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Employment mobility and labour market flexibility in the EU

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Abstract

Does employment flexibility facilitate cross-regional adjustments via labour mobility? Or is it instead a hinderance to cross-regional equilibration in the labour market? We examine this, drawing on a sample of 11 European countries belonging to different 'varieties' of European capitalism. We identify two opposing potential effects of employment flexibility on outmigration (a negative *necessitating* effect and a positive *facilitating* effect) and provide original evidence on the ways in which employment flexibility impacts of the responsiveness of inter-regional outmigration to regional unemployment. We find that employment flexibility is at large associated with less cross-regional adjustability. This is especially so for numerical aspects of flexibility (non-standard forms of employment contracts) and more true for countries in the European south and Scandinavia; while for internal aspects of employment flexibility (irregular hours and patterns of work), as well as for countries of the Continental 'variety' (coordinated market economies), employment flexibility appears to be more synergetic to cross-regional adjustability (via outmigration). We draw implications for our understanding of cross-regional equilibration and for labour market and wider EU policies.

Keywords: Employment flexibility, regional migration, labour market adjustment
JEL code: R11, R23, J08, J61

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1 Introduction

The aim of this paper is to examine the empirical relationship between employment flexibility (flexible forms of employment) and labour mobility (inter-regional migration) in the EU and, through this, shed light also on issues of labour market adjustment (with regard to unemployment) more broadly. Despite a long-standing interest on issues of inter-regional migration and adjustment in the wider urban and regional studies literature, as well as in labour economics, the relationship between these two potential sources of adjustment – internal, through flexibility, and external, through migration – is surprisingly under-studied. Studies examining the issue of regional migration have occasionally looked at factors associated to labour market institutions (e.g., unemployment benefits – Tervo, 2000; active labour market policies –Hamalainen, 2002) or more widely to housing and incomes policies (Hämäläinen and Böckerman, 2004; Haapanen and Ritsila, 2007) , but have rarely looked at the issue of employment flexibility as such. Likewise, regional studies examining flexible employment arrangements at the sub-national level have rarely connected this to questions of inter-regional migration (Martin, 2001; Monastiriotis, 2005 and 2007; Bande and Karanassou, 2008). The broader labour economics and macroeconomics literatures also offer little hard evidence on this relationship and limited theoretical advice. The only study, to our knowledge, to directly examine this issue is the work of Monastiriotis and Kaplanis (2012) for the UK. The study found that employment flexibility is associated to higher labour mobility (but only at a rather localised scale), but at the same time it reduces the responsiveness of migration to unemployment – suggesting that the two adjustment mechanisms work as substitutes rather than as complements, with a higher intensity of internal (intra-regional) adjustments being associated to a lower intensity of external (extra-regional) adjustments. This in turn implies that "rising flexibility may be linked to higher persistence in spatial disparities, as intra-regional adjustments are strengthened while extra-regional adjustments weakened" (Monastiriotis and Kaplanis (2012, p.1).

This interplay between outmigration (as a form of extra-regional adjustment) and flexible employment (as a form of intra-regional adjustments) has important implications not only for regional economic development and regional development policy, but also for the European economy and its stability as large. At the regional level, if – as the scant evidence suggests – the two types of adjustment work as substitutes and, more importantly, have different implications for equilibrium regional unemployment rates (and regional disparities in unemployment), then there is a specific role for policy to find the optimal level (and types) of

employment flexibility which, while encouraging labour market adjustment internally they do not impinge upon extra-regional adjustments which can be more equilibrating across space. Taken to the European level, this exploration has important implications not only for the functioning of the European labour market(s) per se but also for aspects relating to the stability of the Eurozone at large. According to Optimal Currency Area theory in the tradition of Mundell (1961), in the absence of fiscal transfers a single currency area requires a combination of intra-area flexibility (flexible wages and employment contracts) and cross-area flexibility (labour mobility or migration) in order to respond effectively to asymmetric shocks – in other words, employment flexibility and labour mobility need to work in a complementary fashion.[1] While recent theoretical and modeling papers (Farhi and Werning, 2014; Hauser and Seneca 2018, House et. al 2018) studying the effects of labour mobility on macroeconomic outcomes in a currency union attempt to formalize the link between labour mobility and macroeconomic adjustment, none of them has explored how all this is related to employment flexibility.

Our analysis in this paper shows that employment flexibility does indeed matter for inter-regional adjustments. Flexibility is found to have a direct impact on patterns of outmigration across regions, as well as an indirect effect through its influence on the responsiveness of outmigration to regional unemployment. The latter, although relatively weak across countries in Europe, is particularly low in the European 'south' (including countries from Central Eastern Europe). Our results show that flexibility on the whole reduces this further, although different aspects of flexibility have effects going in different directions – with aspects related to external flexibility contributing to the overall negative effect and aspects related to internal flexibility actually raising the responsiveness of outmigration to unemployment. The direct effect of flexibility on outmigration is also found to be non-linear and quite heterogeneous across countries.

The rest of the paper proceeds as follows. Section 2 discusses the link between employment flexibility and migration and reviews the scant academic literature on the topic. Section 3 describes our data, our measures of flexibility and the methodology followed in the empirical analysis. Sections 4 and 5 present our empirical analysis: section 4 focuses first on the relationship between unemployment and cross-regional adjustments; while Section 5 examines the relationship between flexible employment arrangements and regional migration. Section 6 concludes.

[1] See Dellas and Tavlas (2009), for a survey.

2 On the link between employment flexibility and migration

As mentioned already, research on the link between flexibility and migration is scant. What we know about this link is mainly based on conjectures, through indirect evidence. For example, given the expectation that flexibility reduces unemployment, if it is also true that migration becomes less responsive to unemployment as the latter rises, as some studies have shown (Pissarides and McMaster, 1990; Gordon and Molho, 1998), one can deduce that migration will be negatively associated to flexibility (more flexibility, less unemployment, less migration). Likewise, assuming that employment flexibility is positively associated with wage flexibility, if it is true that the latter leads to lower cross-regional unemployment differentials (Baddeley et al, 2000), then it must follow that employment flexibility will also be associated with lower rates of migration (more flexibility, less extensive unemployment differentials, less migration). In contrast, it could be argued that if flexibility reduces job-tenures (higher turnover) and incentivises more intense job-searches, it should also be that that flexibility gives more space for migratory flows. But the opposite may also be true: if lower employment flexibility (e.g., higher employment protection) leads to higher unemployment durations (Sala and Silva, 2009) thus keeping 'outsiders' outside jobs for longer, then it must be that higher levels of flexibility should reduce incentives (for outsiders) to migrate. Quite clearly, the true nature of the link between employment flexibility and regional migration is rather ambiguous.

The reason for this ambiguity is essentially due to the possible dual way in which employment flexibility can function in the presence of regional unemployment differentials: on the one hand, as a factor that makes migration easier, or more likely (a positive 'facilitating' effect whereby flexibility increases the *potential* for extra-regional adjustments); on the other, as a factor that makes migration (less) necessary (a negative 'necessitating' effect whereby, by facilitating adjustments intra-regionally, flexibility lowers the *need* for extra-regional adjustments). The first of these effects can be understood as a 'supply-side' mechanism: with higher levels of flexibility, job and labour market attachments are weakened (people and jobs become less 'sticky') and the opportunity costs of migration are reduced (as prospective jobs offer less security than otherwise) so the (potential) *supply of outmigrants* rises. The second effect can be understood, rather analogously, as reflecting 'demand-side' dynamics: by lowering unemployment and raising individual job-finding probabilities, flexibility facilitates

internal adjustments that negate the need for extra-regional adjustments so that the economy as a whole exhibits a lower *demand for outmigration*.

The presence of these two opposing effects suggests that employment flexibility functions differently in different regards – or, more accurately, that specific aspects of employment flexibility may be impacting on migration (facilitating or necessitating it) differently. Functional definitions of employment flexibility typically identify four analytical categories, organised along two axes of internal-versus-external flexibility and numerical-versus-functional flexibility (Monastiriotis, 2005 and 2006; Tinsley and Monastiriotis, 2007). The first axis draws a distinction between flexible employment arrangements that occur within the production process (such as flexible or irregular hours, overtime, shift-working and irregular working patterns, working from home, etc) and ones that occur at the level of the market (such as temporary and part-time work and sub-contracting or self-employment). The second axis draws instead a distinction between aspects of flexibility that concern mainly the *degree* of labour input (both with regard to hours, such as through overtime, and with regard to headcounts, such as through temporary employment) and aspects that concern mainly the *deployment* of the labour input (again, both internally, such as through shift-working, and externally, such as through sub-contracting).

Each of these categories can be conceptualised to affect migration differently. For example, aspects of internal numerical and internal functional flexibility are more likely to push down production costs and thus create more jobs – lower unemployment – while maintaining the workers' job attachment, thus acting through the 'necessitating' channel (necessitating less external adjustment and hence less outmigration). Instead, aspects of external flexibility (both numerical and functional) will likely have a stronger effect on workers' attachment to their local labour market, thus acting more strongly through the 'facilitating' channel (facilitating more outmigration through the availability of less attached, or 'sticky', labour). Further, one should expect that aspects of numerical flexibility (both internal and external) may lead to stronger incentives for outmigration, as they are typically associated with lower pay ceteris paribus; while aspects of functional flexibility (again, both internal and external) may have a stronger internal-adjustment effect thus leading to less outmigration (again, ceteris paribus). We operationalise these distinctions in our empirical analysis, as is explained next.

3 Modelling migration and measuring flexibility

To perform our analysis, we draw on micro-data from the European Labour Force Survey (EU-LFS) which contains information on individuals' employment arrangements (part-timing and temporary contracts, self-employed and agency workers, use of overtime and irregular hours or days of work – night work, evening work, weekend work) as well as information on individuals' region of residence in two consecutive years. We use this data to construct our measures of employment flexibility. A number of base indicators[2] are extracted from the primary data and are then aggregated into the four functional categories, discussed above, using a simple linear scale transformation method. The method involves transforming all local values of the base indicators (e.g., share of part-time employment) as deviations from the maximum sample value, standardised by the empirical range of the series, before adding them together into a single index. The four intermediate indexes are then further summarised into an aggregate index of employment flexibility, which we label as our "broad" measure of flexibility. In addition, we also develop a "narrow" measure of flexibility, comprising only the sub-components related to part-time and temporary employment. This narrow measure is thus capturing mainly flexibility with regard to the main non-standard forms of employment on the external-numerical margin.

From the same data we also derive an individual-level indicator of outmigration (within countries, across regions), which we then aggregate at the level of the region (within countries and years). We express this count measure as a percentage of the local working age population in the reference region, thus deriving our measure of the rate of regional outmigration in each region-year-country cell.[3] This microdata-based approach allows us to obtain measures of flexible working arrangements and of outmigration that exhibit both temporal (year-on-year) and spatial (cross-regional) variation and are consistently defined for a long time period (annually since 2000). For the case of the flexibility variable in particular, it allows us moreover to maintain the functional distinctions mentioned above, which are important both analytically and for policy purposes, providing us with measures of flexibility that capture the actual / empirical extent of flexible labour use rather than the potentiality of it (as would be reflected in measures relying on institutional arrangements). Importantly, the resulting indexes exhibit a notable degree of both spatial and cross-category variation, unlike the underlying institutional

[2] See Table A.1 in Appendix for details on the base indicators and all other variables used in the analysis.
[3] We choose to work with the outmigration rate, rather than with gross migration flows, as our interest is with the issue of flexibility as an adjustment mechanism (rather than an amenity).

arrangements which are largely constant across space. Aggregating data in this way – and removing from our sample all single-region countries and countries with missing or non-available information on our key variables – we are left with an unbalanced panel for 10 EU countries (Austria, Belgium, Denmark, Germany, Greece, Italy, Spain, Poland, Portugal, Sweden) and the United Kingdom for the period 2000-2017. Based on availability, data are aggregated at the NUTS2 for Belgium, Denmark, Greece, Italy, Spain, Poland, Portugal and Sweden and at the NUTS1 level for Austria, Germany and the United Kingdom.

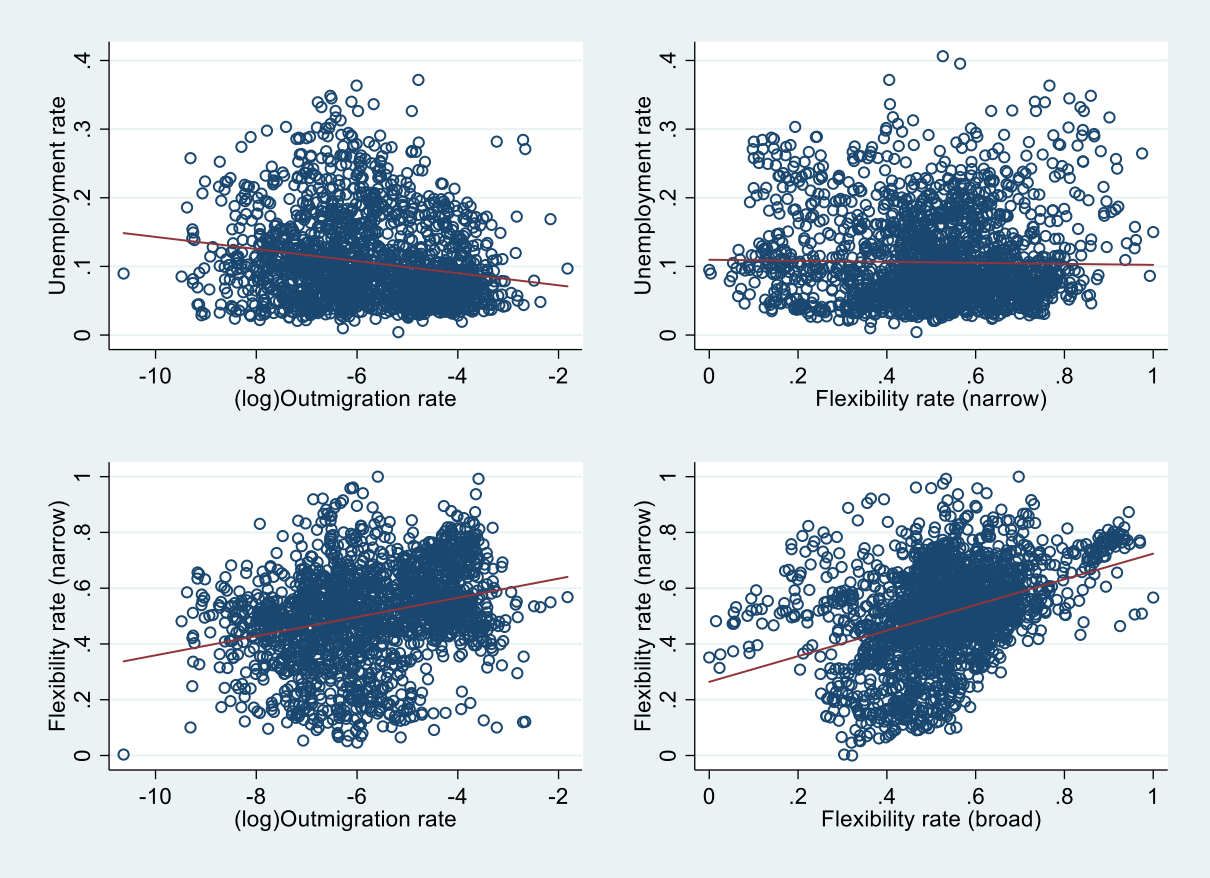
On the whole, there are four key variables in our dataset: outmigration rate, unemployment rate and the two aggregate indexes of employment flexibility (narrow and broad definitions). Given the turbulence of the period under analysis, the unemployment rate varies sizeably (both across countries and over time), ranging from a very low of below 2% in a handful of cases (Melilla, Spain in 2001; South Tyrol, Italy in 2002 and 2003; and West Flanders, Belgium in 2011) to a very high of over 30% in various regions of Greece and Spain in the period 2012-2016. The rate of outmigration shows, as expected, much lower rates but even greater variability (coefficient of variation of 1.39 across the sample, compared to 0.61 for the rate of unemployment), with a value of near zero (0.016%) even at the bottom 5th percentile and a value of just over 4% at the 95th percentile. As mentioned previously the measures of flexibility are indexes constructed using the linear scale transformation method. As a result, they are all bound within the 0-1 range theoretically. Empirically, the narrow measure of flexibility ranges between 0.05 (Athens, Greece in 2002) and 0.63 (Melilla, Spain in 2006); while the broad measure ranges between 0.08 (La Rioja, Spain in 2003) and 0.59 (Aosta, Italy in 2017). Both measures exhibit an increase over time, with average values (across countries and regions) rising from below 0.30 in the beginning of the period for both measures to above 0.37 and above 0.39, for the narrow and broad measures of flexibility respectively, more recently.

Observationally, there is of course a lot of variation across countries and regions in all four measures. Figure 1 depicts this for the full sample (across regions, countries and years), showing also the observational relationship amongst them at this level. As can be seen, observationally (i.e., when not modelling the relationship controlling for various push and pull factors or for country/region and time fixed effects), unemployment and outmigration are negatively correlated.[4] In turn, the relationship between flexibility and outmigration is positive

[4] In that, it appears that the relationship that prevails in the data is one concerning openness and fluidity than adjustment per se. This observational relationship has been coined in the literature as the 'outmigration paradox', which is driven by the fact that, empirically, in- and out-migration flows are typically positively correlated (Molho, 1986; Gordon and Molho, 1998).

(again, at this observational level), suggesting a prima facie evidence of synergies between internal and external adjustability (employment flexibility and outmigration, respectively). Our observational data show further that there is no statistical relationship between unemployment and flexibility. The fitted line is slightly downward sloping, but the implied correlation coefficient is essentially zero (value of -0.02 in the full sample). Instead, our data show a rather high correlation between the two alternative measures of flexibility (narrow and broad). Still, the two measures are anything but perfectly correlated (the value of the simple correlation coefficient is 0.38). This is quite reassuring: the two measures move in the same direction but – quite naturally, as they are constructed to capture different aspects of employment flexibility – they do so with some notable variation.

Figure 1. Estimation results – Effects of regional unemployment on outmigration



Note: EU-LFS data; author's analysis.

To examine more formally the empirical relationship between employment flexibility and the extent of extra-regional adjustment we perform an econometric analysis on the basis of a reduced-form outmigration model of the form

$$ln(M_{it}) = c + aM_{it-1} + \rho FL_{it-n} + \phi U_{it-n} + \lambda(FL_{it-n} \cdot U_{it-n}) + R_i + T_t + e_{it} \qquad (1)$$

where $\boldsymbol{M_{it}}$ is the outmigration rate (in logs) for region ***i*** in year ***t*** (measured as the number of people in the working age population who have moved out of region ***i*** in year ***t+1*** as a share of the working age population in region ***i*** in year ***t***), ***FL*** is a measure of flexibility (for example, share of part-time and temporary contracts in total salaried employment in region ***i*** in year ***t***), ***U*** is the unemployment rate of region ***i*** in year ***t***, $\boldsymbol{R_i}$ is a set of regional fixed effects, $\boldsymbol{T_t}$ is a set of year dummies and $\boldsymbol{e_{it}}$ is an *i.i.d*. error term. Following Monastiriotis and Kaplanis (2012), we interpret the time fixed-effects ***T*** as proxies for *outside opportunities*, i.e., the aggregate 'pull' factors for migration characterising all regions outside region ***i***.; and the regional fixed-effects ***R*** as proxies for the *accessibility* of each region, i.e., an aggregate form for each region's distance from all other regions in the spirit of a gravity equation (Gordon and Molho, 1998). The two key variables of interest – employment flexibility and unemployment – enter the model both individually and multiplicatively (interaction term). In the model we allow these variables to enter with a temporal lag ***n*** (with n={0, 2}), as migration decisions take time to materialise. In this formulation, coefficient ***a*** captures the persistence (or hysteresis) of outmigration; coefficient $\boldsymbol{\rho}$ captures the impact of flexible employment on outmigration; coefficient $\boldsymbol{\phi}$ captures the impact of unemployment on outmigration (which we expect to be positive as individuals respond to an increased probability of unemployment by seeking employment elsewhere); and coefficient $\boldsymbol{\lambda}$, on the interaction between *FL* and *U*, captures the impact that flexible employment has on the responsiveness of outmigration to unemployment (and, symmetrically, the impact that unemployment has on the responsiveness of outmigration to labour flexibility). We estimate this model with OLS, corresponding to a two-way Dummy Variables Least Squares estimator.[5]

[5] Given the dynamic nature of the model, we also experiment with estimations through the system-GMM and difference-GMM estimators (also known as Arellano-Bond and Blundell-Bond estimators), as we discuss in section 5.

4 Regional unemployment and cross-regional adjustments

We start our empirical analysis with examining first the link between regional unemployment and outward cross-regional migration, i.e., the extent of responsiveness of migration to regional unemployment. In doing this, we also want to examine the dynamics of this relationship (e.g., whether the effect of unemployment is contemporaneous or shows some hysteresis; and whether, indeed, outmigration exhibits temporal persistence) as well as the heterogeneity of this relationship across countries. We perform this analysis sequentially. The results of the first investigation are depicted in Table 1.

In the first column of Table 1 we estimate the contemporaneous effect of regional unemployment on regional outmigration rates. Consistent with the model depicted in equation (4), the estimating model includes controls (fixed effects) for time-invariant region-specific characteristics as well as for common-across-space time-specific influences on regional migration (i.e., European business cycle effects). As can be seen, regional unemployment has a positive and statistically strong effect on outmigration. The size of this effect, however, is particularly small and socio-economically trivial: a rise in unemployment by 1 percentage point is associated with an increase in a region's outmigration rate by 1.4%. With average inter-regional migration rates in most European countries at below 1% per year, this means that even a doubling of unemployment (e.g., from 10% to 20%) would trigger very little population movement across regions – a testament to the limited mobility characterising the European economic space. The effect is equally strong statistically but even smaller (even if marginally so) for lagged unemployment. The coefficient estimated for the impact of the regional unemployment rate in the previous period (1-year lag) is 1.358 while the one concerning unemployment from two years previously is 1.285. All in all, there seems to be very little cross-regional adjustment taking place across Europe in response to unemployment, even if the response is estimated with high statistical confidence (thus being statistically very strong). This is consistent with past evidence in the literature (Hughes and McCormick, 1989; Pissarides and Wadsworth, 1989), but it is nevertheless telling for the potential of the European economies to achieve adjustments through internal migration.

Table 1. Estimation results – Effects of regional unemployment on outmigration

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Past outmigration						0.428***	0.910***	0.666***	0.232***
						(0.0210)	(0.0112)	(0.0167)	(0.0366)
Unemployment rate	1.391***								
	(0.363)								
Unemployment t-1		1.358***		-4.236***	0.363	0.610*	-0.290	0.118	1.737***
		(0.360)		(0.544)	(0.363)	(0.325)	(0.255)	(0.263)	(0.584)
Unemployment t-2			1.285***						
			(0.367)						
Constant	-5.593***	-5.727***	-5.710***	-5.132***	-6.169***	-3.307***	-0.502***	-2.257***	-4.713***
	(0.180)	(0.175)	(0.176)	(0.159)	(0.178)	(0.197)	(0.0660)	(0.139)	(0.280)
Fixed effects	Regions, Years	Regions, Years	Regions, Years	Years	Regions	Regions, Years	None	Country-specific trends	Regions, Years
Observations	1,972	1,832	1,702	1,832	1,832	1,787	1,787	1,787	966
Period	2000-2017	2000-2017	2000-2017	2000-2017	2000-2017	2000-2017	2000-2017	2000-2017	2009-2017
R-squared	0.807	0.832	0.847	0.047	0.800	0.870	0.794	0.828	0.922

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Given the panel nature of the data used, it is possible to explore further this issue of adjustment, by examining how migration responds to unemployment along the two dimensions of the sample: across regions within years; and within regions over time. We examine the evidence of adjustment along the cross-sectional dimension in col.4 of Table 1 (specification excluding regional fixed effects). As can be seen, in the cross-sectional dimension there is no evidence of cross-regional adjustments in response to unemployment. The obtained coefficient is statistically very significant (at the 0.01 level), but its sign is negative. This suggests that regional differences in unemployment rates do not trigger flows of people (migration) in the expected direction – with high unemployment regions experiencing *lower* migration outflows. Instead, outmigration appears to be higher in regions with low unemployment. As noted earlier, a plausible explanation for this is through the so-called 'outmigration paradox', relating to the empirical regularity of a positive correlation between immigration and out-migration flows (Molho, 1986; Gordon and Molho, 1998). The underlying theoretical mechanism for this is that low unemployment creates more intense labour market churn (higher rates of labour turnover) thus providing for a larger pool of potential migration out-flows (either because low unemployment attracts workers from other regions who may be subsequently displacing local workers, or because lower unemployment is associated with higher quit rates and thus new job searches – some of which may result in successful matches extra-regionally). In contrast, when we look at the temporal dimension ('within' specification – col.5), we find a positive relationship but of completely trivial economic size and of no statistical significance.

The rest of our analysis presented in Table 1 concerns the role of hysteresis (persistence of outmigration flows – columns 6 and 7) as well as the stability of the examined relationships across countries and periods (columns 8 and 9). To examine the former, we add into our empirical specification the lagged value of the outmigration rate (one year ago).[6] As can be seen, inclusion of the past outmigration variable reduces the economic size and statistical significance of the unemployment rate sizeably (contrast to the equivalent model in col.2). Unemployment is still found to correlate with regional outmigration positively and significantly, in a statistical sense. However, the size of this effect is very small – less than half the size of the effect estimated originally. Quite intuitively, this suggests that the labour market

[6] Technically, this creates an estimation problem, as the prediction errors in the model may be correlated with the lagged outmigration variable. We have performed various IV (instrumental variables) and system-GMM (Arellano-Bond and Blundell-Bond) estimations to control for this. The results show large variability, depending on the exact method used and the choice of instruments. Qualitatively, however, they point to the same direction as those reported in Table 1.

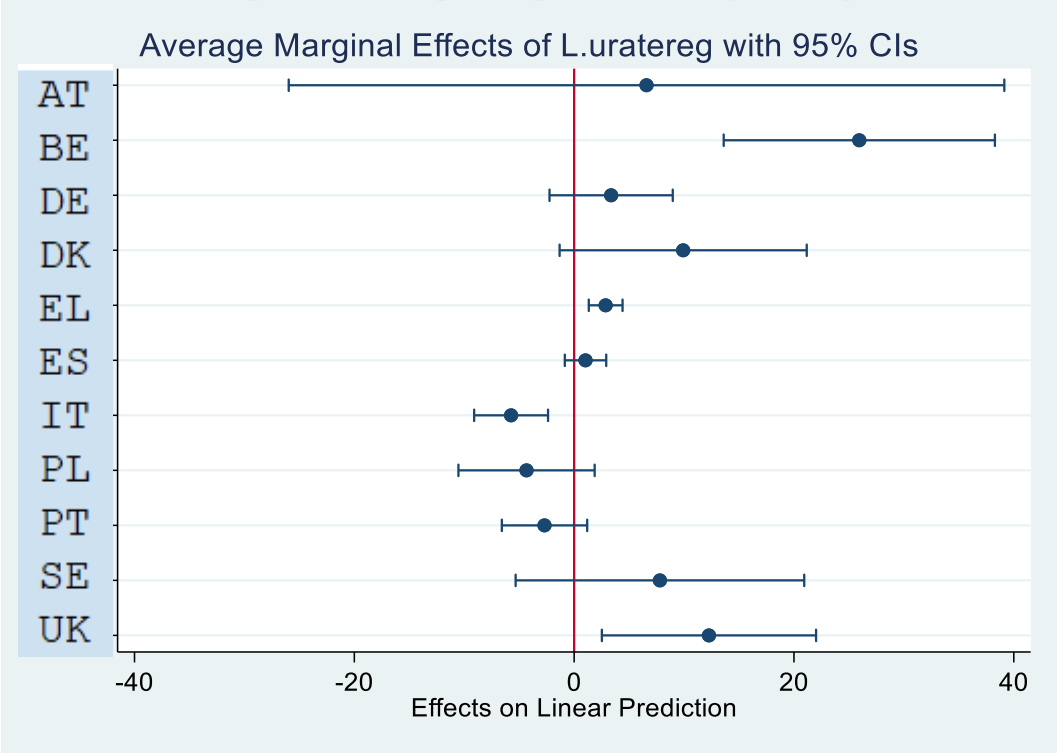
conditions that associate to outward migration flows are rather 'sticky' – as is regional unemployment: knowing the rate of outmigration in a region in a particular time (say, t), takes you a long way to predicting the rate of outmigration in the same region in the future (at time *t+1*). This is best illustrated in the next column (col.7), where we have removed the regional fixed effects (as well as the time dummies) from the specification. Under this specification, the effect of unemployment becomes indistinguishable from zero and the year-to-year persistence of outmigration jumps to over 90% – confirming exactly the assertions made above.

Importantly, this persistence is only partly explained by national country-specific dynamics. Controlling for these, by means of a set of country-specific time-trends (col.8), reduces the size of the persistence indicator by less than a third, at a value 1.5 times higher than that obtained in the specification that included regional fixed effects (col.6). In this specification, and in the absence of regional controls, unemployment remains statistically non-significant, even if the obtained coefficient is positive. The last column of Table 1 returns to the specification of col.6 and examines the stability of the examined relation by restricting the estimation to a sub-period (2009-2017) for which we have full data for all 11 countries – and which of course concerns the particular episode of the global financial and Eurozone crises (and of the recoveries that followed). As can be seen, in this period, persistence of outmigration is much lower (as unemployment heterogeneity increased – Monastiriotis and Laliotis, 2019) but the responsiveness of outmigration to regional unemployment becomes much larger, almost three times higher than before (col.6) and indeed higher also than in the specifications that did not include a control for the persistence of outmigration (col.2). This finding is again rather intuitive: the period since the Global Financial Crisis constitutes a rather turbulent period for the European economies, with significant churn in terms of regional unemployment performances and of course with events in the labour market and in the wider economy that have naturally had a unique – and different from previously – impact on regional patterns of migration. Thus, persistence of outmigration subsided while its responsiveness to unemployment increased.

Our next step is to examine the heterogeneity of the relationship between regional unemployment and cross-regional migration outflows across our sample countries. We present our estimates of this using a graphical representation, as depicted in Figure 2, drawing on the average marginal effects estimated separately for each country through the addition of an interaction term between the rate of unemployment and a full set of country dummies. As can be seen, the size of the unemployment elasticity of migration varies sizeably across countries,

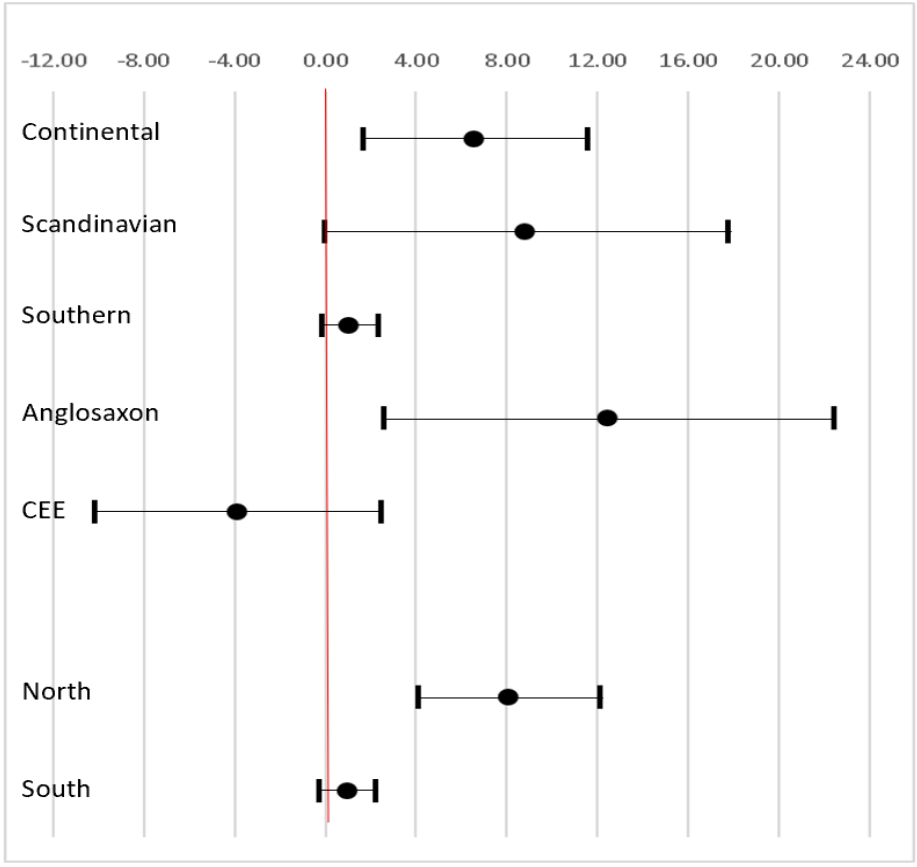
being highest in Belgium and lowest (with a negative sign) in Italy. On a closer inspection, however, these cross-country differences are not statistically significant. Further, in most cases – except for those of Austria, Greece, Italy and the UK – the estimates are also not statistically different from zero. This goes some way to explain the overall small size of the elasticity found for the global estimate as discussed earlier (Table 1).

Figure 2: Average Marginal Effects by country



The patterns depicted in Figure 2 suggest the possibility that effects are grouped along cross-country dimensions. To examine this, we have further grouped our sample countries along two dimensions: a distinction based on the so-called 'production regimes' and a simpler distinction along the lines of a north-south divide. The first distinction splits the countries to five groups: Continental (Germany, Austria and Belgium), Scandinavian (Denmark and Sweden), Southern (Greece, Italy, Spain and Portugal), Anglo-saxon (UK) and Central Eastern European (Poland). In the second distinction, we have grouped together in the 'north' group Austria, Belgium, Germany, Denmark, Sweden and the UK – with the rest of the countries forming the 'south' group. The estimates for these groups are depicted in Figure 3.

Figure 3: Average Marginal Effects by "production regime"



The groupings offer an interesting picture, highlighting differences across 'varieties' of European countries. The Anglo-saxon variety exhibits the highest elasticity of outmigration to regional unemployment, consistent with the view that the UK possesses one of the most flexible labour markets in Europe. This is followed by the Scandinavian group, which is also known for its flexible aspects (under the flexicurity paradigm). Also positive and statistically significant is the estimate concerning the outmigration responses to unemployment in the Continental group – driven predominantly, as noted earlier, by Belgium. In contrast, the Southern group returns a very low-value estimate (which is not statistically different from zero) while the CEE group (Poland) returns a sizeable (but also not statistically different from zero) negative estimate. The bottom of Figure 3 depicts how these 'varieties' play out in the north-south geography of Europe. The north shows notable levels of adjustability with regard to the responsiveness of outmigration to regional unemployment; while the south returns only marginal (and not statistically significant) evidence of such adjustability.

All in all, our statistical investigation of the link between unemployment and inter-regional adjustments has revealed a picture of limited only adjustability, i.e., a rather small

responsiveness to unemployment via outmigration in Europe. Outmigration flows do respond to differences/changes in regional unemployment. But the size of the response – and of the cross-regional adjustment – is exceptionally limited. Exceptions to this exist. The UK, Belgium and possibly also Denmark and Sweden show a responsiveness to unemployment which is multiple times larger than the global estimate for the 11-country group in our sample. But countries in the south and the east – perhaps with the exception of Greece – show very little such adjustability and mainly negative adjustments.

5 The role of flexible employment arrangements

Moving on from the evidence on the responsiveness of migration to regional unemployment, presented above, in this section we implement our core econometric analysis which builds on the empirical model presented in section 3. Our analysis examines not only the impact of employment flexibility on the responsiveness of outmigration to unemployment but also, separately, its direct effect on outmigration.

5.1.1 Flexibility and outmigration

We start by examining the role that employment flexibility has on regional migration (direct effect). To do this, we rely on a simplified version of equation (1), which excludes the regional unemployment rate variable and thus also, in the first instance, the interaction between flexibility and unemployment. The results, presented in Table 2, are particularly informative.

In the first column we focus on the narrow measure of flexibility (an index of the intensity of flexible employment contracts drawing on data on part-time and temporary employment) and use a distributed lag of the variable to capture its dynamic effect. As can be seen, this measure of flexibility has a very weak (statistically) positive association with the rate of outmigration, indicating – on the face of it – that a higher prevalence of non-standard employment contracts allows more plentiful cross-regional flows of labour. However, the effect of this type of flexibility on outmigration is stronger, and of a different type, dynamically. As the third and fourth cells of col.1 indicate, a higher incidence of thus defined flexibility (flexible / non-standard employment contracts) leads (at least in a Granger-causal sense) to lower outmigration rates, especially so within a two-year window. This is consistent with the theoretical expectations discussed earlier and in particular the ‘demand’ side explanation: with flexible

employment contracts offering more scope for internal (intra-regional) adjustments (and thus lower unemployment), the pressures – demand – for migration decline. Thus, whereas the contemporaneous effect does offer some evidence consistent with the 'supply' side explanation (flexible employment contracts creating a larger pool of labour available to migrate), the overall effect of flexibility is to trade-off external adjustments (via outmigration) for internal ones.

Table 2. Estimation results - Effects of flexibility on outmigration

	(1)	(2)	(3)	(4)	(5)
Flexibility	Narrow	Broad	Narrow	Broad	Detailed
Past outmigration (t-1)	0.366***	0.406***	0.344***	0.408***	0.397***
	(0.0238)	(0.0232)	(0.0244)	(0.0232)	(0.0213)
Flexibility current	0.0725	0.818			
	(0.498)	(0.593)			
Flexibility t-1	-1.133*	-0.504			
	(0.591)	(0.621)			
Flexibility t-2	-1.266***	-1.848***	-6.627***	-2.744	
	(0.462)	(0.565)	(1.157)	(1.710)	
Flexibility t-2 squared			7.092***	1.782	
			(1.666)	(2.825)	
External numerical (t-1)					-0.965***
					(0.208)
External functional (t-1)					-1.447***
					(0.367)
Internal numerical					0.653*
					(0.338)
Internal functional (t-1)					0.425***
					(0.148)
Constant	-2.910***	-2.820***	-2.418***	-2.639***	-3.250***
	(0.225)	(0.283)	(0.255)	(0.339)	(0.246)
Region effects	Y	Y	Y	Y	Y
Year effects	Y	Y	Y	Y	Y
Observations	1,648	1,648	1,648	1,648	1,787
R-squared	0.879	0.877	0.880	0.877	0.873

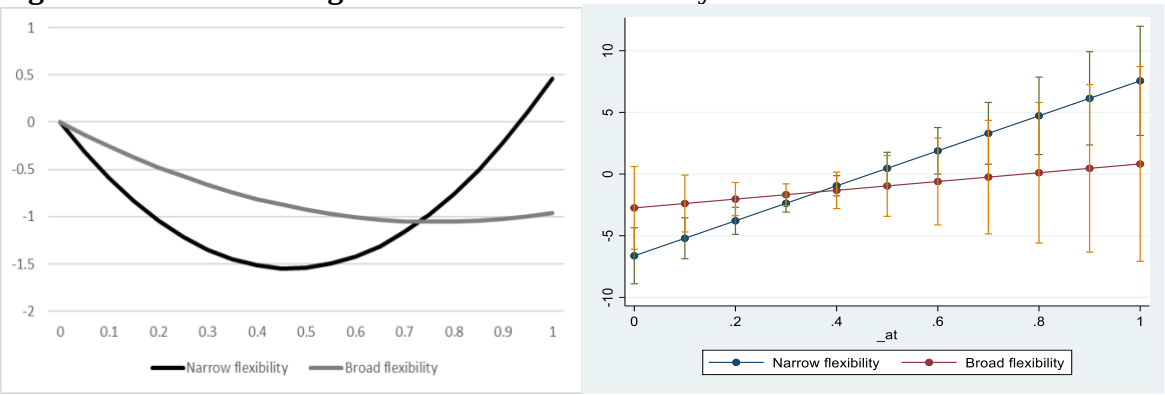
Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

This finding is further supported – and very consistently so – in the case of the broad measure of flexibility (second column), which includes additionally the extent of flexible employment arrangements in a number of other dimensions (overtimes, irregular hours, shift-work, self-employment, etc). Like in the case of the narrow definition, the broad-definition measure of flexibility produces a weakly positive contemporaneous effect and a dynamic effect which is

clearly negative, especially within a two-year window. The overall effect is quite sizeable, with the estimate for the two-year lag showing that an upward move by a region in the distribution of the broadly-defined flexibility by one standard deviation (approximately 7 percentage points) is associated with an drop in outmigration by around 13%. Again, the implication is that the demand-side effect ('necessitating') dominates over the supply-side effect ('facilitating').

In columns 3 and 4 of Table 2 we examine whether the effect of flexibility on outmigration is non-linear. Although this is not something that derives directly from our estimating model (equation (1)), evidence of non-linearities in the economic effects of labour market flexibility has been provided elsewhere in the literature (Monastiriotis, 2007) and it is thus worth examining here. The examination of non-linearities also makes sense given the bounded nature of the variables used to approximate flexibility (bounded between 0 and 1) and the fact that the dependent variable (outmigration) is also bounded. The results presented in Table 2 fully vindicate this experimentation, as is shown more clearly in Figure 4.

Figure 4. Total and marginal effects of the flexibility variables



As can be seen, for the narrow version of flexibility we obtain a clear U-shaped effect, with outmigration declining as we move from very low levels of flexible employment to more medium ones, starting to respond much more slowly to increases in flexibility above the median value (0.347) and eventually becoming a positive function of flexibility for very high values of the latter (values above the 9th decile of the empirical distribution of flexibility in our sample). The U-shaped pattern is observed also for the broad measure of flexibility, although in this case the addition of the quadratic term does not add anything in terms of explanatory value and instead renders both terms of the flexibility variable (linear and quadratic)

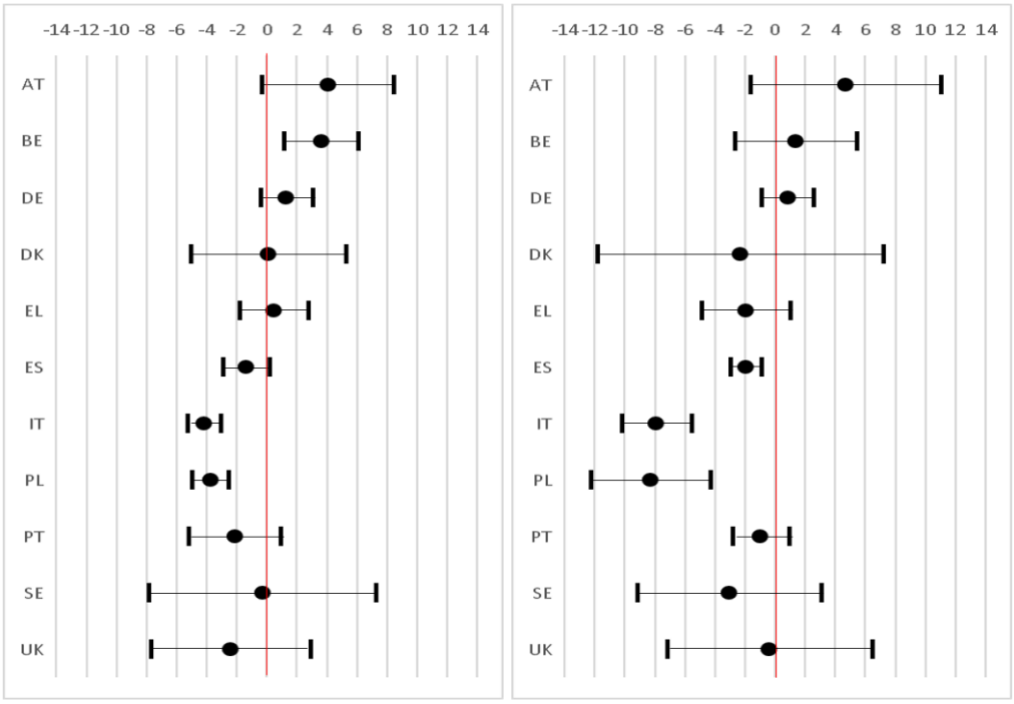
statistically non-significant. Thus, for the case of the broad measure, our evidence suggests a linear effect with increases in flexibility leading to reduced outmigration at all levels (value ranges) of the flexibility variable.

This suggests that there are elements within the broad measure of our flexibility variable that behave differently that the aspects included in our narrow measure of flexibility. We shed light to this in the last column of Table 2, where we include all four components that enter into the broad measure of flexibility directly into our estimating regression. As can be seen, there is a clear differentiation in the observed effects along one of the two dimensions of our detailed indexes (internal-external and numerical-functional). The two measures capturing external aspects of flexibility (external numerical, comprising of the two sub-indexes that are included in the narrow measure of flexibility, plus the involuntary versions of these; and external functional, which as was noted earlier is captured in our data through the share of self-employment) return a negative and statistically significant effect on outmigration – in line with what was found for the aggregate measures (narrow and broad flexibility). In contrast, the two internal-flexibility sub-indexes (internal numerical, comprising of the share of employees reporting overtime to total number of employees and the share of employees reporting irregular hours to total number of employees; and internal functional, comprising of the shares of employees working shifts, at anti-social hours, or from home) return a positive effect, which is also statistically significant (albeit only at the 10% and only when entering contemporaneously, for the internal numerical sub-index). Monastiriotis and Kaplanis (2012) report a similar pattern for the case of the UK regions only, in their analysis covering the period 1985-2008. In line with their interpretation, it appears from our results that it is the external aspects of flexibility (part-time employment, temporary employment and self-employment), i.e., those that are typically associated with adjustments at the extensive margin, that produce the 'demand'-side effect discussed earlier (necessitating less outmigration); whereas the internal aspects, which are more readily associated to cost-saving employer strategies and adjustments at the intensive margin (unpaid overtime, irregular hours, shift-work, etc) seem to be related to the 'supply'-side effect (facilitating outmigration, presumably through a mechanism of reduced job-satisfaction and attachment to one's job).

It is worth noticing that, in all models, past outmigration is found to play an important role, showing again the sizeable persistence that exists in migration flows as demonstrated also earlier (Table 1). Also important is to note how these results vary across the countries in our sample. To document this, we report in Figure 5 the country-specific estimates for the effect of

the two aggregate measures of flexibility (narrow and broad) corresponding to columns 3 and 4 of Table 2.

Figure 5. Country-specific estimates of the impact of flexibility on outmigration



As can be seen, there is again wide variability (heterogeneity) in the estimated relationship across countries. For both the narrow and the broad measures of flexibility, there is a group of countries belonging to the notional 'south' (Greece, Italy, Spain, Portugal and Poland), which produce rather precise estimates of a negative relationship between flexibility and outmigration (the 'demand' effect – except for Greece in the narrow measure). A subset of countries from the 'north', namely those belonging to the Nordic and Anglo-saxon varieties, also return a negative association between flexibility and outmigration, although here the estimates are less precise (broader confidence intervals and non-significant, statistically, point estimates). In contrast, the 'north' subgroup comprising economies of the Continental variety return invariably positive coefficients (which are however mostly non-significant statistically), indicating an inverse relationship between flexibility and regional outmigration in these countries, more akin to the 'supply' effect. The results seem to make sense intuitively. In the less-developed (and low-efficiency) economies of the European 'south', internal adjustments (flexibility) and external adjustments (outmigration) seem to be substitutes, in the sense that

extensive 'availability' of one reduces the prevalence of the other. Similarly, in the more 'flexible' economies of the north (related to the 'flexibility' and 'flexicurity' models), internal and external adjustability seem to be traded-off against one another. Rather, it is in the less 'flexible' and more coordinated economies of the Continental variety that we find a synergy between internal and external adjustability, in the sense that – albeit not confidently in a statistical sense – regions/years with higher levels of flexibility show greater degrees of labour mobility. Taken together, this suggests a form of 'specialisation' across countries and between countries and regions: in countries where flexibility is high (either due to extensive informality and non-compliance, as in the 'south', or due to flexible models of production, as in the UK and parts of Scandinavia), more flexibility at the regional level means less cross-regional adjustment. But in countries where flexibility is lower, it is the *least inflexible* regions which show the greater degree of external (extra-regional) adjustments.

5.1.2 Flexibility and cross-regional adjustability

Our next question concerns the role that employment flexibility, in its 'broad' and 'narrow' sense, has for the regions' external adjustability to unemployment, i.e., the way that cross-regional outmigration adjusts to the latter. To investigate this, we estimate the full version of the model presented in equation (1). For stability and consistency, we use the two-year lag of our policy variables (flexibility and unemployment) and repeat our estimation for all six measures of flexibility (broad and narrow definitions, as well as the four sub-indexes of internal numerical, internal functional, external numerical and external functional flexibility).

We present the obtained results in the usual tabular form (Table 3). Given, however, our attention to the interaction term, between flexibility and unemployment, we additionally present, in Figure 6, our estimated marginal effects for the impact of unemployment on outmigration flows (rates) across the range of theoretical values of the flexibility variable(s).

The results show consistency, across measures of flexibility, and stability with regard to the key coefficients. In particular, the persistence of outmigration is consistently estimated in the area of 37-40% across models, similar to the values shown in Table 2; while both sets of regional and time fixed effects (year dummies) remain jointly highly significant (even at the 0.1% level in all regressions). The aggregate flexibility measures (columns 1 and 2) return similar coefficients as before, across levels of unemployment (all coefficients are negative, for both the level and the interaction effect), and so do the external flexibility sub-indexes

(negative effects for external numerical and external functional flexibility overall, in columns 3 and 4, respectively). The internal flexibility measures (columns 5 and 6) return negative coefficients for their level effects, but their interaction terms are positive, producing overall a positive association with the rate of outmigration, in consistence with the results presented in Table 2. For these two variables, the reversal in the sign of the level effect indicates that their complementarity with extra-regional adjustments (what we labelled earlier as the 'supply' effect) operates mainly in regions/years of high unemployment.

Table 3. Estimation results – Effects of flexibility on cross-regional adjustability

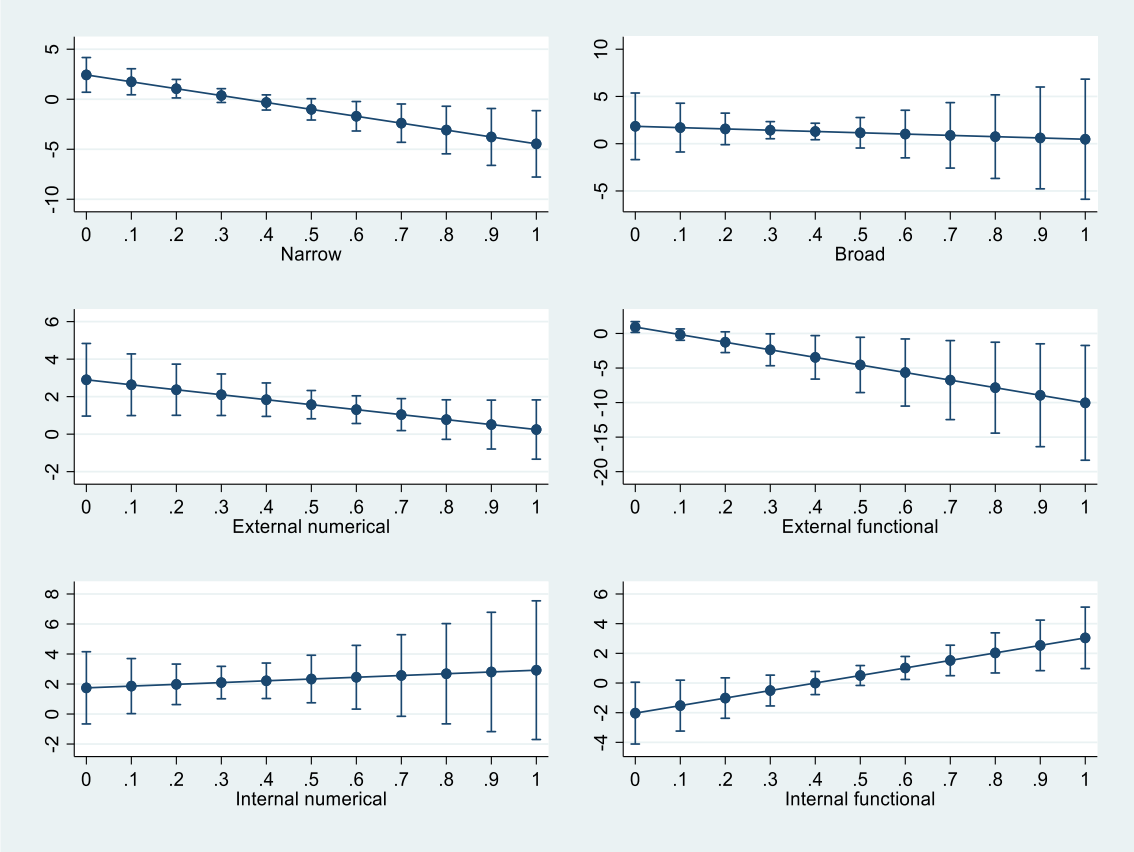
	(1) Narrow flexibility	(2) Broad flexibility	(3) External numerical	(4) External functional	(5) Internal numerical	(6) Internal functional
Past outmigration	0.370***	0.400***	0.377***	0.387***	0.391***	0.394***
	(0.0237)	(0.0232)	(0.0234)	(0.0235)	(0.0233)	(0.0238)
Past unemployment (t-2)	2.435***	1.841	2.900***	0.933**	1.745	-2.030*
	(0.885)	(1.798)	(0.987)	(0.399)	(1.227)	(1.062)
Flexibility measure (t-2)	-1.146**	-2.352***	-0.997***	0.339	-2.148***	-0.521**
	(0.447)	(0.714)	(0.294)	(0.543)	(0.587)	(0.238)
Interaction F*U (t-2)	-6.894***	-1.366	-2.654	-10.97**	1.178	5.075**
	(2.470)	(4.976)	(1.629)	(4.423)	(3.391)	(2.005)
Fixed effects	Year, region	Year, region	Year, region	Year, region	Year, region	Year, region
Constant	-3.256***	-2.679***	-3.158***	-3.506***	-3.208***	-3.145***
	(0.237)	(0.320)	(0.244)	(0.214)	(0.224)	(0.261)
Observations	1,648	1,648	1,648	1,648	1,648	1,648
R-squared	0.879	0.878	0.879	0.877	0.877	0.876

Concerning the estimated effects for the unemployment variable, which capture the adjustability of cross-regional adjustments to changes/differences in regional unemployment rates, we turn to the help of Figure 6. The evidence with regard to the narrow measure of flexibility (top-left panel in Figure 6) shows that outmigration responds positively to unemployment (higher unemployment triggers outward flows), but only for up to below-median values of flexibility. For values of flexibility around the median (0.347), the effect of unemployment becomes insignificant and starts turning negative, becoming statistically significant negative for very extreme values of flexibility (above a theoretical value of 0.50, which corresponds to values above the 95th percentile of the empirical distribution of flexibility in our sample). The same pattern, of a declining intensity of responsiveness to unemployment for the outmigration variable, is also found for the case of the broad measure of flexibility. As expected, in this case the influence of flexibility is less strong (as depicted by the flatter line

on the top-right panel of Figure 4), as the broad measure is more heterogenous – comprising, as it does, the four sub-indexes along the internal-external and numerical-functional axes. Still, the result is qualitatively the same: unemployment raises outmigration for low values and medium values of broadly-defined flexibility (up to the 80th percentile of the empirical distribution) but outmigration becomes completely unresponsive to unemployment in cases where flexibility is very high.

This result, as obtained for the aggregate measures of flexibility, is replicated in the case of the two sub-indexes capturing external aspects of flexibility. For external numerical flexibility, the pattern is similar to the broad measure, in the sense that outmigration becomes increasingly less responsive to unemployment in cases of high levels of flexibility, but the relationship between outmigration and unemployment never turns negative. For external functional flexibility, the pattern is more similar to that found for the narrow measure: here, outmigration adjusts to unemployment in cases where external functional flexibility is low (note that the 0.1 value, where the marginal effect turns negative, corresponds to the 75th percentile of the empirical distribution) and becomes statistically negative for extremely high values of external functional flexibility (above the 90th percentile of the empirical distribution). In contrast, the patterns found for the two internal flexibility sub-indexes are different, as they show the responsiveness of outmigration to unemployment to be increasing with the degree of flexibility. For internal numerical flexibility, the point estimate is always positive, although it is statistically significant at the 0.05 level only for values of the flexibility variable above 0.10 (corresponding to all values above the 10th decile of the empirical distribution and turning again statistically non-significant only for out-of-sample projections). In the case of internal functional flexibility (bottom-right panel), the marginal effect of unemployment on outmigration is found to be statistically significant negative for very low values of flexibility (up to 0.10, corresponding merely to the bottom 2 percentile of the empirical distribution), it remains negative – but not statistically significant – for values up to around the 20th percentile (values of flexibility around 0.40) and it becomes positive and statistically significant for values above the median of the empirical distribution of the internal functional flexibility variable (values above 0.54).

Figure 6. Marginal effects of unemployment on outmigration across values of flexibility



On the whole, these results show that flexibility – and different forms of it in particular – plays an important role for extra-regional adjustments through outmigration. The role, however, is not uniform across measures of flexibility and across different areas (or periods) or different levels of unemployment. As was shown in Table 2, on the whole flexibility reduces extra-regional adjustments through migration, in line with the 'demand' side prediction (flexibility reducing the 'necessity' of migration). Further, as has been shown in the analysis of Table 3, flexibility reduces on the whole also the extra-regional adjustability of regional economies by hampering the responsiveness of outmigration to unemployment. This result, however, applies almost uniquely to external aspects of flexibility (both numerical and functional). Internal aspects of flexibility are found in contrast to increase the responsiveness of outmigration to unemployment (especially so for internal functional flexibility, i.e., aspects relating to shift-work, antisocial hours of work and work from home), more in line with the 'supply' side prediction which sees flexibility as increasing the 'availability' of migrant labour.

6 Conclusions

Research into the relationship between inter-regional migration and flexible labour use (employment flexibility) is surprisingly limited. In this paper we have drawn on, and extended, the work conducted by Monastiriotis and Kaplanis (2012) for the UK, performing a detailed analysis across a large set of European countries of the role played by employment flexibility not only for outward cross-regional migration as such but – mainly – for the responsiveness of outmigration to regional unemployment. Although under-researched, this is an important question, with both theoretical and policy relevance. As is widely understood, employment flexibility is an important mechanism for intra-regional adjustments – helping, as it is believed to do, regional (and national) economies adjust faster to external shocks and thus reduce their levels (and persistence) of unemployment. The question that we have addressed in this paper is whether – perhaps by doing so – flexibility further facilitates extra-regional adjustments, through migration.

If flexibility is found to increase such adjustments, then it can be thought of us producing a double dividend, whereby intra- and inert-regional adjustments become complementary, or synergetic. If, however, flexibility is found to act adversely upon inter-regional adjustments (and adjustability), then this would raise an issue of prioritising: as, by implication, flexibility would be associated with greater intra-regional adjustability but lower inter-regional adjustability, this would create a de facto trade-off between within-area improvements on labour market performance and across-area (regional) equilibration. Given what is known about the consequences – political as well as economic – of persistent regional disparities, such a trade-off would be anything but trivial. It would imply that there is perhaps an optimal level of flexibility (below its theoretical maximum), whereby both inter- and intra-regional adjustments could be facilitated simultaneously.

Based on these considerations, our analysis revealed that employment flexibility exerts an overall detrimental influence on cross-regional adjustments through migration. Flexibility was found to reduce outmigration across regions and – importantly – to reduce the adjustability of outmigration to regional unemployment. As a result, its effect is to reduce the dynamics that can bring equilibration, or convergence, across regions within national economies. The degree to which this happens was found to vary – sometimes significantly – both across countries (and different country ‘varieties’) and across measures (or aspects) of flexibility. Flexibility was found to be complementary to outmigration in countries belonging to the Continental, or

Coordinated Market Economy, variety; but to be negatively related to outmigration in the less coordinated economies of the European south – as well as in the more flexible economies of the Scandinavian and Anglo-saxon varieties. In a similar vein, flexibility was found to reduce the adjustability of outmigration to unemployment overall, but mainly through external aspects of flexibility (numerical – such as temping and part-timing; and functional – such as self-employment): for internal aspects of flexibility, such as flexible hours and overtime (numerical) or shift- and home-working (functional), the role of flexibility was, if anything, to enhance the responsiveness of outmigration to unemployment.

These differences show that different dynamics, in the flexibility-migration relationship, prevail in different contexts. For external flexibility and in countries where employment flexibility – especially of the external form – is higher (either due to extensive informality, as in the south, or due to less restrictive regulations, as in the UK or Denmark), flexible employment acts more as a substitute to inter-regional adjustments, signifying the dominance of a 'demand-side' mechanism (what we labelled as the *necessitating* effect), whereby the greater potential for intra-regional adjustments (flexibility) creates less of a need, or demand, for extra-regional adjustments (outmigration). In contrast, in the case of internal flexibility and in the case of Continental countries with more coordinated labour markets and less extensive prevalence of non-standard forms of employment, flexible employment acts more as a complement to inter-regional adjustments. Unlike in the previous case, this would seem to relate more to a 'supply-side' mechanism (labelled earlier as the *facilitating* effect), whereby flexibility facilitates adjustment to changes/differences in unemployment both internally (intra-regional adjustment) and externally (via outmigration).

This is intuitive. In countries where employment flexibility is generally low (Continental 'variety'), and thus internal adjustments are more difficult, high(er) flexibility in some regions facilitates not so much internal adjustment but rather an ability for individuals to move. In contrast, in countries where employment flexibility is high, it is the low flexibility regions that see a higher 'need' for extra-regional adjustment – as adjustment internally is in relative terms limited; while high-flexibility regions manage to adjust by more internally (at least in relative terms) thus leading to less 'need' for outmigration. Similarly, a high prevalence of external flexibility (non-standard forms of employment contracts) creates less of a 'need' for extra-regional adjustments, as jobs are relatively more fluid (i.e., lower tenures for part-time and temporary workers) and job-finding within a regional economy, for any given level of unemployment, is less restricted. Rather inversely, a high prevalence of internal flexibility in

times of high/rising unemployment creates more pressures to the existing pool of workers (e.g., for overtime or unsociable shifts) and leads to adjustments mainly on the intensive margin of employment (hours rather than jobs), thus creating less labour market churn with the effect of pushing parts of the workforce towards external adjustments (outmigration).

The implications of these dynamics are important both for labour market (and wider economic) policy and for our understanding of regional economic process (in the field of regional science and economic geography). For the latter, they show that the degree, type and cross-regional heterogeneity in levels of employment flexibility matter for the economic performance of regions and for cross-regional adjustment, or convergence (equilibration). For policy, they show that the pursuit for labour market flexibility, as a mechanism addressing problems of economic disparity and resilience to crises, can have varied – and sometimes unintended – consequences, generating effects that may be less desirable than initially anticipated. At the same time, there is also a wider lesson for European policy at large: the substantial heterogeneity unveiled by our analysis, amongst European countries, both with regard to the impact of flexibility on outmigration and with regard to the responsiveness of outmigration to unemployment, demonstrated quite clearly that labour market flexibility is not an "one size fits all" policy and that rather flexibility produces different dynamics – and economic effects – in different 'varieties', or systems, of economic organisation.

Appendix

Table A.1. Base indicators and variables

Variables	Description
OR: Outmigration rate (REG, REG1Y)	Share of working-age individuals in other regions who were in the region one year ago, over the total number of working-age individuals in the region
PT: Part-time workers (FTPT)	Ratio of part-time employees to the sum of part-time plus full-time
TW: Temporary workers (TEMP)	Ratio of temporary-contract employees to the sum of temporary and permanent contracts
EF1: Index of employment flexibility (narrow definition)	**Standardised sum of PT and TW**
OW: Overtime workers (HOURREAS-value label 16)	Share of employees reporting overtime to total number of employees
FH: Flexible hours workers (HOURREAS-value label 01)	Share of employees reporting irregular hours to total number of employees
INF: Internal Numerical Flexibility	**Standardised sum of OW and FH**
SW: Shift-Working (SHIFTWK)	Share of employees reporting shift-working to the total number of employees
IH: Irregular Hours (EVENWK/ NIGHTWK/ SATWK/ SUNWK)	Share of employees working at nights, evenings, Saturdays or Sundays, over total number of employees
HW: Home workers (HOMEWK)	Share of employees reporting work from home over total number of employees
IFF: Internal Functional Flexibility	Standardised sum of SW, IH and HW
IPT: Involuntary Part-Time Work (FTPTREAS)	Share of part-timers who would like to work full-time
ITW: Involuntary temporary job/work contract of limited duration (TEMPREAS)	Share of temporary workers who would like to have a regular job
ENF: External Numerical Flexibility	**Standardised sum of PT, TW, IPT and ITW**
SE: Self-Employed (STAPRO)	Share of self-employed to total employment
AW: Agency workers (TEMPAGCY)	Share of agency-workers to total employment
EFF: External Functional Flexibility	**Standardised sum of SE and AW**
EF2: Index of employment flexibility (broad definition)	**Standardised sum of INF, IFF, ENF and EFF**

Note: Abbreviations in parentheses refer to the variable name from LFS microdata

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