration of working people who no longer contribute to the pension system, results in an increase of pension expenditures.

Johansson (2008) examined the fiscal effects of emigration using a dynamic macroeconomic framework in a case of emigration from Sweden in 1998. Author additionally explores how the fiscal effects of emigration are contingent on emigrants' characteristics such as age, gender, educational attainment etc. The obtained aggregate fiscal cost amounted to 0.62% of GDP, with the fiscal impact of emigration being larger for high-skilled emigrants.

Alves et al. (2019), using demographic forecasts and prospective exercises for the evolution of the Portuguese economy during the 2015–2060 period, assess the effects of migration on the financial outcomes of the Portuguese old-age pension scheme. Their results show that the influx of immigrants and a decrease of emigrants would contribute to the old-age pension system financial equilibrium.

3. Econometric analysis

3.1. Data and variables

The main goal of the paper is to empirically analyse the effects of emigration and other selected demographic, economic and social factors on public pension sustainability. The novelty in this paper is that we analyse the determinants of both the financial and political sustainability. Also, we test the effects of emigration on pension systems sustainability in a dynamic approach covering the crisis and post-crisis period from 2008-2017. So, the hypothesis tested in the paper is that an emigration growth results in a higher pressure on the pension system sustainability, both financially and politically.

In achieving this goal, we estimate two models. The first one where the dependent variable captures the financial stability aspect, i.e. the share of public expenditure on pensions in GDP:

$$Y_{it} = \beta_1 X_{it} + \alpha_i + u_{it} \qquad (1)$$

where the dependent variable is pension expenditures (as a share in GDP) (*Pub_exp*) in country *i* in year *t*, and X_{it} encompasses independent variables included in the model (emigration, unemployment rate, political cycles, education and old-age dependency ratio).

Within the second model, political stability aspect of pension system is captured by the variable of relative median income ratio (for persons aged 65 years and over compared to persons aged less than 65 years as a proxy for adequacy. The equation of this model is as it follows:

$$Y_{it} = \beta_1 X_{it} + \alpha_i + u_{it} \qquad (2)$$

where the dependent variable is pension system adequacy measured by median relative income (65+) (*Adequacy*) in country *i* in year *t*, and X_{it} encompasses independent variables included in the model (emigration, political cycles, aggregate replacement ratio and old-age dependency ratio). Table 1 offers detailed description of data and variables used, as well as data sources for both of the models.

Table 1. Description of variables and data sources

Variables	Description	Source
MODEL 1: Dependent variable Pens_exp	Public pension expenditures (share in GDP)	Eurostat
Emigration	OECD gives data on the inflow of foreign population by nationality which enters the model as the number of emigrants for the countries in the sample	OECD
Unemp	Unemployment rate (%)	Eurostat
Old_age	Old age dependency ratio	Eurostat
Education	Share of tertiary educated people (%)	Eurostat
Elections	Political dummy variable, takes value 1 in the year of elections, 0 otherwise	Database of Political Institutions (Beck et al., 2001), World Bank
MODEL 2: Dependent variable Adequacy	Median relative income (65+)	Eurostat
Emigration	OECD gives data on the inflow of foreign population by nationality which enters the model as the number of emigrants for the countries in the sample	OECD
Pens_exp	Pension expenditures (% of GDP)	Eurostat
RR	Aggregate replacement ratio	Eurostat
Elections	Political dummy variable, takes value 1 in the year of elections, 0 otherwise	Database of Political Institutions (Beck et al., 2001), World Bank
Old_age	Old age dependency ratio	Eurostat

Source: own compilation

Our main independent variable of interest in both of the models is an increase in number of emigrants (emigration growth). Increasing emigration trends contribute to a decrease in a working population on whose contributions the funding of the pension systems depends, challenging the intergenerational income distribution. Further, this puts pressure on welfare reforms, contributes to the existing mismatch between the labour demand (available jobs on the market) and labour supply (in terms of the education and skills of the labour force), as well as increases the risk of poverty and social exclusion, both at work and in retirement (Sarfati & Ghellab, 2012). All of this puts significant pressure on government finance, especially through increase in the pension expenditures.

When it comes to research on emigration, it should be noted that there are some limitations, primarily concerning the number of emigrants which is usually underreported due to problems with registration of emigrants, and this must be kept in mind when assessing the credibility of the used data. Also, the existing data do reveal details on emigrants' characteristics on their educational attainment (Škuflić and Vučković, 2018). Another limitation in this paper is that remittances are not taken into consideration, which is thus seen as an avenue for future research, since they can have positive impact on investment and economic development.

While the most common measure used in existing research is the difference between the number of immigrants and emigrants (net migration), the novelty in this paper is that we use

the so-called mirror statistics of origin and destination countries (as in Škuflić & Vučković, 2018; Draženović, Kunovac & Pripužić, 2018). Precisely, we adopt the mirror statistics for selected NMS and calculate the indirect emigration flows for these countries referring to the immigration statistics of the OECD countries[1]. We take the number of immigrants according to the nationality principle. Table 2 shows the descriptive statistics of variables.

Table 2. Descriptive statistical analysis of variables (2008-2017)

	Obs	Mean	Std.Dev	Min	Max
Pens_exp	110	9,02	1,46	5,7	12,2
Emigration growth rate	110	7,22	25,46	-39,35	120,7
Unemp	110	9,53	3,58	2,9	19,5
Median income	109	0,84	0,12	0,57	1,05
Old_age	110	25,15	3,44	16,8	31,8
RR	108	0,51	0,09	0,3	0,68
Elections (dummy)	109	0,28	0,45	0	1
Education	110	21,61	6,07	10,7	34,8

Source: Own compilation based on Eurostat, OECD and World Bank data.

3.2. Results of the analysis

Both models were estimated by the fixed-effects method, since this method allows that $\alpha_i$are correlated with the regressors X_{it}, tolerating a limited form of endogeneity (Cameron and Trivedi, 2009). We have conducted country-specific effects to avoid biased estimates, and the regressions have robust standard errors clustered by country to account for heteroscedasticity and correlation (the robust standard errors are given in the in parentheses)

Table 3 shows the results of the fixed effect with country fixed effects. The Wald statistics (24.96) indicates that the model is significant (Prob > F = 0.0000).

Table 3. MODEL 1: The effect of emigration on financial sustainability of pension systems

VARIABLES	(1) Model 1
Emigration	0.004** (0.00129)
Unemp	1.598*** (0.323)
Education	-4.529*** (1.067)
Old_age	7.798*** (2.143)
$Elections_t$	0.131* (0.0666)
$Elections_{t-1}$	0.120 (0.0863)
Constant	-5.836 (4.895)
Observations	97
Number of countries	11
R-squared	0.56

Source: own calculation

Note: Robust standard errors clustered at the country level are given in the parentheses. ***, **, and * indicate significance at 1 percent, 5 percent, and 10 percent levels, respectively (*** p<0.01, ** p<0.05, * p<0.1)

[1] Draženović, Kunovac and Pripužić (2018) use the immigration statistics of the EU core countries but we expand the analysis to the OECD countries which includes also the non-EU countries that are often destination countries for our sample of NMS.

The results show that our main independent variable of interest, emigration growth, is statistically significant at 5 percent level and positively related to the share of pension expenditures in GDP. In other words, growth of emigration results in an increase of pension expenditures. Further, unemployment rate has a positive impact on pension system expenditure, which is in line with the literature (see e.g. Medeiros Garcia and Rodrigues Rocha da Silva, 2019), as well as the old age dependency ratio, the both of which are statistically significant at 1 percent level. Share of tertiary educated people is statistically significant at 1 percent level and negatively related to the pension expenditures implying people with higher educational attainment level tend to postpone their retirement; which results in a decrease of expenditure on pensions (the result is in line with the research of Marinescu & Manafi, 2017). Such finding is also in line with the views that the decrease in the number of employees which is a consequence of a decrease in fertility rate could be compensated through increase in productivity, with investment in education being a key factor of this productivity growth (Cremer, Gahvari & Pestieau, 2011).

Another important finding is related to the effect of political cycles on pension expenditures. The results show that elections have a positive and statistically significant (at 10 percent level) effect on pension expenditures, i.e. in election year pension expenditures record an increase, which is in line with the political economy literature suggesting that incumbents manipulate fiscal policy instruments in order to satisfy their opportunistic interests, i.e. maximizing the probability for winning the elections (see e.g. Klomp & de Haan, 2013). This result could have some significant implications for countries where the number of pensioners as one of the interest groups whose needs politicians satisfy in order to gain their support, records an increasing trend. Such unsustainable budget spending implies that in the future the government is required to change the policy through cutting its spending and/or raising taxes (Siermann, 1998).

Since limiting public expenses and fiscal deficit in circumstances of economic downturn, especially with high unemployment, could be done through cutting down the pension benefits, political stability of pension system comes into question through the effect of such measure on retirement income adequacy (Medeiros Garcia & Rodrigues Rocha da Silva, 2019). As high unemployment leads to negative net migration, this even further intensifies the ageing process.

Therefore, the Table 4 shows the results of the analysis on the effect of emigration on political sustainability of pension system. The Wald statistics (27.64) indicates that the model is significant (Prob > F = 0.0000).

We can see from the table that the largest effect on median relative income comes from an increase in public pension expenditures which is statistically significant at 1 percent level, confirming that the financial sustainability achieved through a decrease of pension expenditures would come at the cost of a decrease in adequacy measured by the median relative income, i.e. in political sustainability deterioration.

Table 4. MODEL 2: The effect of emigration on political sustainability of pension systems

VARIABLES	(1) Model 2
Emigration	0.000267 (0.000216)
Pens_exp	0.0335*** (0.0121)
Old_age	-0.00764** (0.00320)
Elections	0.00554* (0.00309)
RR	0.513*** (0.127)
Constant	0.461*** (0.0965)
Observations	107
Number of countries	11
R-squared	0.58

Source: own calculation
Note: Robust standard errors clustered at the country level are given in the parentheses.
, **, and * indicate significance at 1 percent, 5 percent, and 10 percent levels, respectively (p<0.01, ** p<0.05, * p<0.1)

Emigration is statistically insignificant, while the replacement ratio and old age dependency ratio as one of the control variables are statistically significant at 1 percent and 5 percent level, and have positive and negative estimated effects, respectively. The variable that captures the effect of political cycles, dummy variable for election year, is again statistically significant at 10 percent level and implies that with an increase of median relative income in election year, incumbents implement policies opportunistically.

Conclusion

Population ageing is seen as a threat to the sustainability of PAYG pension systems as the number of those who pay taxes decreases, and the number of pensioners increases. The main goal of this paper was to examine the influence of one of the factors that aggravate the process of ageing, i.e. emigration, on pension system sustainability. In achieving this goal, we examine two sides of the pension system sustainability which are financial and social/political sustainability. Panel data analysis is performed on a sample of 11 New Member States, in the period from 2008-2017.

The obtained results show that emigration is positively related to the pension expenditures, thus having a negative impact on financial sustainability, which confirms some of the previous research (e.g. Marinescu and Manafi, 2017; Atoyan, 2016). On the other side, the result on the emigration effect on political sustainability of pension system is not statistically significant. Rather, the results have confirmed that financial and political sustainability of pension system are inconsistent and that there is a trade-off between these two objectives.

The results obtained in the paper are in line with previous research which highlight the perception that policy makers need to have in mind that pension systems do not change in a *vacuum* but rather reflect a variety of economic, social and political dimensions (especially the ones related to demographic and labour market outlook) (Sarfati and Ghellab, 2012). The result of the model 1 which implies that international migration, precisely the emigration growth and

unemployment, lead to the increase in the public expenditure in pensions point out that the main area for policy interventions is in the labour market. Finally, although the effect of international migration is still not so much reflected in the political aspect of sustainability, taking into consideration the prevailing projections of cuts in public expenditure at the expense of current and future pensioners, there remains an open question on when will the trend of emigration (of young and educated people) deteriorate the credibility towards pension system (and any attempt of reforming it) among the population that stayed in country.

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