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REMINDER

ROLE OF EUROPEAN MOBILITY AND ITS IMPACTS
IN NARRATIVES, DEBATES AND EU REFORMS

Unemployment benefits, EU migrants workers, and the cost social protection in European welfare states

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1 Introduction

The European Union is challenged by a number of factors, and some of the most salient issues are related to the international migration of individuals and families. For example, Member States of the European Union to date have failed to agree on how to reform the system for asylum-related migration. Challenges also arise with regard to internal labour migration within the union, what in the EU context is labelled 'labour mobility'. It has been subject to recurrent controverices (e.g. Ruhs and Palme 2018) and constitutes the foucs of this paper. Intra-EU labour mobility is regulated according to one of the fundamental principles of the Union; the 'free movement' of workers – one of the 'four freedoms', and a cornerstones of the Rome Treaty of 1957. Some of the tensions associated with free movement are related to the equal access to welfare benefits that comes with another fundamental principle of the Rome Treaty, 'equal treatment'. Partly, the tensions appear to be a matter of principle, and have to do with the way in which the EU regulates access to benefits, but tensions have also been associated with the estimated costs that are assumed to arise from migrant EU workers having access to benefits. In this paper we will focus on the latter aspect of free movement.

The fear that migrant EU workers are a burden to their host societies has long loomed large and gained especially strong momentum in the United Kingdom (UK). Not only did it contribute to the political atmosphere that triggered the Brexit referendum, but presumably also to the referendum outcome supporting an exit from the EU. That many people think that EU workers are a fiscal burden to their host countries is not necessarily based on a correct evaluation of the real fiscal effects. In fact, Blinder and Markaki (2018) have shown that there is a substantial gap between what people think about the fiscal effects and more systematic attempts to assess such effects. In a comparative empirical analysis of EU/EFTA countries, Nyman and Ahlskog (2018) produced estimates that by and large indicated positive net effects on the public finances. Whereas some countries in Eastern Europe, with very few EU immigrant workers, showed small negative net effects, all Western European countries, with or without large migration, showed positive effects. The average fiscal contribution was estimated to be

approximately 0.5 % of GDP, but in a few countries was clearly higher than that (Norway and Switzerland).

Another notion that seems to have gained traction is that more generous welfare state generates a higher fiscal burden of hosting EU migrant workers compared to leaner, less generous, welfare states. In an attempt to test this assumption systematically, Österman, Palme and Ruhs (2019) found that, while it could be established that EU migrants workers tended to receive more benefits in generous kinds of welfare state regimes than in leaner ones, the net effect did not differ between different kinds of Western European welfare state regimes. The simple explanation is that immigrants (like natives) contributed more to the public finances in the form of taxes and social security contributions in the more generous welfare regimes.

In this paper we go beyond the regime approach and take a more in-depth look at a specific social protection program: unemployment insurance. There are several reasons for giving closer attention to the case of unemployment benefits. In the context of free movement, unemployment insurance is the 'most likely case' of being a burden on the finances of the welfare state (at least from an all-European perspective[1]). This is partly about demography: mobile workers are primarily of working age and therefore not only eligible for employment-related benefits but also less likely to be in need of health care and other old-age related benefits and services. It is also likely that EU migrants workers would be more strongly affected by economic shocks such as the Great Recession, giving rise to higher relative costs particularly in countries that were strongly affected by the repercussions of this global financial crisis.

Research on the receipt of unemployment benefits among EU migrant workers is limited. Very few comparative studies have an explicit focus on the individual benefit systems and their consequences for migrants' access to and use of social protection in times of unemployment. Crucial differences regarding entitlement rules and benefit generosity are often absorbed into large-scale government spending data (Giulietti et al. 2013; Razin and Wahba 2015). It is

[1] In the UK system, in-work benefits (i.e. income boost for low-income working population) are probably a bigger issue as they cover more people and are more expensive to the government.

therefore often not possible to link the level of benefit receipt among EU migrant workers to the particular construction of a specific unemployment benefit system.

The purpose of this paper is to address this gap in the literature and analyse the relationships between institutional configurations in unemployment insurance among EU Member States on the one hand, and the costs and net fiscal effect of EU migrant workers on the other.

The paper is organised as follows: first we will formulate some theoretical expectations about the relationship between various aspects of unemployment insurance programs and the costs as well as fiscal effects of EU migrant workers. Then we will present the analytical framework and the data to be used, and here we will rely on country-level data from the *Social Insurance Entitlement Dataset* (SIED) and individual-level income data from the *European Statistics on Income and Living Conditions* (EU-SILC). Thereafter we present the results. Finally, the paper is concluded with a discussion.

2 Theoretical expectations

It is important first to clarify that we are not only interested in the unemployment benefit costs and net fiscal effects of EU migrant workers compared to natives, but we also want to identify the sources of the cross-national variation. There are different potential sources of such effects. We will give special attention to the configurations of unemployment insurance programs but we will also include other factors on the micro- and macro-levels in the empirical analysis. While we include the micro-level factors as control variables, the contextual factors warrant some theoretical deliberations about social policy/unemployment insurance institutions as well as labour market structures.

The underlying logic of social protection varies across European welfare states. This is especially true for unemployment insurance systems. It is also the case that unemployment insurance, more than other social protection programs, has a tendency to diverge from the predominant welfare regime of a country (Korpi and Palme 1998). In the EU, unemployment benefit systems vary in their reliance on social security contributions from employers and insured persons, as well as in their reliance on subsidies from the general revenue (Esser et al 2013). The role of

state subsidies is expected to vary over time depending on levels of unemployment. Entitlement to benefits in unemployment insurance programs are typically based on the level of prior contributions, and/or proof of active labour market participation. This 'logic of reciprocity' ensures income security primarily for members of the workforce who drop out of paid employment on a short-term basis. Individuals outside, or at the fringes, of the labour market are more likely to rely on tax-funded and means-tested benefits instead. Whereas some countries provide special unemployment assistance benefits, other countries direct uninsured job seekers to regular social assistance (Esser et al. 2013; Palme and Ruhs 2019; Sjöberg, Palme, and Carroll 2010).

Hence, even if unemployment benefits are provided according to an insurance logic across European welfare states, they vary substantially in terms of their design, and this is expressed in system characteristics such as coverage, qualifying periods, benefit levels and duration of payments.

A system with strict qualifying conditions makes it more difficult for labour market entrants to become fully insured on par with the core groups on the labour market (sometimes called insiders). Those who actually do qualify for an insurance benefit in a country with might receive higher benefits relative to EU migrant workers in countries where qualifying conditions are not so strict but benefits typically are paid at a lower rate. However, their payments will be lower than those of the remaining population. A similar logic applies to the quality of benefits. A system that provides transfers at high replacement levels and/or for a long period of time is more attractive for members of the core workforce than one that is limited by short-term provision, low benefit ceilings or flat-rate payments. EU migrant workers are therefore expected to receive lower payments in comparison to the rest of the population in countries with higher replacement rates and longer periods of benefit payments. Still, the relative costs of EU workers vs. native workers is not only driven by differences in levels of entitlements, but also by the incidence and length of unemployment.

Hence, of key interest for the study of costs and revenues is of course the question of the extent to which resulting differences in relative costs across countries can be attributed to the

position of migrants in the labour market. Here we distinguish between micro- and macro-level factors. Apart from the EU migration status, micro-level factors will be used as controls but our theoretical interest is primarily in the macro level factors. The differences between migrants and natives are expected to be influenced by a number of contextual factors out of which institutional characteristics are just one subset. Equally important are the structures and conditions of labour markets. For example, migrants are overall less likely to move to and/or generate revenues on par with the native born in a labour market that strongly relies on specific skill sets or higher levels of education (Boräng 2018; Devitt 2011; Kogan 2006).

The position of immigrants on the labour market is expected to be more precarious than that of natives, even in countries with generous welfare states (Jones 1998; Moller et al. 2003). Both their costs and revenues for the unemployment benefit system are therefore expected to co-vary more strongly with economic recessions.

In combination with the positions of EU migrant workers on the labour markets in the host countries, variations in the conditionality and quality of unemployment benefits across European welfare states are expected to contribute to shaping the relative position of EU migrant workers in the distribution of unemployment benefits. Following this line of reasoning, we would expect the following effects of unemployment insurance systems on the relative costs of EU migrant workers. Broader coverage, higher replacement rates, and longer duration will generate higher relative costs of EU migrant workers, whereas a longer qualifying period would generate lower relative costs. A high proportion of low-skilled workers (of any origin) in the labour force will generate higher relative costs for EU migrant workers, as will periods of economic recession and high unemployment.

3 Data & Methods

The empirical approach of this paper follows those outlined in previous contributions of the REMINDER project (Nyman and Ahlskog 2018; Österman, Palme, and Ruhs 2019; Palme and Ruhs 2019). Net fiscal effects of intra-EEA migration are studied descriptively across countries using a static model. All payments from the public budget to an individual are added up on an

annual basis and subtracted from the estimated amount of contributions over the same period of time. The resulting average 'net-effects' per person are then summarized on the national level, allowing for a systematic cross-country comparison between natives and EU migrant workers. The key difference in this study is that unemployment benefits are separated out from the summary of costs and revenues. This generates a more in-depth understanding of the mechanisms underlying the broader cross-sectional patterns identified by Nyman and Ahlskog (2018) and Österman, Palme and Ruhs (2019) but it is also a partial approach which warrants putting the results into the broader context of the preceding studies.

Focusing on one single component of the social protections system, such as unemployment insurance, has important advantages. However, it also requires an adaptation of the empirical strategy. A key challenge for cross-country studies on unemployment benefits is the macro-level distribution of costs and revenues. Unemployment benefits have a broad funding base with a combination of taxes and contributions paid by a large share of the labour force, but they are only received by a minor share of the same group and often for rather short periods of time. Aggregate statistics are thus unbalanced between a large group of contributors, a small group of beneficiaries and one of 'neutral' economically inactive individuals in between (students, retirees, etc.). A single indicator for average net-effects per country and year provides a broad estimate of the budgetary balance between the three groups, but it gives very little information about actual costs and revenues generated by intra-EEA migration. Estimates for aggregated net-effects are therefore combined with disaggregated analyses for the subgroups of contributors and beneficiaries. Both are first studied descriptively across countries and then analysed with the help of multi-variate regression analyses for a more in-depth understanding of the relationship between configurations of unemployment benefit system and the net effect of intra-EEA migration.

3.1 Data

The empirical approach for this study requires a combination of detailed micro-level information on income and EEA-migration along with macro-level data on institutional characteristics of unemployment benefit systems across countries and over time. Our strategy

for selecting and structuring corresponding datasets builds on the work of Nyman and Ahlskog (2018) as well as Palme and Ruhs (2019). Both these contributions provide detailed discussions of the data, which will be summarized below.

Individual-level information on contributions and benefits come from the *European Union Statistics on Income and Living Conditions* (EU-SILC)[2]. Analyses in this paper cover the same period as in previous contributions (2005–2015), but the selection of observations on both the individual and country level had to be modified due to the focus of the study. Unemployment benefit receipt is coded for each person in EU-SILC, and that requires an analytical shift from the household to the individual level. Since unemployment benefit systems are designed specifically for the working age population, only individuals older than 15 and younger than 65 were included. The number of remaining individuals exceeds the total number of households in each country, which means that the shift towards individual-level analyses raises the total number of observations in all datasets. However, meaningful statistical inferences are still severely restricted for a number of countries. Only roughly 10% of individuals in EU-SILC have recorded unemployment benefit receipt which means that robust estimates for this subgroup of contributors is limited, especially for datasets with a low number of EU migrant workers. Countries were therefore dropped from the analysis if they did not have at least 1000 observations with EEA-migrant status in each yearly dataset, to ensure that the final dataset contains a substantial number of EU migrant workers with benefit receipt.[3] Following this rule of thumb reduced the number of cases to 15 Western European countries: Austria, Belgium, Denmark, Finland, France, Greece, Ireland, Italy, the Netherlands, Portugal, Spain, Switzerland, Sweden and the United Kingdom. The loss of new Central and Eastern European Member States is problematic in one sense, but since the study is motivated by the political tension in countries with substantial immigration of EU workers this is not a major drawback. The study of the economic effect of EU worker emigration requires other data as well as methods.

[2] ec.europa.eu/eurostat/web/microdata/european-union-statistics-on-income-and-living-conditions [last accessed: 29 May 2019]

[3] This approach also excludes countries with no explicit differentiation between EEA-migrants and those from other countries of origin (Germany, Estonia, Latvia, Malta and Slovenia).

Country-level data on the configurations of unemployment benefit systems is derived from the *Social Insurance Entitlements Dataset* (SIED).[4] Four primary variables were generated from this data source. The *coverage* of the unemployment insurance system is included as a percentage share of individuals in the labour force. A second variable refers to the *qualifying period,* measured in weeks*,* that claimants need to be signed up and/or have an employment record for in order to receive benefits. Generosity of payments is measured as the *replacement rate* at which an average earner receives payments relative to previous earnings (net of taxes).[5] Lastly, the maximum number of weeks with received payments is added as a measure of benefit *duration*.[6] All four variables are centred at their mean in order to facilitate interpretation.

Information on the four macro-level variables is coded on a 5-year basis in the SIED dataset and covers three of the years studied on the micro-level: 2005, 2010 and 2015. Imputations are used to extend the macro-level variables to the years in between using three time-series: 2005–2007, 2008–2011 and 2012–2015. Values on the four main variables are carried over for corresponding datasets within the same time series. This form of imputation means that fluctuations between the years are somewhat underestimated. However, it is a reasonable approach when considering that unemployment systems are marked by enduring stability, even throughout the years of the Great Recession (Helgason 2019).

3.2 Modelling costs, revenues and net-effects

Two central elements constitute net fiscal effects on the individual-level: contributions (revenues) and benefit-payments (costs). EU-SILC allows for a rather straightforward analysis of the latter. Detailed information on annually-received payments from the unemployment system is provided for all countries with very few gaps in the data collection process. Payments

[4] spin.su.se/datasets/sied [last accessed: 29 May 2019]

[5] The number of observations in EU-SILC does unfortunately not allow for separate analyses by household type and time of benefit receipt. The standard indicator for a single household'shousehold in the first week of benefit receipt is used as a reference as it correlates strongly with all other indicators in the dataset.

[6] Duration is top-coded at 150 weeks as some countries guarantee either an exceedingly long duration of benefit payments or no limitation at all.

are recorded in euros and can be adjusted for comparisons across countries and over time using purchasing power parities (PPPs).[7] However, there are also some central limitations to the use of a comparative approach. EU-SILC operates under an 'output-oriented' framework, which means that partner organizations in each country are given target variables which they fill based on their own procedures and capacities. Coding plans follow standards set by the so-called Mutual Information System on Social Protection (MISSOC), but the guidelines for unemployment benefits in EU-SILC are still rather vague. Payments only need to fulfil at least one of the following criteria:[8]

- Replace, in whole or in part, income lost by a worker due to the loss of gainful employment.
- Provide a subsistence (or better) income to persons entering or re-entering the labour market.
- Compensate for the loss of earnings due to partial unemployment.
- Replace, in whole or in part, income lost by an older worker who retires from gainful employment before the legal retirement age because of job cuts made by their employer for economic reasons.
- Contribute to the cost of training or re-training people looking for employment.
- Help unemployed persons meet the cost of travelling or relocating to obtain employment.

The core logic of this coding revolves around the provision of income security for those who drop out of paid employment for a short period of time. It does not distinguish between tax-funded or contributory, insurance or basic (unemployment assistance) benefits or, for that matter, short- or long-term payments. However, targeted and means-tested benefits are coded separately on the household level, which means that all registered 'unemployment benefit'

[7] For a discussion of this adjustment applied here see Österman et al. (2019).
[8] gesis.org/en/missy/materials/EU-SILC/documents/guidelines [last accessed: 30 May 2019]

payments in EU-SILC have in common that they are either dependent on or at least institutionally linked to labour market participation.

Data on individual-level contributions is unfortunately not available in EU-SILC. It is therefore not possible to directly measure the revenue side of the unemployment benefit system. However, each person's level of payments into the system can be modelled using other variables in the dataset. All funding structures of unemployment benefit systems in Europe are in some shape or form 'earnings-related,' meaning that individuals with higher earnings contribute relatively more than those with low or no earnings. This is true for both contributory- and tax-funded components of any unemployment benefit system. Contributions can therefore be modelled indirectly, assuming that they are approximately proportional to a person's income from earnings. A corresponding model can be specified for each country-year dataset as follows:

$$contributions_i = \frac{earnings_i}{\sum earnings_i} \times \sum benefits_i$$

This model implies that each unemployment benefit systems is financially balanced for every country in every year. Such an assumption is of course particularly problematic in times of crisis, when the systems need to make more payments to those who lost their jobs than they can fund with regular contributions and subsidies. The model still holds as long as deficits are covered with transfers from other components in the public budget that are themselves paid for by payroll taxes and/or contributions. However, the contribution side is clearly overestimated if funds come from government lending or other budgetary resources that are not related to earnings. This should be taken into account when interpreting the results. Since a number of countries have a cap on their social security contributions, the most likely effect is that the contributions from natives are slightly overestimated given their higher concentration among high income earners.

Net effects of EEA-migration on a country's unemployment benefit system can be modelled by subtracting the yearly amount of benefits from the amount of contributions for each member of the working-age population. Comparisons between migrants and natives across countries can be made based on yearly averages of these 'net-contributions'. Such a figure provides some basic aggregated information on the relationship between EEA-migration and public finances in regard to unemployment. However, it can also be misleading in some ways. Many members of the working age population are counted as 'economically inactive' as regards the funding of the unemployment insurance system. Each additional member of this group reduces the average net effect, even though the person neither contributes to, nor benefits from, the system. This is true for students or persons who are unfit for work, but it also applies to those who perform unpaid domestic work. The size of this group can vary systematically between natives and migrants as well as across countries, which greatly skews the estimates. The solution for this paper is to present estimates both for the working-age population as a whole, and separately for the subsets of contributors (i.e. those with recorded earnings), on the one hand, and beneficiaries on the other.

Descriptive estimates of costs, revenues and net-effects for each country's unemployment benefit system are followed by ordinary least-squares (OLS) regression analyses of annual payments to and from these systems. Average differences between EEA-migrants and natives are first estimated with help of country- and year-fixed effects. The former are then substituted with macro-level variables for coverage, qualifying period, replacement rate, and benefit duration. This second step allows for a more detailed study of the relationship between institutional configurations of the unemployment benefit systems and net-effects of EEA-migration using a `variable approach' (Palme and Ruhs 2019).

Some adjustments to the original data are made in order to enable the correct estimation of point estimates and standard errors. Annual contributions and benefits are logged in order to reduce the influence of outliers without dropping them from the analysis. The original set of EU-SILC weights is first adjusted for the residual response rate and then for the relative size of

the sample in the total dataset.[9] This procedure gives equal weight to each country, regardless of population size. Cluster-robust standard errors are employed in order to correct for the dependence between observations of the same country. All continuous variables are finally centred at their mean, in order to facilitate an interpretation of the results.

3.3 Control and contextual variables

The described regression analyses allow for a systematic comparison of average (logged) contributions to and benefits from the unemployment benefit system both across countries and between natives and EEA-migrants. Control variables are introduced on both micro- and macro-levels in order to get a correct assessment of the association between the institutional characteristics of the unemployment insurance systems and the benefits and contributions of EU migrant workers. To account for labour market participation during the reference period, the months in unemployment is included as a control when modelling benefits and, in the case of contributions, the number of months in (self-)employment. Part-time employment is discounted with a factor of 0.5 in order to take the corresponding lower amount of working hours into account. It is unfortunately not possible to relate the levels of contributions and benefits to a person's employment record *prior* to the reference period. However, the labour market position in earlier years can at least be estimated with help of control variables for gender, age, education and household structure.

A logic similar to that for the micro-level will be applied to macro-level determinants of benefits and contributions. Differences between migrants and natives are related to contextual factors, some of which are institutional characteristics of unemployment insurance systems. When modelling costs and revenues we use two indicators for composition of the labour force: (1) the percentage share of individuals with tertiary education on the labour market, and (2) the level of unemployment per country-year cluster. Both indicators are generated with help of data from the European Labour Force Survey (EU-LFS) provided by the European Statistics Office

[9] See Nyman and Ahlskog (2019) for a detailed discussion of the weighting procedure.

(Eurostat).[10] For the institutional characteristics we use the following indicators: (1) coverage, (2) qualifying period, (3) replacement rate and (4) duration.

4 Results

Findings for revenues, costs and net-effects of EU migrant workers are presented in several steps. A first presentation of the descriptive summaries for costs and revenues provides an overview of the distribution between EEA-migrants and natives across countries. Results are presented both for the working-age population as a whole, and for the subsets of contributors (individuals with recorded earnings during the reference period) and beneficiaries (individuals with recorded unemployment benefit receipt during the reference period). This separation allows for a better understanding of the subsequent presentation of net effects across countries and over time. Summaries of the regression analyses are presented in a final step. Tables with information on all variables can be found in the appendix.

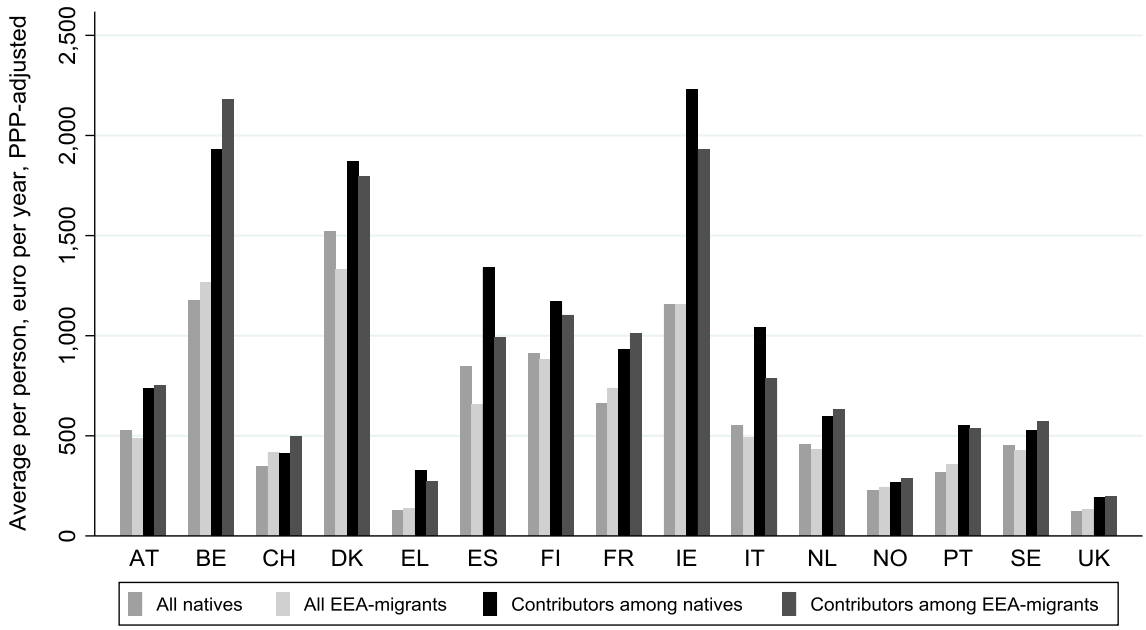
4.1 Descriptive results for revenues and costs

Revenues in the form of yearly contributions to the unemployment benefit system were first calculated per person and then summarized using mean values for each country-year cluster. Averages of these values per country can be found in Figure 1. Results for both EEA-migrants and natives are presented separately for the whole working-age population and the subset of contributors. EEA-migrants are found to generate revenues on a level similar to that of the native-born population when looking at averages across the entire working-age population. More variation can be found when reducing the sample to contributors only. Average revenues of EEA-migrants fall below those of natives in countries that were strongly affected by the Great Recession, namely Greece (-56€), Ireland (-300€), Italy (-254€), Portugal (-12€) and Spain (-

[10] ec.europa.eu/eurostat/data/database [last accessed: 30 May 2019]

348€). However, minor deficits in comparison to natives can also be found for Denmark (-72€) and Finland (-67€). All continental European countries, on the other hand, show signs in the opposite direction. EEA-migrants generated higher revenues than natives in Austria (+13€), Belgium (+252€), France (+80€) and Switzerland (+83€), which is also the case for Norway (+22€) Sweden (+44€) and the United Kingdom (+5€), albeit on a lower level.

Figure 1: Annual contributions to the unemployment benefit system, by migrant status, 2005–2015

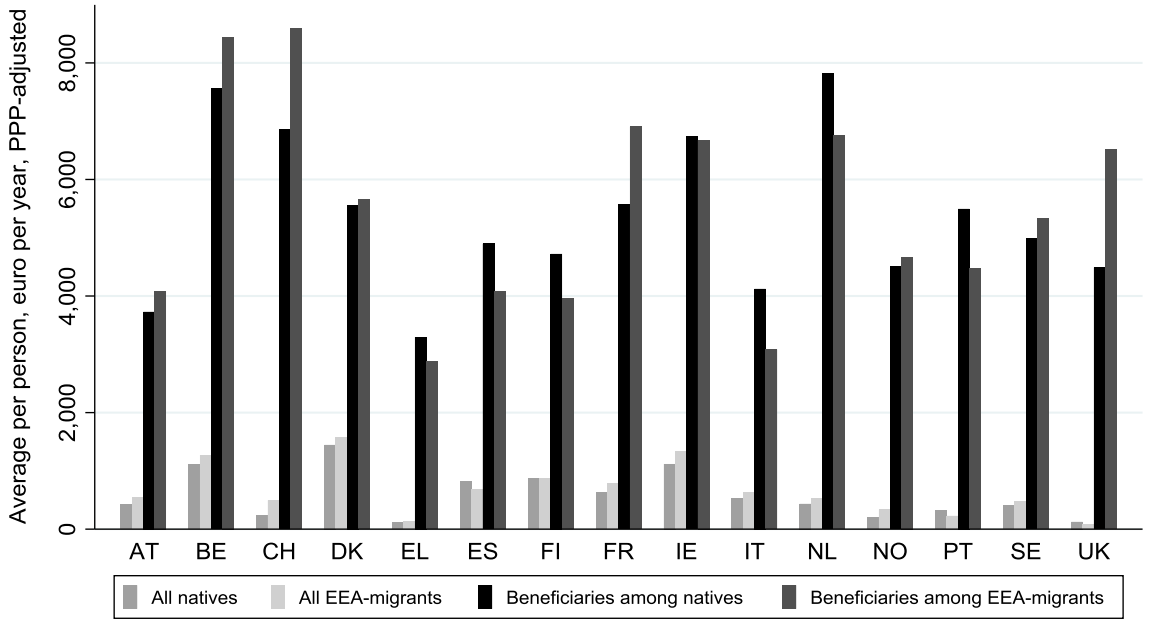


Applying the same empirical approach to the cost side shows, first of all, the importance of separate analyses for the working-age population as a whole and the group of beneficiaries in particular. Average values for the cost side are by definition at the same level as the revenues for the whole population, since the former is modelled at balance with the latter for this study. But the resulting costs concentrate within a small group of beneficiaries, which means that average benefits are ten times higher if the sample is reduced. The difference becomes very clear when looking at Figure 2.

Differences by migrant status within the group of beneficiaries mirror the findings of the revenue side very closely. Among those who actually are receiving unemployment insurance, EEA-migrants receive lower benefits than natives in Greece (-425€), Ireland (-66€), Italy (-1041€), Portugal (-1023€), Spain (-824€) and Finland (-769€), while averages are, again, above those of natives in Austria (+367€), Belgium (+€883), France (+1335€), Norway (+160€), Sweden (+346€) and Switzerland (+1729€).

Comparing revenues and costs side by side shows a very similar pattern: EEA-migrants generate higher costs in comparison to natives where they contribute more, and lower costs where they contribute less. The case of Denmark constitutes an anomaly in this pattern. It is the only country where EEA-migrants both contribute less (-72€) and benefit more (+93€). However, it should be noted that the differences are marginal for both the cost- and the revenue-side.

Figure 2: Annual benefits from the unemployment benefit system, by migrant/beneficiary status, 2005–2015

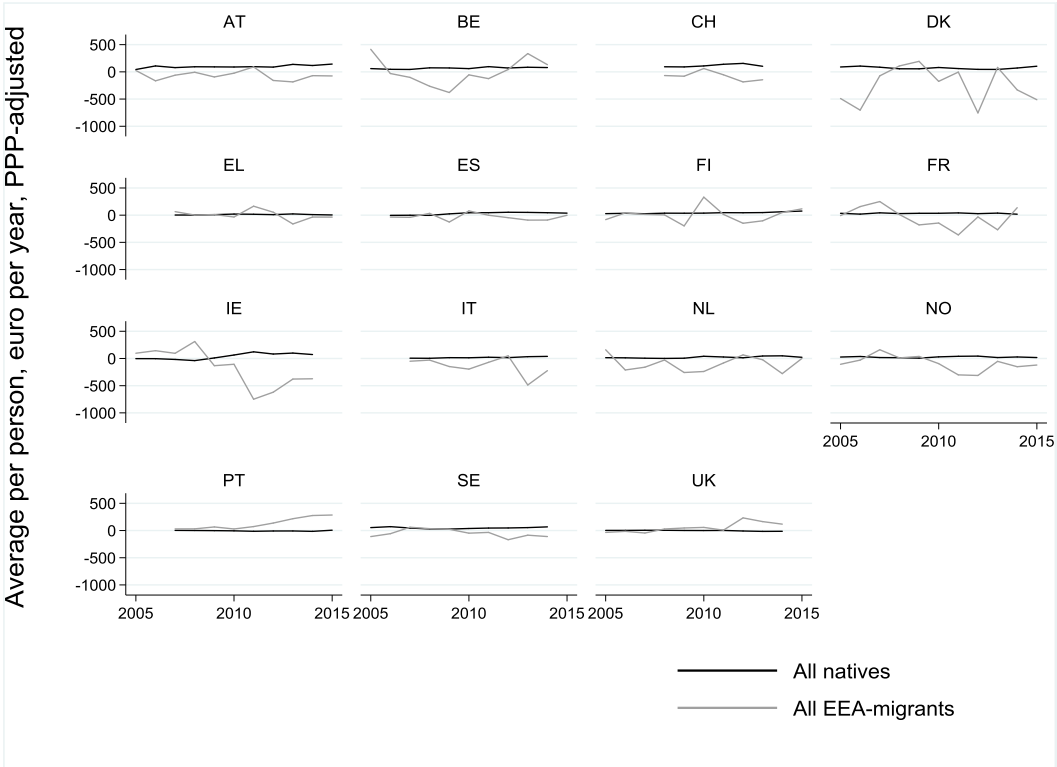


4.2 Net-effects of EEA-migrants across countries and over time

The calculation of average net effects follows the same empirical approach as before. Annual benefits were first subtracted from annual contributions per person, and then summarized using mean values for each country-year cluster. Figure 3 shows the resulting estimates for each country over time. The trends indicate that the net-effect of EEA-migrants on the unemployment benefit system fluctuates considerably and falls below that of natives on average. Particularly strong negative effects in comparison to natives can be noted for Denmark and Ireland between 2010 and 2015. An overall consistent trend towards a net-positive effect can only be observed for Portugal and the United Kingdom.

A first glance at the overview across countries and over time appears to unveil that EEA migration constitutes a burden for most of Europe's unemployment benefit systems. This seems to stand in contrast to the findings in previous research, which pointed to a general pattern of positive net effects, especially in the countries selected for this study (Nyman and Ahlskong 2019; Österman, Palme, and Ruhs 2019). What should be considered, however, is that the estimates can only be calculated for the working population as a whole. This means that the net effects, both positive and negative, are relatively small compared to the overall budget of the unemployment benefit system. Beneficiaries receive around 5000€ per year on average across countries. The average net-effect of EEA-migrants on the other hand is -55€, which corresponds to only a tiny fraction of the overall budget. This should be taken into account when evaluating the results.

Figure 3: Net effects per person on unemployment benefit system over time, 2005–2015



4.3 Regression results for revenues and costs of unemployment benefit systems

Multivariate OLS regression analyses were run separately for the revenue- and cost-side. Each set of analyses was restricted to the samples of contributors and beneficiaries respectively. Non-European migrants were kept in the dataset in order to maintain the budgetary balance

between revenues and costs for all of the analyses. Dependent variables were log-transformed in order to reduce the influence of outliers.

Results of the regression for the revenue-side can be seen in Table 1. Model 1 and Model 2 now indicate considerable differences between the averages of natives and EU migrant workers regarding the revenue side, even if control variables for months of (self-)employment, gender, age, education and household structure are included. This finding is in line with the descriptive analyses, which indicated a broad variation in the differences between migrants and natives across countries. Adding macro-level variables for Models 4 and 5 points to a weak relationship between institutional configurations and the average level of contributions to the unemployment benefit system. Only the qualifying period seems to have a consistent positive relationship with the revenue side. Complementing the analyses with cross-level interaction effects in Model 5 shows that the contributions of EU migrant workers decrease relative to those of natives with the level of the replacement rate.

Table 2 shows the results for the cost-side using the same empirical approach as before. Model 1 and Model 2 indicate, again, considerable average differences between natives and EU migrant workers. This finding is in line with the descriptive analyses, which indicated a broad variation in the differences between migrants and natives across countries. Adding macro-level variables for Models 4 and 5 shows that institutional configurations are somewhat more important for understanding the cost side of the unemployment benefit system. The average level of benefits is, rather unsurprisingly, higher in systems with higher replacement rates and lower in systems that provide benefits for a longer amount of time. However, the effects are only statistically significant once control variables for the share of high-skilled workers and the unemployment rate are introduced into the regression. Model 5 shows – against our expectations – that EU migrant workers are more costly relative to natives in systems with a longer qualifying period, which may indicate that there are other factors outside our analysis that are influencing the results. It could also be that the EU migrant workers that are included in EU-SILC are in their host countries on such a permanent basis that they have had good time to qualify for the unemployment insurance benefits, even better than some domestic workers (e.g. youth).

Table 1: OLS regression of logged annual revenues per person, contributors only, 2005–2015

	Model 1	Model 2	Model 3	Model 4	Model 5
Coverage (% of labour force)			-0.576	-0.856	-0.887
			(0.990)	(0.895)	(0.885)
Qualifying period (weeks)			0.019*	0.021*	0.022*
			(0.009)	(0.009)	(0.009)
Replacement rate (% of single APW)			0.002	0.007	0.008
			(0.013)	(0.011)	(0.011)
Duration (weeks)			0.009**	0.006	0.007
			(0.002)	(0.005)	(0.005)
Coverage # European					0.391
					(0.778)
Qualifying period # European					-0.006
					(0.003)
Replacement rate # European					-0.015***
					(0.003)
Duration # European					-0.003
					(0.003)
European	0.010	-0.031	0.049	0.022	0.112
	(0.069)	(0.054)	(0.159)	(0.142)	(0.161)
Intercept	7.188***	7.287***	6.344***	6.475***	6.472***
	(0.162)	(0.152)	(0.174)	(0.201)	(0.151)
Micro-level controls		x	x	x	X
Macro-level controls				x	X
Country fixed effects	x	x			
Year fixed effects	x	x	x	x	X
Interacted controls					X
Observations	1300188	1300188	1300188	1300188	1300188
Adjusted R^2	0.332	0.644	0.496	0.505	0.510

Clustered standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2: OLS regression of logged annual costs per person, beneficiaries only, 2005–2015

	Model 1	Model 2	Model 3	Model 4	Model 5
Coverage (% labour force)			0.461	-0.082	-0.100
			(0.284)	(0.328)	(0.323)
Qualifying period (weeks)			-0.000	0.002	0.002
			(0.003)	(0.003)	(0.003)
Replacement rate (% single APW)			0.002	0.007**	0.007**
			(0.003)	(0.002)	(0.002)
Duration (weeks)			0.000	-0.003*	-0.003*
			(0.001)	(0.001)	(0.001)
Coverage # European					0.131
					(0.172)
Qualifying period # European					0.005**
					(0.002)
Replacement rate # European					0.000
					(0.001)
Duration # European					-0.000
					(0.001)
European	-0.002	-0.041	0.116	0.084	0.091
	(0.067)	(0.030)	(0.058)	(0.049)	(0.084)
Intercept (native-born)	8.690***	8.224***	7.808***	7.896***	7.896***
	(0.102)	(0.173)	(0.093)	(0.084)	(0.085)
Micro-level controls		x	x	x	x
Macro-level controls				x	x
Country fixed effects	x	x			
Year fixed effects	x	x	x	x	x
Interacted controls					x
Observations	218407	218407	218407	218407	218407
Adjusted R^2	0.096	0.226	0.211	0.221	0.221

Clustered standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

5 Discussion and Conclusion

The aim of this paper is to fill a gap in the existing research literature on the fiscal effect of migration by performing an in-depth analysis of unemployment benefits and their financing among natives and EU workers in EU (immigration) countries. The study thus complements previous studies within this work package (WP 4) on fiscal effects of intra-EEA migration, carried out within the larger framework of the REMINDER project. Decomposing effects by individual social policies carries the potential to further develop our understanding of potential fiscal impacts of intra-EEA migration. Measuring aggregated effects jointly for all components of the welfare state helps unveil general patterns across countries. However, it does not contribute much to our understanding of underlying mechanisms. A program specific analysis can help to give us new insights about the ongoing debate about 'welfare magnet theory' and 'benefit tourism'. These debates focus explicitly on migrants' expectations and willingness to participate on the labour market and thus revolve very prominently around the types of benefits that are provided to the unemployed (Giulietti et al. 2013; Razin and Wahba 2015). Yet our knowledge is limited about the real costs in this context. In this paper the research gap is addressed with help of empirical analyses using recently published country-level data for 15 Western European countries from the *Social Insurance Entitlement Dataset* (SIED) and individual-level income data from the *European Statistics on Income and Living Conditions* (EU-SILC).

The findings stand somewhat in contrast to our previous studies (Nyman and Ahlskog 2018; Österman, Palme and Ruhs 2019), insofar as EU migrant workers are found to exert a negative average effect on the budget of European unemployment benefit systems in countries with many EU mobile workers. The magnitude of these effects is however small in comparison to previous findings for the public budget as a whole (Nyman and Ahlskong 2019). This difference can be explained with the uneven distribution of costs and revenues in the working age population. Unemployment benefit recipients only make up a small share of the population, which means that average per capita costs and revenues are low for the population as a whole. Differences between migrants were therefore also studied for the subgroups of contributors and beneficiaries with help of both descriptive and multivariate analyses. The results indicate

that the impact of EEA-migrants is comparatively small and varies between countries on both the cost and the revenue side. Once the models control for socio-demographic characteristics of the migrant population, no consistent differences from the native-born could be found in the pooled regression analysis across 15 countries. When it comes to the institutional characteristics of the unemployment insurance programs, only the replacement rates show a significant effect as driver of costs.

The conclusion of the findings is that, while EU migrant workers tend to have an overall positive net fiscal effect on the public finances of EU immigration countries, they tend generate a net negative effect on host states' unemployment benefit system. However, given the modest size of the net fiscal effect generated by the unemployment benefit systems, even among the countries worst hit by the Great Recession, we conclude that this fiscal burden is not of important magnitude. In addition, the relative contribution of EU migrant workers to more age-biased programs, e.g. health care, outweighs the cost side of the unemployment insurance by a number of times. This notwithstanding, the findings of this study should be recognized: Fiscal effects of EU migrant workers on European unemployment benefit systems might not be large in comparison to other programs, but they are certainly salient for the debate about costs and gains of migration.

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Appendix

Table A.1: OLS regression of logged annual revenues per person, contributors only, 2005-2015

Table A.2: OLS regression of logged annual costs per person, beneficiaries only, 2005-2015

Table A.1: OLS regression of logged annual revenues per person, contributors only, 2005-2015

	Model 1	Model 2	Model 3	Model 4	Model 5
Coverage (% labour force)			-0.576	-0.856	-0.887
			(0.990)	(0.895)	(0.885)
Qualifying period (weeks)			0.019*	0.021*	0.022*
			(0.009)	(0.009)	(0.009)
Replacement rate (% single APW)			0.002	0.007	0.008
			(0.013)	(0.011)	(0.011)
Duration (weeks)			0.009**	0.006	0.007
			(0.002)	(0.005)	(0.005)
High-skilled (% labour force)				0.024	0.022
				(0.028)	(0.028)
Unemployment rate				0.012	0.010
				(0.027)	(0.026)
Coverage # European					0.391
					(0.778)
Qualifying period # European					-0.006
					(0.003)
Replacement rate # European					-0.015***
					(0.003)
Duration # European					-0.003
					(0.003)
European	0.010	-0.031	0.049	0.022	0.112
	(0.069)	(0.054)	(0.159)	(0.142)	(0.161)
Non-European	-0.202**	-0.148***	-0.255***	-0.263***	-0.263***
	(0.059)	(0.029)	(0.050)	(0.052)	(0.053)
Months in employment		0.139***	0.150***	0.151***	0.151***
		(0.012)	(0.008)	(0.008)	(0.008)
Female		-0.229***	-0.188***	-0.185***	-0.183***
		(0.038)	(0.024)	(0.024)	(0.024)
Age		0.014***	0.015***	0.015***	0.016***
		(0.002)	(0.002)	(0.001)	(0.001)
Age^2		-0.001***	-0.001***	-0.001***	-0.001***
		(0.000)	(0.000)	(0.000)	(0.000)
Primary Education		-0.254***	-0.297**	-0.298**	-0.304**
		(0.026)	(0.099)	(0.081)	(0.084)
Tertiary Education		0.318***	0.320***	0.291***	0.286***
		(0.020)	(0.061)	(0.036)	(0.036)
>1 adult no children		0.052	0.025	0.004	0.002
		(0.028)	(0.050)	(0.031)	(0.031)
1 adult + children		-0.052**	-0.028	-0.034	-0.046
		(0.017)	(0.055)	(0.048)	(0.045)
> adult + children		0.049**	0.049	0.034	0.030
		(0.014)	(0.063)	(0.043)	(0.044)
Constant	7.188***	7.287***	6.344***	6.475***	6.472***
	(0.162)	(0.152)	(0.174)	(0.201)	(0.151)
Country fixed effects	x	x			
Year fixed effects	x	x	x	x	x
Interacted controls					x
Observations	1300188	1300188	1300188	1300188	1300188
Adjusted R^2	0.332	0.644	0.496	0.505	0.510

Clustered standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A.2: OLS regression of logged annual costs per person, beneficiaries only, 2005-2015

	Model 1	Model 2	Model 3	Model 4	Model 5
Coverage (% labour force)			0.461	-0.082	-0.100
			(0.284)	(0.328)	(0.323)
Qualifying period (weeks)			-0.000	0.002	0.002
			(0.003)	(0.003)	(0.003)
Replacement rate (% single APW)			0.002	0.007**	0.007**
			(0.003)	(0.002)	(0.002)
Duration (weeks)			0.000	-0.003*	-0.003*
			(0.001)	(0.001)	(0.001)
High-skilled				0.028**	0.027**
				(0.008)	(0.008)
Unemployment rate				-0.005	-0.005
				(0.010)	(0.010)
Coverage # European					0.131
					(0.172)
Qualifying period # European					0.005**
					(0.002)
Replacement rate # European					0.000
					(0.001)
Duration # European					-0.000
					(0.001)
European	-0.002	-0.041	0.116	0.084	0.091
	(0.067)	(0.030)	(0.058)	(0.049)	(0.084)
Non-European	0.007	-0.047	0.043	0.042	0.042
	(0.055)	(0.047)	(0.061)	(0.059)	(0.060)
Months in unemployment		0.070***	0.091***	0.091***	0.091***
		(0.014)	(0.012)	(0.012)	(0.012)
Female		-0.189***	-0.167***	-0.157***	-0.155**
		(0.029)	(0.037)	(0.037)	(0.038)
Age		0.026***	0.022***	0.022***	0.023***
		(0.003)	(0.002)	(0.002)	(0.002)
Age^2		-0.000	0.000	-0.000	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)
Primary Education		-0.050	-0.049	-0.033	-0.035
		(0.024)	(0.047)	(0.036)	(0.037)
Tertiary Education		0.125**	0.116**	0.096*	0.092*
		(0.036)	(0.037)	(0.038)	(0.038)
>1 adult no children		-0.035	-0.027	-0.017	-0.016
		(0.039)	(0.033)	(0.033)	(0.034)
1 adult + children		0.000	0.039	0.034	0.041
		(0.054)	(0.042)	(0.042)	(0.042)
> adult + children		-0.020	-0.016	-0.008	-0.007
		(0.047)	(0.041)	(0.045)	(0.046)
Constant	8.690***	8.224***	7.808***	7.896***	7.896***
	(0.102)	(0.173)	(0.093)	(0.084)	(0.085)
Country fixed effects	x	x			
Year fixed effects	x	x	x	x	x
Interacted controls					x
Observations	218407	218407	218407	218407	218407
Adjusted R^2	0.096	0.226	0.211	0.221	0.221

Clustered standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$