Accumulation or absorption? Changing disparities of household non-employment in Europe during the Great Recession

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Abstract

This comparative study analyses the impact of the Great Recession on household non-employment across Europe since 2008. We use the EU-SILC (2007 to 2014) for a shift-share analysis that decomposes annual variations in household non-employment in 30 European countries. Investigating whether job-loss is absorbed or accumulated by households, we break down non-employment variations to changes in individual non-employment, household compositions, and polarization. We find that jobless households increased since 2008, especially in crisis countries. There is no evidence for widespread absorption of individual non-employment in families or multi-person households. Instead, household dynamics and unequal distribution of non-employment leads to further risk accumulation within households during the crisis. Paradoxically, this pattern occurs in those crisis countries known for their traditional household structures and less accommodating welfare systems which have relied thus far on families to absorb employment risks. The impact of the crisis has aggravated household disparities in joblessness.

Key words: households, non-employment, economic crisis, polarization; family; welfare state

JEL: D1, I380, J210

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1. Introduction

The global financial market crash of 2008 triggered the Great Recession, an unprecedented massive economic downturn causing severe job-loss across Europe. The subsequent Euro-sovereign debt crisis which started in Greece and spread across Southern Europe further increased unemployment to an exceptionally high level. Ireland and the Baltic countries recovered more quickly from the initial crash, while countries like Germany, Poland and some others were much less affected by the Great Recession. Even before the onset of the crisis, increasing employment rates has been a major target of the European Union (EU), calling in particular for a reduction in the number of people living in very low work intensity households (European Commission 2010). In this study we ask whether the sudden shock in unemployment has led to a surge of entire households without any employment or have families with at least one earner been able to absorb it?

Refocusing the analysis from an individual to a household perspective (Wallace 2002), we explore the sudden employment shock of the Great Recession on household non-employment across Europe. As primary redistributive unit of resources, the household is directly exposed to employment risks with consequences for its income, but also potentially capable of coping with such stress by absorbing these by pooling resources (Albertini 2008; Kaplan 2012; Wiemers 2014). Literature on household formation and family dynamics stresses *absorption* coping mechanisms that may include 'doubling up' of partners by merging households or jobless adult children returning home to their family led by a breadwinner (Kaplan 2012; Manacorda and Moretti 2006; Mykyta and Macartney 2011; Wiemers 2014). We might thus expect absorption to lead to an increase in household size and lower than expected joblessness in multiple persons households during the crisis. By contrast, job-loss has been found to induce disruptions in families and divorce, which might counter absorption tendencies (Brand 2015; Charles and Stephens 2004). Hence, it remains unclear whether absorption is specific to certain households or whether it is a more common phenomenon that buffers job-loss across society particularly in times of crisis.

An alternative view stresses *accumulation* of employment risks in vulnerable households which bare high risks of poverty and material deprivation, particularly when completely jobless (de Beer 2007; de Graaf-Zijl and Nolan 2011). Prior to the crisis, research indicates a secular trend of

'polarization', i.e. an increase in dual earner households concurrent with a growth in jobless households across OECD countries since the 1970s (Gregg and Wadsworth 2001; Gregg et al. 2010; Vandenbroucke and Corluy 2014). Rising polarization seems the product of long-term trends, such as educational expansion, assortative mating based on skills, and increasing female labor market participation (Becker 1973; Becker 1974; Esping-Andersen and Billari 2015; Mare 1991; Ultee et al. 1988). Borrowing from the Mertonian concept of 'cumulative (dis-) advantages' (DiPrete and Eirich 2006; Merton 1968), we understand accumulation here as unequal household propensity to joblessness, which is an expression of an unequal distribution of employment risks in a society. Our expectation is that the economic crisis exacerbates an already problematic situation in these vulnerable households, leading to an increase in disparities of joblessness across low and high risk households. While the polarization thesis has been studied in long-term developments thus far, our study will explore whether absorption or accumulation prevails during a shorter crisis window.

The Great Recession provides a natural quasi-experiment to study the impact of an (external) economic shock on household non-employment patterns in a pre/post treatment design. In our study, we investigate how the sudden shock in individual non-employment transforms into jobless household rates across countries and over time. In contrast to long-term polarization studies, our quasi-experimental design allows us to establish how households have responded to an (external) employment shock: do societies show more absorption capacity or are there disparities due to risk accumulation during the Great Recession?

We analyze 30 European countries with the household survey, the European Union Statistics on Income and Living Conditions (EU-SILC), from 2007 to 2014. Similar to previous studies on household non-employment (Corluy and Vandenbroucke 2017; Gregg and Wadsworth 2001; Gregg et al. 2010; Vandenbroucke and Corluy 2014) we use a shift-share analysis to decompose changes in household non-employment since the 2008 crash. This allows us to determine how much variation in jobless households can be attributed to changes in individual non-employment, changing household structures, and polarization trends. The development of these components gives a clear indication of whether absorption or accumulation prevail. Hence, our first contribution is to describe the cross-

national variation of household non-employment during the Great Recession and to test competing expectations to how job-loss is allocated and how households react to it.

Our second contribution is to combine the analytical approaches on long-term macro-level shifts in non-employment with short-term micro-level adaptation within households, enriching the former perspective with an explanatory account of household adaptation and providing context to the latter by studying dynamics on the societal level. Both long-term polarization as well as short-term adjustments of households differs widely across countries. Less developed welfare states and countries with relatively traditional family structures show lower levels of polarization as well as stronger proclivities for absorbing individual employment risks (Aassve et al. 2002; Gregg and Wadsworth 2001; Gregg et al. 2010; Manacorda and Moretti 2006; Vandenbroucke and Corluy 2014). Our third contribution is thus to explore whether distinct non-employment disparities can be associated with different welfare regimes and family/household structures.

We first review existing studies of household non-employment and polarization and describe the developments prior to the crisis. Thereafter we elaborate on the mechanisms behind absorption and accumulation. We describe how countries can be classified in broad clusters according to similarities in their family structures and institutional regimes, using these to derive general expectations on their capacity in respect to absorption and accumulation. Subsequently, we describe our data and explain the shift-share analysis. We present and discuss our findings and point out limitations before drawing overall conclusions.

2. Household non-employment and polarization

Household joblessness, here understood as household units without any member in gainful employment, is strongly correlated with poverty and deprivation (de Beer 2007; de Graaf-Zijl and Nolan 2011). Over the last decades, increasing female labor force participation and reforms to enable the reconciliation of work and family, the activation of non-employed through active labor market policies and benefit retrenchment, and the reversal of early exit from work through phasing-out early retirement options were successful in raising employment rates throughout Europe (e.g. Bonoli 2010; Ebbinghaus 2006; Lewis et al. 2008). However, higher employment levels did not in equal measure

result in fewer jobless households in which no working age member is employed. Previous research shows that the trends individual and household joblessness differ because of a polarization between households with and without employment, most notable between dual earner and jobless households (Gregg and Wadsworth 2001; Gregg et al. 2010; Vandenbroucke and Corluy 2014). Polarization, according to Gregg and Wadsworth (2001), indicates a deviation in the rate of jobless households from a random distribution of individual non-employment.[1] A positive polarization then indicates that non-employment risks are accumulated in some households, while others are fully employed. Negative polarization indicates that there are fewer entirely jobless household than expected, thus employment risks are absorbed in households.

Several studies indicate that there is a secular trend towards positive polarization throughout the Western world. For instance, Gregg and Wadsworth (2010) show that between 1977 and 2005 the rate of workless households increased in the UK, Spain, Germany, and Australia (with the notable exception of the US). At the same time, the number of households in which all working age members work increased markedly in all these countries (including the US). Vandenbroucke and Corluy (2014) replicate these findings for EU countries between 1995 and 2008. Besides demonstrating an upward convergence of polarization across countries, they extend their analysis to the more encompassing measure of low work intensity.[2] Unsurprisingly, their analysis establishes strong links between low work intensity and poverty risks. Additionally, several studies document that polarization differs across OECD countries. Household structures, welfare systems, and labor market regimes might be important moderators. For instance, countries with male breadwinner dominance, such as in southern Europe, show lower levels of polarization, whereas the accumulation of employment risks is stronger in liberal economies and countries with high levels of decommodification (Gregg et al. 2010). In addition

[1] The polarization indicator is the difference between the actual rate of jobless households and the counterfactual household rate given individual non-employment rate. The counterfactual is defined as the rate of households that would be without employment if non-employment was randomly distributed across individuals (see the sections on data and shift-share decomposition for more detail).

[2] Our analysis focuses on absolute household non-employment because having no household member in work is a particularly dramatic situation and a common enough occurrence which warrants full attention. To also analyze low work intensity households is outside the scope of our analysis. Including an analysis of low work intensity as a robustness check is not feasible as it would mean including an entirely different set of indicators and theoretical considerations, especially in regards to taking into account precarious/low hour work. We are aware that the phenomena are highly interrelated, especially over time, but have to relay an analysis of low work intensity to a future study.

to the growing income and wealth gaps and rising segmentation of labor markets (Atkinson et al. 2017; Emmenegger et al. 2012; Piketty 2014), increasing polarization of household non-employment adds a crucial dimension to how social inequalities are accumulated.

These important studies thus document rising positive polarization and a negative (or at least not positive) correlation between increasing individual employment and household employment. While not exploring primarily micro-level explanations, this literature hints at several underlying factors such as educational expansion, homogamy, and (most importantly) rising female labor market participation (Gregg et al. 2010; Vandenbroucke and Corluy 2014). These are common causes of both changes in individual employment as well as changing processes of household formation and can thus explain emerging patterns of household non-employment. However, such long-term analysis of individual vs. household non-employment over relatively uninterrupted employment expansion provides little information about the direct relation between changes in individual and household non-employment in response to short-term fluctuations.

An exogenous employment shock as the Great Recession is more informative about the short-term decisions that households make in response to individual job-loss and how unequally non-employment is distributed across households. Some recent studies have looked at the period including the crisis. Corluy and Vandenbroucke (2017) extend their previous work by comparing 2008 and 2012, indicating that crisis countries (Ireland, Southern Europe) were exposed to higher individual joblessness and slightly lower increases in household non-employment. Ponthieux (2017) shows 'quasi-joblessness' of households has increased since the crash (2008-2012) in the European Union: particularly in some Eastern- and Southern countries the previously low share of working age individuals living in households with low work intensity doubled from around 5% to about 10% (and in Ireland from above 10% to short under 20%). These studies indicate that there might be a slowing down or even reversal in polarization at least in some countries but they do not investigate whether job-loss during the crisis leads to qualitatively different processes of absorption and accumulation than long-term shifts in individual employment. They also do not engage with explanatory accounts of household dynamics and the social distribution of job-loss. In our study, we are interested in the theoretical mechanisms behind absorption and accumulation of short-term employment risks in households, how they differ across

countries with different welfare regimes and household structures, and how a sudden employment shock plays out given the theoretical expectations.

3. Absorption and accumulation of employment risks

The macro-level evidence of polarization suggests underlying secular trends such as educational expansion, homogamy, and rising female labor market participation, that are driving greater accumulation of employment risks in households. Depending on the strength of these trends, several countries still show a proclivity for absorption, i.e. negative polarization. Besides explaining the cross-national variation (starting conditions), however, they do not help in explaining how households are exposed and respond to a sudden employment shock. Rather, the absorption or accumulation of employment risks might happen in the short-term through two mechanisms. The first mechanism plays out in shifts of household composition referring back to the idea of generational transfers within households (Albertini and Kohli 2013). Existing research on coping mechanisms and household resilience suggests that some individuals might 'double up', i.e. merge their households for pooling resources, especially during times of crisis, thereby absorbing individual employment risks (e.g. Manacorda and Moretti 2006; Mykyta and Macartney 2011; Wiemers 2014). Several studies of household dynamics provide evidence for the „doubling up' or 'returning home' strategy, i.e. the practice that individuals who face a period of unemployment are more likely to join their partner's household or return home for search of a steady source of support (Kaplan 2012; Wiemers 2014). The most frequent example of this is young individuals returning to their parents' households in times of job-loss, but there is evidence for older individuals' job-loss being absorbed as well (Mykyta and Macartney 2011; Wiemers 2014). In case of an employment shock, we thus expect absorption to lead to growing household size. However, there might be also the reverse tendency. A large literature on the consequences of job-loss indicates subsequent family instability and disruption (Brand 2015; Charles and Stephens 2004). Instead of families banding together in tough times, the crisis thus might induce family breakups and divorce, which reduces household sizes and in effect could increase the number of jobless households. This might be incentivized by transfer (or tax) benefits when jobless individuals separate and form their own households in order to receive means-tested (or tax) benefits that would not be granted as part of the former

(family or couple) household given more disposable income. For instance, a student might receive means-tested benefits if living alone but not when living with the family. Such disintegration incentives of welfare benefit systems have been politically debated, for instance, in the course of the German Hartz reforms in the early 2000s (Koulovatianos et al. 2008), but it remains unclear if there is any sizable effect.

Other than through changes in household compositions household non-employment can change because of rising or falling polarization. Absorption or accumulation might take place if job-loss is not random but affects specific individuals within household contexts. Absorption occurs if job-loss disproportionally affects those individuals who are gaining additional income but not the sole income of their household. In accordance with studies applying insider-outsider theory to point at the unequal distribution of employment rights we would expect this to occur if main breadwinners generally occupy jobs that enjoy higher employment protection (Biegert 2014; Biegert forthcoming; Emmenegger et al. 2012). By contrast, we would observe accumulation should job-loss disproportionally affect more vulnerable households, e.g. households with sole earners in precarious jobs, as is often the case for lone parents, for instance (Brady and Burroway 2012; Haux 2013). For both mechanisms, contextual factors are decisive for whether absorption or accumulation prevails in case of an economic shock.

4. Household structures and institutional contexts

We expect cross-national variations in the prevalence of absorption and accumulation. First, differences in typical household structures determine coping strategies and the likelihood of job-loss leading to household joblessness. Second, welfare states provide opportunity and incentive structures that shape the potential of households to have alternative earners and the economic impact of job-loss. Third, labor market regimes regulate whether individuals face comparable risks of job-loss or if some are more protected.[3] In the following we elaborate on these moderating factors and how their

[3] We highlight differences in household structures, welfare regimes and labor market regulations as particularly relevant, though education and training systems or early retirement opportunities matter for those entering or leaving employment over the life-course.

specification in European country clusters lead us to expect different patterns of absorption and accumulation.

Household size and composition matter for non-employment propensity first of all through simple calculation: assuming a (relatively) equal distribution of non-employment the expected household jobless rate of a one adult household is the same as the individual non-employment rate. Given the same individual jobless probability, the expected probability of a household being entirely jobless is less likely the more working age people reside in the household.[4] Moreover, household size and composition express how households typically assign responsibility for generating income. Demographic studies document across Europe a decrease in household sizes as consequences of lower fertility, higher divorce and partnership break-up rates, and more widespread early separation from home (Iacovou and Skew 2011; Keilman 1988). In addition, there is a decline of the traditional male breadwinner model (Esping-Andersen and Billari 2015; Lewis et al. 2008). Household structures vary between countries because they are the cumulative result of family formation, partnership cohabitation, and children home leaving patterns that are culturally bound and societally institutionalized (though they have modernized towards more pluralist patterns over time) (Haas et al. 2006; Steiber and Haas 2012). Lewis and colleagues (2008), for instance, find that dual full-time worker couples are prevalent in Scandinavia only. In Continental Europe a 'modified' male breadwinner model exists in which women work part-time while men work full-time. In the South and East there is a growing divide between dual full-time earner couples and single more traditional breadwinner earner families (Lewis et al. 2008). Young people leave their family home early in liberal and Nordic welfare states but stay longer in Southern Europe due to substantial intra-family assistance and partly also Eastern Europe albeit with less support (Mandic 2008). Younger adults 'returning home' when faced with economic difficulties has been a general phenomenon (Flynn and Schwartz 2017; Kaplan 2012; Mykyta and Macartney 2011; Wiemers 2014) but is more frequent in the South (Manacorda and Moretti 2006; Mínguez 2017). Altogether, we would thus expect greater potential for absorption in Southern and Eastern Europe as households tend to be larger and because multigenerational families traditionally serve to absorb risks.

[4] The individual probability to the power of n, where n is the number of people in the household.

Welfare regimes affect job-loss coping strategies through out-of-work transfers and a set of family policies ranging from services to transfers and tax rules (Gornick et al. 1997; Stier et al. 2001). Family policies reflect and shape gender contracts, limiting or fostering the independence of working mothers, improving the situation of single mothers, but also facilitating second earners in family households. Nordic countries aim at universality and egalitarian policies with good access to child care facilities and child poverty measures. Liberal United Kingdom has a more rudimentary and market-driven approach to family autonomy with private child care but also child poverty interventions. Continental European countries apply a subsidiarity model relying on welfare organization and communes in providing child care, having only gradually embraced reconciliation of work-family. Southern European countries and Ireland have more Catholic (or Orthodox) family models with shortcomings in child care and poverty prevention. Central and Eastern Europe used to have good child care provision but face more challenges since the transformation to a market economy (Szelewa and Polakowski 2008). In general, we expect welfare regimes with more generous family policies to create opportunity structures for dual earner households that can absorb job-loss. However, generous child care and transfer provision, such as in Nordic countries, might increase the number of single parents vulnerable to household non-employment. Job-loss might thus lead to greater inequality in joblessness between households of different sizes.

Furthermore, with the household as the basic unit of means-testing generous out-of-work transfers through unemployment benefits or minimum income protection could lower job-search urgency, while activation measures and low benefits could lead to faster reemployment (Bahle et al. 2011; Marx and Nelson 2013). Esping-Andersen's (1990) welfare regime typology has been used to compare liberal-residual welfare states that provide only minimum protection for the non-employed in order to strengthen market incentives (Anglophone countries), universalist social democratic regimes which protect all from market forces but also rely on active labor market policies (Nordic countries), and conservative social insurance systems that maintain living-standards mainly for labor market insiders (Continental Europe) (Esping-Andersen and Regini 2000; Ferragina and Seeleib-Kaiser 2011). In addition, southern European welfare states have been found to have a more familialist orientation and less developed minimum income protection for jobless but instead job protection for breadwinners (Bahle et

al. 2011; Ferrera 1996). In Eastern European countries, minimum income for the working population remains relative limited, though labor markets tend to be more flexible, particularly in the liberal Baltic states (Fenger 2007). The limited income security provided in Anglophone, Southern, and Eastern countries should lead to more absorption through shifts in household composition, whereas the more generous Continental and Nordic welfare states disincentivize accumulation of household joblessness less.

Finally, labor market regulation might moderate the impact on household non-employment by shaping the allocation of job-loss. Since the 1980s ,several countries, especially in Continental Europe and the South, have seen an ever-greater divide between labor market insiders and outsiders (Emmenegger et al. 2012; Rueda 2005). Many reforms have protected insiders (full-time career employees) whereas outsider groups at the margins of the labor market bear the brunt of flexibilization. Coinciding with a stronger emphasis on traditional family models, dualized labor markets might foster absorption by protecting insiders (breadwinners) while relying on intra-family solidarity to cope with joblessness of young, women, and frail members of the household more affected by crisis-induced job-loss.

These cross-national variations in macro-contexts across Europe matter for the absorption or accumulation during the Great Recession. The dominant household structures and institutional settings lead us to expect absorption of individual job-loss in households in the countries in Southern Europe as well as to some degree in the East. We expect accumulation as a reaction to falling employment in Northern welfare states. These expectations are not unambiguous. Even less so in Continental European and Anglophone countries where the settings give rise to competing expectations.

5. European Union Statistics on Income and Living Conditions

Based on the EU-SILC (2007-2014), our study compares household non-employment across 30 European countries applying a shift-share analysis. We use a quasi-experimental design by analyzing the changes ('shifts') in household non-employment before and since the onset of the Great Recession, assuming the employment shock to have been an exogenous treatment (we discuss this strong assumption in the limitations section). This design enables us to isolate short-term distribution of job-loss and

household reaction patterns from the long-running societal trends that spurned polarization prior to the crisis. We decompose the shifts in household non-employment rates from before (2008) to since the Great Recession (2009-14), comparing not only the changes in the immediate aftermath of the 2008 crash but investigating also the annual changes in subsequent years. We conduct our analyses country- and regime-specific to establish differences in how countries deal with an employment shock.

The EU-SILC offers data on households and their employment since 2004 for up to 32 European countries. We focus on the period from 2007 to 2014, excluding data from before and after. In our main analysis we use 2008 as a pre-crisis benchmark to investigate changes since the onset of the Great Recession until 2014,[5]. Our descriptive analyses include data from 2007 to provide a glance at pre-crisis trends around our 2008 benchmark. Our sample does not include Croatia and Serbia because EU-SILC lacks data before the onset for these countries. For the remaining 30 countries we use the repeated cross-sectional data of the EU-SILC.[6] For our analysis we need basic information on age, household affiliation, and labor force status. We use the household weights provided in the dataset to construct our representative aggregate level measures for the descriptive and the shift-share analysis.[7] We make several sample restrictions for substantive and data availability reasons. First, we restrict our analysis to households with at least one person of working age (16-64)[8]. Second, we discard all households in which the labor market status of at least one person of working age is not available since we need a reliable measure of household non-employment. In most countries, the share of excluded observations is below 1% of the total sample.[9] Our calculations rely on EU-SILC data for 2,970,232 working age individuals in 1,421,204 households nested in 237 country-years.

[5] The Great Recession did not affect European economies uniformly, but for the sake of parsimony, we assess the change from 2008 onwards for all 30 countries. As we present our findings in descriptive figures, deviations in terms of the crisis pattern can be identified (see also the online Appendix).
[6] EU-SILC also offers a dataset based on a four-year rotational panel. While panel data offers advantages for following households, the panel of EU-SILC is less reliable when it comes to representativity due to panel attrition among other reasons. We rely on the cross-sectional data as our main goal is to analyze shifts in representative macro-indicators of household non-employment across countries and over time.
[7] Weighting leads to higher estimates of individual and household non-employment. For Romania, weighting leads to implausible estimates in 2014 (for both points see comparative Figures A2 and A3 in the Appendix).
[8] We also run all analyses on a sample restricted to households with at least one person between 20 and 59 to assess whether particular patterns of leaving home and early retirement drive country differences (see Figure A4). Altogether, we do not find strong differences in the aggregate level developments.
[9] There are some countries, however, in which this procedure leads to a more severe loss of observations. We lose about 7% of the observations for Poland, 6% for the UK, and most severely almost 10% for Switzerland.

Using the labor market status of all working age individuals we first calculate the national level *non-employment rate* for each country-year. We consider an individual employed if they indicate any type of work, be it full-time or part-time.[10] All other labor market states, such as unemployment, education, or economic inactivity due to household responsibilities or disability we subsume under non-employment. For *household non-employment* we assign 1 if no working age household member was employed at the time of interview, while we assign 0 for all other cases. Our measure of household non-employment is thus very strict, focusing only on the most severe cases of joblessness. The *number of working age members* of a household is another essential variable for our analysis. Among household-specific measures, we use this to construct a measure of the country-year specific proportion of individuals who live in a household of a specific size (measured in number of working age members).

6. Shift-share decomposition

We use shift-share analysis to decompose the changes in household non-employment over time across our 30 countries following similar studies (Corluy and Vandenbroucke 2017; Gregg et al. 2010; Vandenbroucke and Corluy 2014). The approach, as developed by Gregg and Wadsworth (2001; for more detail see Gregg and Wadsworth 2008), uses data on individuals in households to assess changes in joblessness on the individual level and on the household level. Importantly, this method provides a measure of *polarization*, i.e. inequality in the distribution of joblessness across households. Essential to this measure is the construction of a counterfactual household jobless rate that would emerge if the distribution of joblessness across individuals was random (i.e. equally distributed) with

$$\widehat{w}_k = n^k$$

[10] Employment status is a self-reported measure in EU-SILC. Because people who work very little might not consider themselves employed this leads to a lower employment estimate in comparison to datasets which implement the ILO definition that defines employment as working at least one hour in the week of the interview (Brandolini and Viviano 2017). We compare the development of the individual non-employment rate and the household non-employment rate derived from the EU-SILC (weighted and unweighted) with the official numbers delivered by Eurostat based on the European Union Labour Force Survey (EULFS) in Figures A2 and A3 in the Appendix. Due to the different definitions, the EU-SILC estimates are higher than the estimates following the ILO definition, in some cases by a notable margin. We are cautious when interpreting our findings and compare potential implications with the alternative definition. At the same time, we are confident that the EU-SILC measure points to problematic situations in households that should not be ignored over a more formal definition of employment. Furthermore, while levels in individual and household non-employment differ more strongly between EU-SILC and EULFS datasets, the over-time changes – our main interest – are comparable.

where $\widehat{w}_k$ is the counterfactual household non-employment rate for a household of k working age household members and n is the individual non-employment rate in a country. In this counterfactual, every individual has the same likelihood to be jobless. Thus, every household of a given size has the same likelihood to be entirely without work. The number of working age household members is the only factor driving differences in the likelihood of counterfactual household non-employment. A household with only one working age member has the same counterfactual non-employment rate as the actual individual non-employment rate. This is always higher than a household with two working age members, where the counterfactual household non-employment rate is the square of the actual individual non-employment rate (or the individual non-employment rate to the power of n, where n is any number of household members). On the aggregate level, the counterfactual household jobless rate $\widehat{w}$ – or the *expected* household jobless rate – is given through the individual non-employment rate and the distribution of individuals across households of different sizes with

$$\widehat{w} = \sum_{k=1}^{K} S_k \widehat{w}_k = \sum_{k=1}^{K} S_k n^k$$

where $S_k$is a weight that indicates the proportion of the population living in households of size k. In a country with a high proportion of single households, for instance, the expected household jobless rate would be larger than in a country with larger households, given the individual non-employment rate. *Polarization* is the difference between this counterfactual jobless household rate $\widehat{w}$ and the actual rate of jobless households w, i.e. the proportion of working age individuals living in households without any employment,

$$P = w - \widehat{w} = \sum_{k=1}^{K} S_k w_k - \sum_{k=1}^{K} S_k \widehat{w}_k = \sum_{k=1}^{K} S_k (w_k - n^k)$$

If joblessness is distributed randomly, the actual jobless household rate and the counterfactual jobless household rate are identical and polarization is 0. Negative polarization indicates that work is distributed so that there are fewer households entirely without work than predicted by random distribution. This might be the case in countries with strong male breadwinner models in which households with one earner and several dependent jobless individuals prevail. Positive polarization indicates more jobless households than expected. This might be the case in dualist societies with many multiple earner

households but also many households with no one in work. Negative polarization can be interpreted as the societal capacity of households to absorb employment risks within those households that have at least one earner. Positive polarization conforms to our understanding of risk accumulation in precarious jobless households while many others are more fortunate.

When examining change over time, we can use a shift-share decomposition to break down changes in polarization into a *between* household-type and a *within* household-type component:

$$\Delta P = \sum_{k=1}^{K} \Delta(S_k(w_k - n^k))$$

$$= \sum_{k=1}^{K} \Delta S_k(0.5(w_k - n^k)_t + 0.5(w_k - n^k)_{t+1})$$

$$+ \sum_{k=1}^{K} \Delta(w_k - n^k)(0.5S_{kt} + 0.5S_{k,t+1})$$

Between-polarization (the first term in the equation) changes when non-employment is unequally allocated across different household types, e.g. if single households face higher job-loss than households with more working age individuals. Within-polarization (the second term) changes when non-employment is unequally distributed among households of the same size, for example when households face different levels of job-loss due to human capital differences. Because the change in the actual household non-employment rate equals the change in the counterfactual household non-employment rate plus the change in the difference between the actual household non-employment rate and the counterfactual household non-employment rate, we can decompose the change in household non-employment into four distinct components.

$$\Delta w = \Delta\widehat{w} + \Delta(w - \widehat{w}) = \sum_{k=1}^{K} \Delta\left(S_k n^k\right) + \sum_{k=1}^{K} \Delta\left(S_k\left(w_k - n^k\right)\right)$$

$$= \sum_{k=1}^{K} \Delta S_k\left(0.5n_t^k + 0.5n_{t+1}^k\right)$$

$$+ \sum_{k=1}^{K} \Delta n^k\left(0.5S_{k,t} + 0.5S_{k,t+1}\right)$$

$$+ \sum_{k=1}^{K} \Delta S_k(0.5(w_k - n^k)_t + 0.5\left(w_k - n^k\right)_{t+1}\right)$$

$$+ \sum_{k=1}^{K} \Delta(w_k - n^k)(0.5S_{k,t} + 0.5S_{k,t+1})$$

Where the terms in the equation represent the change in the distribution of household types defined by the number of working age adults (first term in the equation), the change in individual level non-employment (second term), the polarization of employment *between* different household types (third term) and the polarization of employment *within* household types (fourth term). While changes in polarization components indicate absorption or accumulation in accordance with the mechanism of unequally distributed individual non-employment, changes in the distribution of household types indicate absorption or accumulation through the mechanism of changing household structures.

In our decomposition of the shift in household non-employment we use 2008 as the pre-crisis baseline (t0). We then decompose the change relative to the baseline for each subsequent year until 2014 (t1-t5). This allows us to analyze the overall changes in household non-employment since 2008 while at the same time assessing whether countries experience a return to pre-crisis levels due to economic up-turn. We present the results of the shift-share decomposition for the five country clusters and compare across and within most similar systems. Some countries were hit harder by the crisis than others within the same cluster, allowing us to assess differences in the subsequent trajectories of the shift-share components.

7. Development of household non-employment

We first present figures to describe the changing individual non-employment and jobless household patterns as well as shifts in household composition short before and during the Great Recession (2007-2014). Subsequently, we present the findings from our shift-share analysis. In our figures we sort the countries by the 5 regime clusters (in the following order: Continental, Anglophone, Southern, Eastern, and Northern European countries). Within each cluster we sort countries by the magnitude of individual non-employment growth (2008-2010) as indicator for how hard the crash has hit national labor markets within two years.[11]

Examining Figure 1, we note that there is tremendous variation in the employment impact across and within clusters. Continental European countries saw relatively small changes in individual non-employment, though non-employment even decreased in Germany and Switzerland after 2008, while even in the more negatively affected economies, non-employment increases only moderately (French jobless growth remains less than 2% by 2010). This mild impact is mirrored in moderate changes of household non-employment. Germany and Switzerland perform well again, while household non-employment moderately rose by about 1.36% in France. Household sizes also hardly changed in this cluster, though the overall averages show some cross-national variation: the largest increase in household size (2008-2010) occurred in Switzerland (by about 0.04 working age household members on average), whereas the largest decrease (about -0.03) happened in Belgium.

Changes in the two Anglophone countries are larger: both the United Kingdom and Ireland saw a marked increase in individual non-employment after 2008. Ireland has been severely hit by the crash with an increase in non-employment (2008-2010) by about 7% (compared to 3.8% in the UK). In Ireland, this employment shock leads to an increase in jobless households by about 7% (2008-2010) but recovers thereafter, whereas household non-employment does not increase in the UK at all. One explanation that we explore later in the shift-share analysis is that average household size increased in

[11] We choose 2010 as the post shock comparison for our sorting variable because at this time all countries have felt the consequences of the economic crash (although for some countries such as Greece the worst was yet to come) but the year is still close enough to the crash so that the various coping mechanisms, such as policy reactions, have not blurred the picture too much. See Table A1 in the Appendix for the change individual non-employment from 2008-2010.

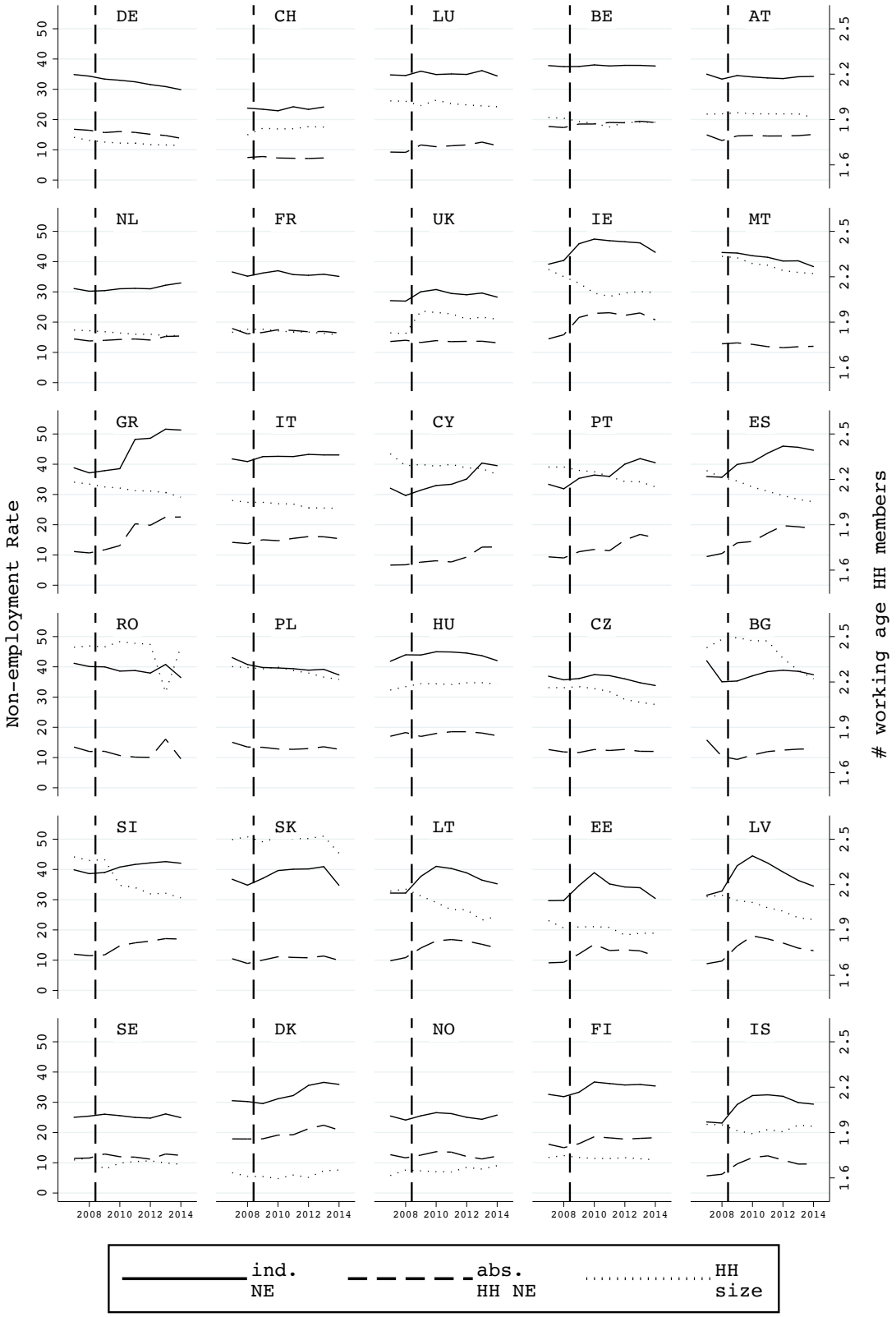
the UK but decreased in Ireland (+0.14 working age household members vs. -0.11 from 2008 to 2010), whereas average household sizes had diverged strongly before the crisis.

For most of Southern European countries individual non-employment increased substantially (except for Malta) as a consequence of the initial crash (Spain had the largest rise with about 5.1% until 2010). The subsequent Euro-sovereign debt crisis as of 2010 further ratcheted up non-employment in these crisis-ridden countries. Similarly marked increases in household non-employment followed this pattern. In all Southern crisis-countries average household sizes decreased since 2008 until our last year of observation (2014), in particular Spain was affected (-0.06 working age household members by 2010).

The Eastern European countries show a mixed picture with some remaining unscathed by the crisis (Romania, Poland), some moderately hit (Hungary, Czech Republic, Bulgaria, and Slovenia), and some crisis-countries facing strong non-employment shocks (Slovakia, the Baltic countries in particular). The trajectories in household non-employment run largely parallel to the individual non-employment trend. In contrast to the Southern crisis-countries, the Eastern economies hit hardest show a reversal from around 2010 onwards. Household size decreased across the East, albeit from different starting levels (Slovenia shows the largest decrease in the sample with -0.16 working age household members).

Finally, the Nordic countries exhibit some variation in how hard their labor markets were hit by the crisis. Sweden and Denmark are barely affected until 2010, whereas Iceland experienced an increase in non-employment of about 9.1% following the financial market crash. Household non-employment seems to be in sync while household sizes remained fairly constant except for Iceland where households shrunk until 2010 (-0.06 working age household members) but turned around thereafter.

Figure 1: Trends of individual non-employment, household non-employment, and average household size across Europe (2007-2014)



Note: Vertical dashed lines mark the approximate onset of the financial and economic crisis in 2008; individual and household non-employment rate (%) on left-hand y-axis, average number of working age adults in households (%) on right-hand y-axis. Compare Tables A1 in the Appendix (Source: EU-SILC, authors' own calculation).

In sum, there is large variation in how hard the crisis affected labor markets within and across country clusters. Household sizes decrease in most countries and often more strongly in those crisis-countries with greater job-loss, which runs counter to the absorption expectation of larger households integrating the additional non-employed. Another observation regarding the relationship between individual and household non-employment is that both seem to run parallel most of the time. It remains to be seen in our decomposition analysis whether this means that individual job-loss is mostly distributed equally across households.

8. Shift-share analysis of non-employment

In our shift-share analysis we decompose household non-employment changes into its components: individual non-employment growth, polarization within and across households, and changes in household composition. Figures 2a and 2b show the results from our shift-share decomposition: the dashed line indicates household non-employment (2007-2014, scale on the right-hand y-axis, same lines as in Figure 1 albeit more compressed), while the bars represent the overall change in household non-employment and its components (scale on left-hand y-axis). For each year after 2008 the bars indicate how much household non-employment has changed in comparison to our baseline year 2008 (thus they do not show the change from year to year). The first, black, bar represents the total change in household non-employment since 2008. The subsequent bars represent, in order from left to right, the household non-employment shift due to changes in individual non-employment, household composition, in-between household polarization and within household polarization. These four bars added together make up the total change in household non-employment compared to 2008 (i.e. the first, black, bar).

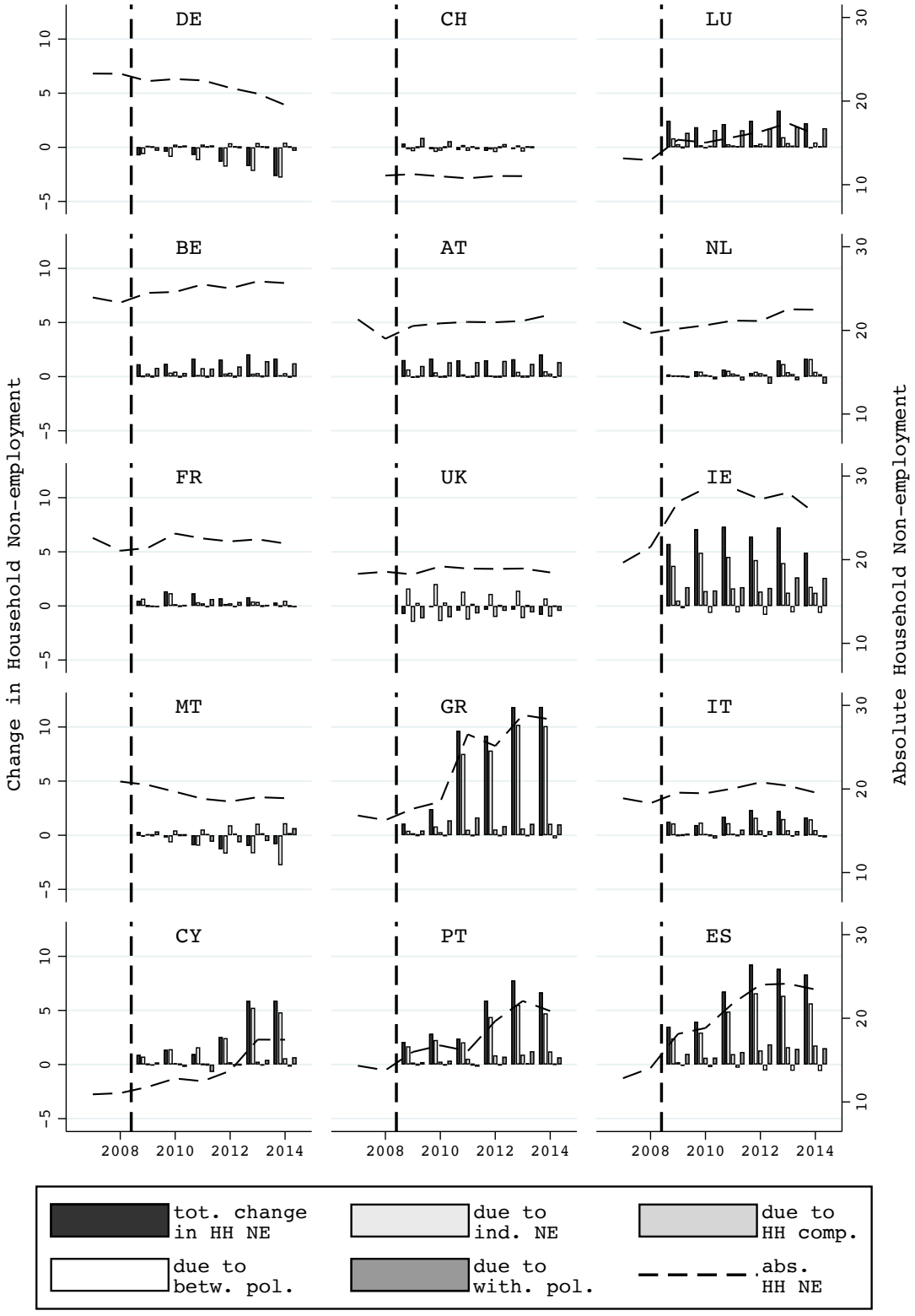
Figure 2 displays our findings in the same order of clusters, starting with the seven Continental European countries. The moderate impact of the crisis leads to only small if any increases in household non-employment. Germany stands out as it enjoyed a decrease in household non-employment (-2.6% until 2014) largely due to decreasing individual non-employment. A slight rise in jobless households in Luxembourg (2-3%), Belgium (1-2%), and Austria (1-2%) is mostly due to growing within household polarization. In these countries individual non-employment (which did not rise itself) was distributed

more unequally after 2008, leading to a higher accumulation of non-employment risks and employment opportunities across households of the same size. Household composition did not significantly change. As none of these countries was severely hit by the crisis, it is difficult to detect particular responses. Rather, the secular trend of increasing polarization seems to continue.

The two Anglophone countries deliver a more insightful comparison as Ireland was hit much harder by the crisis than the United Kingdom: Ireland's substantial increase in household non-employment hit its peak in 2011 with an increase of about 7.3% compared to the 2008 benchmark. The largest component is rising individual non-employment (about 4.5% of the 7.3%), but changes in household composition and polarization contribute around 1.6 and 1.7 percentage respectively. Irish household sizes decreased, thus rather exacerbating household non-employment than absorbing it. At the same time, joblessness was distributed more unequally adding further to risk accumulation. Whereas individual non-employment receded since 2012 the changes in household composition and within polarization did not follow suit, thus leading to a persistently higher household non-employment level than prior to the shock. This is in stark contrast to the UK where the relatively smaller rise in individual non-employment is absorbed through increase in household size but also partially by within polarization. Both provide negative contributions to household non-employment change, eventually compensating for individual non-employment changes and resulting in overall lower household non-employment than before the crisis. The UK is exceptional in this respect.

Several of the Southern European countries have been hit relatively hard by the crisis albeit with a slight delay, compared to Ireland. This pattern is also shown in the swelling household non-employment rates, particularly in Greece, Portugal, and Spain. Greece experiences an upsurge of almost 12% until 2014, whereas the increase is less dramatic in Italy. Cyprus sees some problematic developments after 2012, while Malta stands out because there is no clear effect on its labor markets (household non-employment even slightly decreases). Again, for the crisis-countries individual non-employment growth is the largest component of household non-employment increases, though changes in household composition and within polarization make non-negligible contributions as well (mostly between 1% and 2%). In contrast, neither Italy, nor Cyprus has significant changes in these components.

Figure 2a: Household non-employment (2007-14) and shift-share decomposition of household non-employment changes (2008-14) in Continental, Anglophone, and Southern European countries

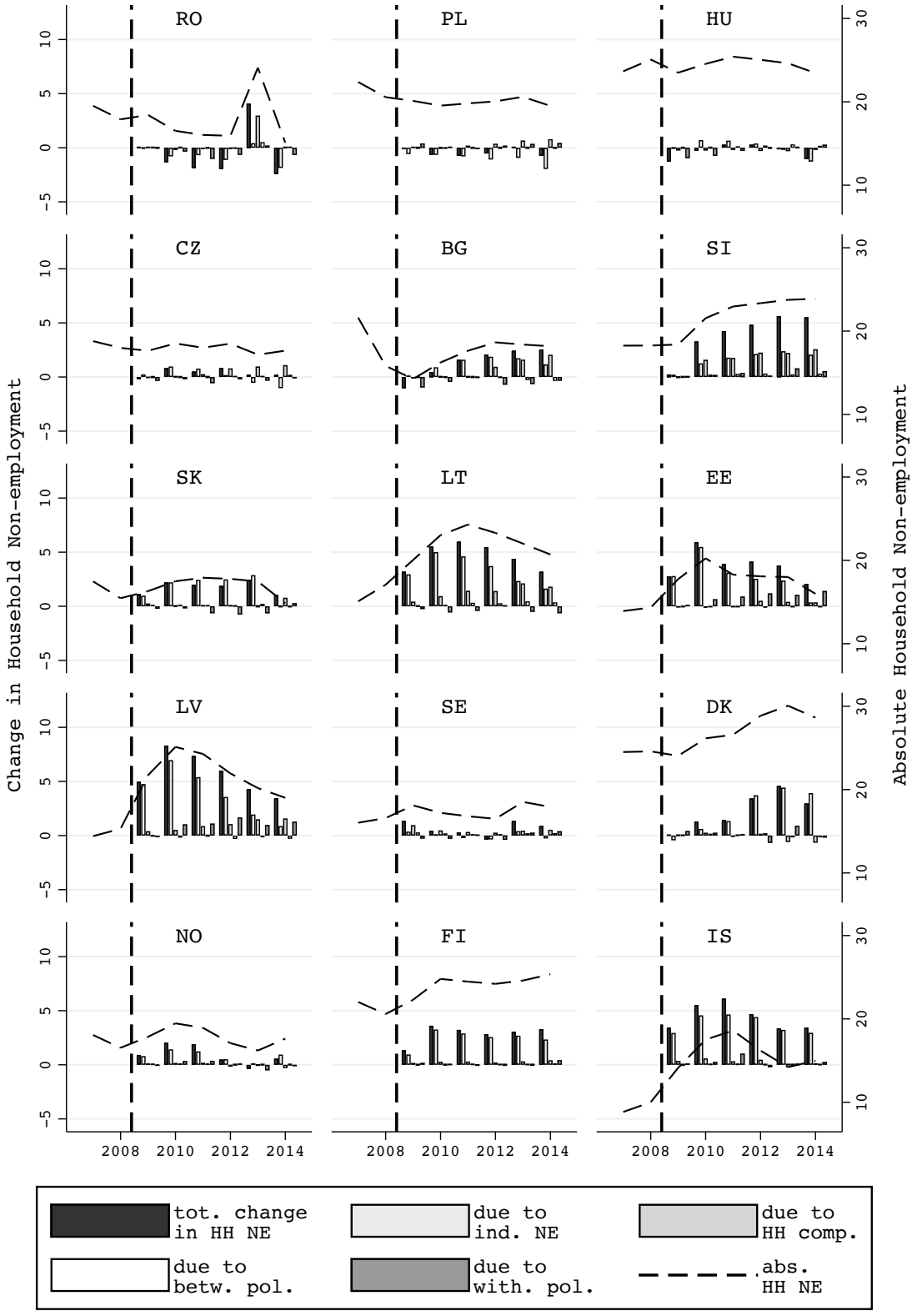


Note: Vertical dashed lines mark the approximate onset of the financial and economic crisis in 2008; change in household non-employment rate and its components (%) on the left-hand y-axis, absolute household non-employment rate (%) on right-hand y-axis. Compare Table A2 in the Appendix (Source: EU-SILC, authors' own calculation).

Figure 2b shows the results from the shift-share decomposition for the eleven Eastern European and five Northern European countries. Several of the Eastern European countries do not show any crisis impact on their labor markets and changes in household non-employment. Romania and Poland see slight decreases in household non-employment subsequent to the crisis (mostly due to lower individual non-employment) and Hungary and the Czech Republic remain fairly constant (although the latter sees a growing positive contribution to household non-employment by decreasing household sizes). This looks different in Bulgaria, Slovenia, Slovakia, and in particular the three Baltic countries. Again, large parts of household non-employment increases are simply due to rising individual non-employment but household composition and within polarization play a role, too, although to varying degrees. In Slovenia, changing household compositions add as much to household non-employment rate changes as individual non-employment (slightly above 2% in all the years). In Slovakia, factors outside of individual non-employment play a very minor role, which is also visible in the parallel recovery in household and individual non-employment over time. In Lithuania, the change in household non-employment is mostly due to individual non-employment changes and household composition while within polarization is an added factor in Estonia and Latvia. Individual non-employment recovers relatively quickly in these countries and so does household non-employment. Yet, the contributions of changes in household composition and within polarization remain relatively constant.

Finally, the Nordic countries exhibit large variation in changes in household non-employment as well. Denmark, Finland, and Iceland see the largest post crisis increases. Danish and Finnish household non-employment is very high to begin with. In Iceland we can observe a slight recovery after 2011. The standout feature in the Nordic context is that changes in household non-employment can almost exclusively be attributed to individual non-employment.

Figure 2b: Household non-employment (2007-14) and shift-share decomposition of change in household non-employment (2008-14) in Eastern and Northern European countries



Note: Vertical dashed lines mark the approximate onset of the financial and economic crisis in 2008; change in household non-employment rate and its components (%) on the left-hand y-axis, absolute household non-employment rate (%) on right-hand y-axis. Compare Table A2 in the Appendix (Source: EU-SILC, authors' own calculation).

Even though there are large variations in how hard labor markets were hit by the crisis and underwent subsequent household non-employment growth, we can discern striking patterns, some in contrast to our expectations. First, individual non-employment is the primary contributor to rising household non-employment during the Great Recession in almost all countries that experience a notable shock. Second, rather than absorbing household non-employment household composition changes tended to exacerbate the issue in many countries, particularly those hit hardest by the crisis. Third, rising individual non-employment is frequently unequally distributed as evidenced by increasing contributions of *within* household polarization: given the increase in individual non-employment and changes in household compositions, there are more jobless households than to be expected. With the notable exception of the UK, there is no evidence for absorption for all countries as a consequence of the crisis. If anything, growing polarization and decreasing household sizes signify a continued if not accelerated trend of risk accumulation in jobless households. Fourth, our expectations in regards to country cluster variations cannot be confirmed. In contrast to expectation, Southern European crisis countries (and to some degree Eastern European countries) show the strongest evidence for accumulation under the severe economic downturn. Interestingly, when we disregard clusters but focus on those countries who were hit hardest by the crisis (Ireland, Greece, Portugal, Spain, Lithuania, Estonia, and Latvia) we find that they showed the least capabilities to absorb individual non-employment in household contexts. Using a counterfactual scenario, we could argue that the changes in household compositions and within polarization are simply continuations from before the crisis, meaning that these changes might have been much larger had there not been absorption in these countries. However, this argument does not conform to the fact that comparable countries in the same cluster but less severely hit did not exhibit the same accumulation processes. Another explanation might be the pre-existing levels of polarization. In countries with high levels of accumulation, additional job-loss might not increase household non-employment dramatically because losing a single job in a double earner household does still leave one earner, while households who have been jobless before cannot lose any more jobs. Vice versa, in countries with a lot of male breadwinner households massive job-loss might also hit these one-earner households which increases household non-employment more strongly. Although this might explain why many crisis-countries did not have any potential for further absorption, it remains puzzling why

shrinking household size and the distribution of job-loss further exacerbated the crisis impact on household non-employment.

9. Limitations to our analysis

There are some limitations to our analysis, in particular how precisely our data and methods can answer our research questions. Although we focus on the exogenous shock of a global crisis our analysis of how individual non-employment is translated into jobless household rates cannot establish causal effects. The exogeneity of the employment shock may be a strong assumption when applied to variation across countries over time[12]. The specific labor market situation of the observed countries prior to 2008 could be related to the severity of the crisis, that is the overall non-employment changes. Moreover, the institutions we propose as moderators of the relationship between individual and household non-employment likely affect how severe the overall job-loss was in the respective country. For instance, several studies have argued that labor market regulation in Germany has helped keeping the impact of the financial crisis to a minimum (Brady and Biegert 2017). Furthermore, we use repeated cross-sectional data and therefore cannot observe the consequences for particular individuals and their households. Instead of tracing micro-level trajectories we situate our argument on how individual and household non-employment are related at the aggregate level and discuss how national household non-employment patterns are in line with our expectations about absorption or accumulation of non-employment risks across countries and over time.

Given the number of countries, there are simply too many varying factors that cannot be considered, including for instance differential policy reactions within regime types. Furthermore, the country-level moderators we discuss come in bundles, thus we cannot disentangle whether it is family structures, welfare transfers or labor market regulation that are decisive, especially if they moderate relationships in opposite directions. Nevertheless, our research design enables us to provide a detailed description of household non-employment shifts and their components, providing an overview on the

[12] See Figure A1 in the Appendix which plots the development of individual non-employment and GDP growth. The degree to which labor markets reacted to macro-economic fluctuations varied widely across Europe.

general societal response to a global economic shock moderated by different structural and institutional settings.

10. Conclusion

In this study we analyzed the development in household non-employment in Europe since the Great Recession. We investigated whether individual job-loss in the wake of the crisis led to a proportionate rise in household non-employment. We asked whether households were able to absorb individual job-loss, for instance by coming together in larger households. Or was there an accumulation of non-employment in some vulnerable households while others with multiple earners were less at risk of unemployment? Based on previous research on household non-employment, family structures, and welfare regimes, we expected that Southern and Eastern European countries would show a higher proclivity to absorb individual non-employment, whereas we expected accumulation to be more likely in Northern Europe. Our expectations for Continental European and Anglophone countries were more ambiguous. In order to test these expectations, we conducted a shift-share analysis of changes in household non-employment for 30 European countries comparing changes during the Great Recession using data from EU-SILC (2007-2014).

Our analysis provided three central insights. First, along with crisis induced employment shocks household non-employment rose in many countries, particularly in those hit hardest (the Baltics, Iceland, Ireland, Greece, Portugal, and Spain). While in some countries household non-employment shows signs of receding as their economies recovered, it persisted in some crisis-countries. Second, in contrast to our expectation, Ireland, most countries in the East, and particularly the Southern crisis-ridden countries exhibited higher household non-employment than expected, indicating accumulation instead of absorption. Third, in those crisis-countries hit largest, households not only failed to absorb the employment shock but job-loss was distributed disproportionally, affecting households who already relied on only few sources of income.

Our study adds important insights to the literature on the development of household non-employment as our results imply that polarization is not only the outcome of long-term secular shifts in labor market behavior and household formation but can also be the result of short-term adjustments in

household composition and unequal job-loss distribution. We complement the literature on household dynamics by assessing whether processes such as 'doubling up' or 'returning home' might be widespread enough to substantially help an economy to cope with detrimental employment shocks. Having not found evidence for absorption on the aggregate level raises the question whether competing micro-level processes, e.g. higher divorce rates subsequent to job-loss, might have more weight. Furthermore, our results raise questions for our understanding of how welfare regimes structure household behavior. By and large, our results do not align with our consideration of opportunity structures set by institutional contexts. More detailed analysis of policy settings and reactions in crisis countries might shed more light on this apparent puzzle.

A central implication of our study is that many households were affected by joblessness after the crisis, happing to more households than individual non-employment figures suggest. The found disparities of household non-employment pose an important challenge for policy-makers, particularly in those countries with relatively limited welfare support which usually rely on families to protect their members. If economic downturns affect people in precarious households disproportionately the impact on the less privileged social groups is exacerbated as the individuals losing their jobs tend to be the primary or sole earner within the household. As household formation and the distribution of job-loss are largely beyond the reach of policy-makers, providing economic security through welfare systems is eminent to prevent the further growth of material deprivation and poverty of vulnerable households.

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Appendix

Table A1a. Individual non-employment, household non-employment, and average household size in 30 European countries, 2007-2010

	2007			2008			2009			2010		
	Ind. NE	HHNE	HH size	Ind. NE	HHNE	HH size	Ind. NE	HHNE	HH size	Ind. NE	HHNE	HH size
Continental Europe												
DE	34.88	16.79	1.78	34.36	16.45	1.76	33.38	15.70	1.75	32.98	16.03	1.74
CH				23.79	7.45	1.80	23.41	7.78	1.84	22.90	7.28	1.84
LU	34.76	9.26	2.02	34.57	9.17	2.02	35.98	11.61	1.99	34.90	11.03	2.03
BE	37.84	17.71	1.91	37.49	17.36	1.91	37.55	18.51	1.89	38.06	18.52	1.87
AT	35.01	14.94	1.94	33.38	13.06	1.94	34.54	14.59	1.95	34.08	14.73	1.94
NL	31.11	14.44	1.85	30.23	13.77	1.84	30.42	13.98	1.84	31.04	14.28	1.83
FR	36.60	17.91	1.83	35.19	16.12	1.85	36.23	16.59	1.85	36.99	17.48	1.84
Anglophone countries												
UK	27.12	13.61	1.83	26.96	14.01	1.82	30.04	13.27	1.97	30.78	13.90	1.96
IE	39.16	14.49	2.25	40.41	15.82	2.20	45.94	21.56	2.16	47.46	22.90	2.09
Southern Europe												
MT				43.02	12.84	2.34	42.84	13.15	2.33	41.95	12.65	2.29
GR	38.81	11.13	2.18	37.16	10.69	2.17	37.87	11.72	2.15	38.54	13.10	2.14
IT	41.76	14.18	2.06	40.89	13.78	2.05	42.52	15.03	2.05	42.63	14.73	2.04
CY	32.09	6.66	2.37	29.68	6.76	2.29	31.43	7.63	2.30	32.96	8.10	2.29
PT	33.37	9.39	2.28	31.89	9.03	2.28	35.33	11.10	2.26	36.43	11.85	2.25
ES	35.92	9.48	2.26	35.71	10.50	2.21	39.94	14.01	2.19	40.77	14.47	2.15
Eastern Europe												
RO	41.18	13.49	2.43	40.10	12.02	2.44	39.99	12.07	2.43	38.59	10.69	2.47
PL	43.05	15.06	2.30	40.78	13.50	2.30	39.78	13.40	2.29	39.63	12.86	2.30
HU	41.84	17.06	2.15	43.99	18.28	2.17	43.92	17.00	2.19	44.99	17.98	2.19
CZ	36.92	12.65	2.16	35.71	11.88	2.16	36.14	11.68	2.17	37.43	12.69	2.16
BG	42.01	15.84	2.43	35.06	10.40	2.48	35.32	9.39	2.49	37.02	10.86	2.47
SI	39.88	11.98	2.38	38.60	11.50	2.36	39.00	11.74	2.37	40.79	14.76	2.20
SK	36.77	10.48	2.50	34.82	8.93	2.52	37.03	10.04	2.48	39.63	11.14	2.51
LT	32.19	9.81	2.16	32.20	10.87	2.17	37.71	14.04	2.13	41.01	16.37	2.08
EE	29.68	9.14	1.96	29.76	9.31	1.91	34.70	12.07	1.92	38.93	15.24	1.92
LV	31.47	8.82	2.12	32.87	9.72	2.13	41.24	14.67	2.10	44.49	18.04	2.08
Northern Europe												
SE	25.04	11.45	1.72	25.43	11.58	1.73	26.07	12.91	1.66	25.59	12.02	1.70
DK	30.53	17.91	1.63	30.25	17.87	1.61	29.58	17.93	1.61	31.16	19.16	1.60
NO	25.47	12.68	1.62	24.13	11.64	1.65	25.54	12.55	1.65	26.57	13.67	1.64
FI	32.63	16.12	1.74	31.87	15.01	1.75	33.34	16.33	1.74	36.70	18.63	1.73
IS	23.50	5.68	1.95	23.14	6.22	1.95	29.27	9.63	1.91		11.72	1.89

Note: Definitions see text, (Source: EU-SILC, authors' own calculation).

Table A1b. Individual non-employment, household non-employment, and average household size in 30 European countries, 2011-2014

	2011			2012				2013				2014
	Ind. NE	*HHNE*	*HH size*	*Ind. NE*	*Ind. NE*	*HHNE*	*HH size*	*Ind. NE*	*Ind. NE*	*HHNE*	*HH size*	*Ind. NE*
Continental Europe												
DE	32.49	15.74	1.74	31.55	32.49	15.74	1.74	31.55	32.49	15.74	1.74	31.55
CH	24.23	7.20	1.84	23.37	24.23	7.20	1.84	23.37	24.23	7.20	1.84	23.37
LU	35.08	11.32	2.01	34.92	35.08	11.32	2.01	34.92	35.08	11.32	2.01	34.92
BE	37.72	19.04	1.85	37.93	37.72	19.04	1.85	37.93	37.72	19.04	1.85	37.93
AT	33.75	14.56	1.94	33.54	33.75	14.56	1.94	33.54	33.75	14.56	1.94	33.54
NL	31.17	14.42	1.82	31.02	31.17	14.42	1.82	31.02	31.17	14.42	1.82	31.02
FR	35.73	17.26	1.83	35.48	35.73	17.26	1.83	35.48	35.73	17.26	1.83	35.48
Anglophone countries												
UK	29.48	13.57	1.96	29.06	29.48	13.57	1.96	29.06	29.48	13.57	1.96	29.06
IE	46.92	23.12	2.07	46.58	46.92	23.12	2.07	46.58	46.92	23.12	2.07	46.58
Southern Europe												
MT	41.44	11.90	2.28	40.22	41.44	11.90	2.28	40.22	41.44	11.90	2.28	40.22
GR	48.22	20.31	2.13	48.59	48.22	20.31	2.13	48.59	48.22	20.31	2.13	48.59
IT	42.54	15.50	2.04	43.26	42.54	15.50	2.04	43.26	42.54	15.50	2.04	43.26
CY	33.38	7.70	2.30	35.13	33.38	7.70	2.30	35.13	33.38	7.70	2.30	35.13
PT	35.98	11.43	2.22	40.03	35.98	11.43	2.22	40.03	35.98	11.43	2.22	40.03
ES	43.68	17.23	2.12	45.99	43.68	17.23	2.12	45.99	43.68	17.23	2.12	45.99
Eastern Europe												
RO	38.79	10.16	2.46	37.95	38.79	10.16	2.46	37.95	38.79	10.16	2.46	37.95
PL	39.39	12.74	2.28	38.90	39.39	12.74	2.28	38.90	39.39	12.74	2.28	38.90
HU	44.92	18.55	2.18	44.56	44.92	18.55	2.18	44.56	44.92	18.55	2.18	44.56
CZ	37.09	12.35	2.14	36.03	37.09	12.35	2.14	36.03	37.09	12.35	2.14	36.03
BG	38.44	11.98	2.47	38.87	38.44	11.98	2.47	38.87	38.44	11.98	2.47	38.87
SI	41.66	15.74	2.18	42.18	41.66	15.74	2.18	42.18	41.66	15.74	2.18	42.18
SK	40.08	10.92	2.50	40.16	40.08	10.92	2.50	40.16	40.08	10.92	2.50	40.16
LT	40.32	16.82	2.03	38.88	40.32	16.82	2.03	38.88	40.32	16.82	2.03	38.88
EE	35.21	13.21	1.92	34.21	35.21	13.21	1.92	34.21	35.21	13.21	1.92	34.21
LV	42.12	17.06	2.05	39.17	42.12	17.06	2.05	39.17	42.12	17.06	2.05	39.17
Northern Europe												
SE	25.00	11.87	1.71	24.77	25.00	11.87	1.71	24.77	25.00	11.87	1.71	24.77
DK	32.23	19.28	1.62	35.58	32.23	19.28	1.62	35.58	32.23	19.28	1.62	35.58
NO	26.26	13.53	1.64	25.05	26.26	13.53	1.64	25.05	26.26	13.53	1.64	25.05
FI	36.20	18.24	1.73	35.72	36.20	18.24	1.73	35.72	36.20	18.24	1.73	35.72
IS	32.47	12.31	1.92	31.99	32.47	12.31	1.92	31.99	32.47	12.31	1.92	31.99

Note: Definitions see text, (Source: EU-SILC, authors' own calculation).

Table A2a. Shift-share decomposition of changes in household non-employment in 30 European countries since 2008 (2009-2011)

	2008-2009					2008-2010					2008-2011				
	Δ total HHNE	*due to Δ ind. NE*	*due to Δ HH comp.*	*due to Δ betw. pol.*	*due to Δ within pol.*	*Δ total HHNE*	*due to Δ ind. NE*	*due to Δ HH comp.*	*due to Δ betw. pol.*	*due to Δ within pol.*	*Δ total HHNE*	*due to Δ ind. NE*	*due to Δ HH comp.*	*due to Δ betw. pol.*	*due to Δ within pol.*
Continental Europe															
DE	-0.75	-0.63	0.15	0.05	-0.32	-0.42	-0.89	0.25	0.06	0.16	-0.71	-1.20	0.25	0.06	0.17
CH	0.33	-0.19	-0.36	0.02	0.86	-0.16	-0.43	-0.32	0.02	0.57	-0.24	0.22	-0.33	0.05	-0.19
LU	2.44	0.83	0.30	-0.02	1.33	1.86	0.19	-0.08	0.16	1.60	2.15	0.29	0.17	0.12	1.57
BE	1.15	0.04	0.29	0.01	0.81	1.16	0.38	0.46	-0.01	0.34	1.67	0.15	0.78	-0.01	0.75
AT	1.54	0.67	-0.11	-0.02	0.99	1.68	0.40	-0.04	0.00	1.32	1.51	0.21	-0.05	-0.01	1.34
NL	0.21	0.11	0.09	0.05	-0.04	0.50	0.47	0.19	0.10	-0.25	0.65	0.54	0.29	0.18	-0.37
FR	0.47	0.67	-0.01	-0.07	-0.12	1.36	1.18	0.16	-0.04	0.07	1.14	0.35	0.24	-0.09	0.64
Anglophone countries															
UK	-0.74	1.61	-1.48	0.29	-1.16	-0.11	2.03	-1.40	0.32	-1.05	-0.44	1.32	-1.26	0.20	-0.70
IE	5.73	3.70	0.50	-0.22	1.74	7.08	4.92	1.37	-0.65	1.44	7.30	4.53	1.62	-0.60	1.74
Southern Europe															
MT	0.31	-0.11	0.09	0.00	0.34	-0.18	-0.66	0.45	0.01	0.02	-0.94	-0.97	0.53	0.11	-0.61
GR	1.03	0.41	0.18	0.01	0.43	2.41	0.81	0.28	-0.05	1.37	9.62	7.51	0.50	-0.04	1.64
IT	1.26	1.10	-0.02	0.02	0.16	0.95	1.17	0.11	-0.02	-0.31	1.72	1.12	0.13	-0.03	0.51
CY	0.87	0.74	0.04	-0.08	0.19	1.34	1.41	0.11	0.03	-0.21	0.94	1.60	0.03	-0.01	-0.68
PT	2.07	1.69	0.18	-0.02	0.23	2.82	2.27	0.27	-0.06	0.35	2.40	2.05	0.53	-0.01	-0.18
ES	3.50	2.42	0.22	-0.12	0.98	3.97	2.96	0.62	-0.24	0.63	6.73	4.90	0.96	-0.30	1.17
Eastern Europe															
RO	0.05	-0.06	0.07	0.05	-0.02	-1.33	-0.79	-0.20	0.03	-0.36	-1.86	-0.70	-0.11	-0.04	-1.02
PL	-0.10	-0.58	0.08	-0.01	0.40	-0.65	-0.66	-0.02	-0.05	0.09	-0.76	-0.80	0.19	-0.01	-0.14
HU	-1.28	-0.05	-0.26	-0.01	-0.96	-0.29	0.70	-0.26	0.02	-0.75	0.27	0.65	-0.20	0.12	-0.30
CZ	-0.20	0.24	-0.07	-0.01	-0.36	0.81	0.97	0.05	-0.01	-0.20	0.47	0.78	0.25	0.00	-0.56
BG	-1.01	0.12	-0.12	-0.04	-0.97	0.46	0.90	0.03	-0.02	-0.45	1.58	1.59	0.03	0.00	-0.05
SI	0.24	0.21	-0.03	0.02	0.04	3.26	1.26	1.59	0.23	0.18	4.24	1.78	1.77	0.29	0.39
SK	1.11	0.98	0.25	0.11	-0.23	2.21	2.22	0.04	0.14	-0.19	1.98	2.44	0.09	0.09	-0.63
LT	3.17	2.95	0.43	0.04	-0.24	5.51	5.01	0.93	0.12	-0.55	5.95	4.61	1.43	0.32	-0.42
EE	2.76	2.79	-0.09	-0.05	0.10	5.93	5.48	-0.12	-0.07	0.64	3.89	3.10	-0.06	-0.05	0.90
LV	4.95	4.75	0.39	-0.05	-0.15	8.32	6.97	0.52	-0.19	1.03	7.34	5.39	0.87	-0.02	1.10
Northern Europe															
SE	1.34	0.36	0.96	0.29	-0.28	0.44	0.09	0.47	0.20	-0.31	0.29	-0.24	0.32	0.14	0.07
DK	0.06	-0.44	0.05	0.05	0.41	1.29	0.61	0.26	0.17	0.25	1.41	1.33	-0.11	0.06	0.13
NO	0.91	0.81	0.10	0.08	-0.08	2.03	1.42	0.16	0.09	0.35	1.89	1.24	0.19	0.09	0.37
FI	1.32	0.95	0.17	0.03	0.17	3.62	3.26	0.28	0.02	0.06	3.24	2.90	0.30	0.08	-0.04
IS	3.42	2.94	0.36	0.00	0.12	5.50	4.57	0.59	0.07	0.27	6.09	4.65	0.32	0.08	1.04

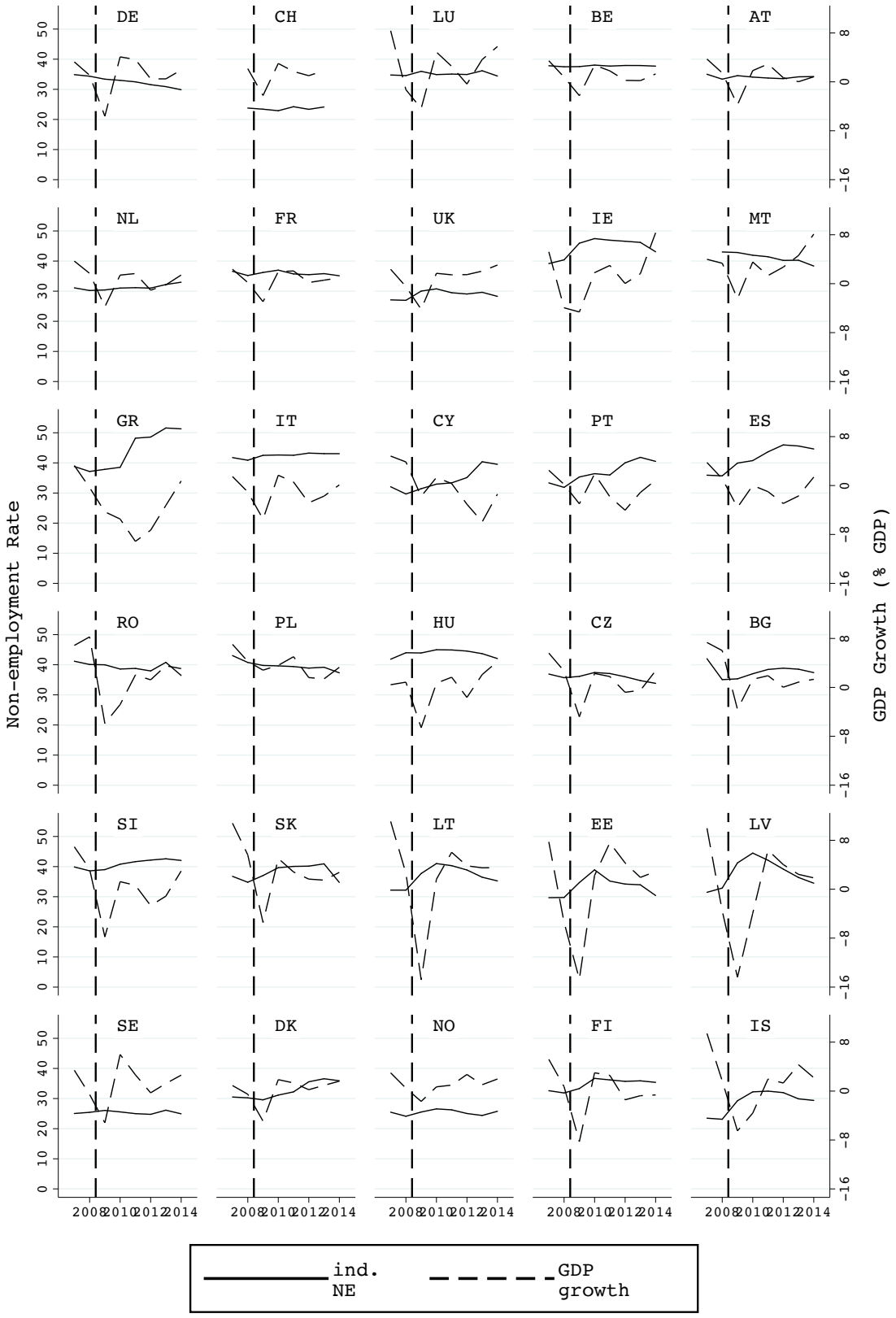
Note: Definitions see text, (Source: EU-SILC, authors' own calculation).

Table A2b. Shift-share decomposition of changes in household non-employment in 30 European countries since 2008 (2012-2014)

	2008-2012					2008-2013					2008-2014				
	Δ total HHNE	*due to Δ ind. NE*	*due to Δ HH comp.*	*due to Δ betw. pol.*	*due to Δ within pol.*	*Δ total HHNE*	*due to Δ ind. NE*	*due to Δ HH comp.*	*due to Δ betw. pol.*	*due to Δ within pol.*	*Δ total HHNE*	*due to Δ ind. NE*	*due to Δ HH comp.*	*due to Δ betw. pol.*	*due to Δ within pol.*
Continental Europe															
DE	-1.31	-1.78	0.38	0.08	0.00	-1.72	-2.19	0.40	0.06	0.00	-2.64	-2.80	0.43	0.05	-0.32
CH	-0.32	-0.20	-0.44	0.02	0.31	-0.15	0.18	-0.40	0.06	0.02					
LU	2.44	0.20	0.34	0.17	1.73	3.38	0.94	0.39	0.16	1.90	2.23	-0.09	0.46	0.10	1.77
BE	1.57	0.29	0.36	-0.01	0.93	2.07	0.28	0.33	0.03	1.44	1.67	0.14	0.32	-0.03	1.24
AT	1.51	0.09	-0.02	-0.01	1.46	1.62	0.45	0.00	0.01	1.17	2.04	0.50	0.28	-0.08	1.34
NL	0.30	0.46	0.31	0.20	-0.67	1.49	1.16	0.42	0.25	-0.35	1.65	1.63	0.45	0.23	-0.65
FR	0.71	0.19	0.25	-0.09	0.36	0.81	0.41	0.37	-0.03	0.06	0.29	-0.04	0.48	-0.03	-0.12
Anglophone countries															
UK	-0.35	1.11	-1.02	0.01	-0.46	-0.32	1.41	-1.13	0.00	-0.60	-0.82	0.69	-0.99	-0.06	-0.47
IE	6.42	4.25	1.33	-0.83	1.67	7.22	3.96	1.22	-0.59	2.63	4.93	1.76	1.21	-0.65	2.60
Southern Europe															
MT	-1.27	-1.70	0.92	0.15	-0.65	-0.96	-1.67	1.07	0.19	-0.54	-0.81	-2.77	1.11	0.21	0.64
GR	9.15	7.83	0.53	-0.05	0.85	11.83	10.21	0.63	-0.06	1.05	11.86	10.09	1.06	-0.29	1.00
IT	2.32	1.62	0.45	-0.13	0.38	2.24	1.50	0.46	-0.10	0.39	1.65	1.48	0.48	-0.10	-0.20
CY	2.56	2.44	0.21	-0.08	-0.02	5.85	5.24	0.26	-0.07	0.43	5.89	4.82	0.58	-0.20	0.68
PT	5.91	4.39	0.85	-0.05	0.71	7.78	5.53	0.91	0.11	1.23	6.66	4.73	1.21	0.05	0.66
ES	9.21	6.59	1.31	-0.55	1.87	8.82	6.36	1.61	-0.58	1.44	8.32	5.66	1.76	-0.60	1.50
Eastern Europe															
RO	-1.94	-1.13	-0.08	-0.07	-0.66	4.09	0.42	2.96	0.52	0.19	-2.41	-1.86	0.04	0.09	-0.68
PL	-0.54	-1.08	0.37	-0.01	0.18	0.08	-0.93	0.66	0.00	0.35	-0.75	-1.96	0.79	-0.02	0.44
HU	0.27	0.39	-0.31	0.21	-0.02	-0.15	-0.20	-0.31	0.31	0.05	-1.02	-1.29	-0.20	0.19	0.28
CZ	0.83	0.18	0.79	0.09	-0.22	0.19	-0.53	0.97	0.09	-0.33	0.17	-1.03	1.09	0.21	-0.10
BG	2.06	1.87	0.93	-0.05	-0.70	2.40	1.73	1.60	-0.29	-0.65	2.52	1.17	2.06	-0.36	-0.34
SI	4.80	2.12	2.25	0.32	0.11	5.63	2.39	2.22	0.24	0.78	5.48	2.07	2.56	0.31	0.54
SK	1.85	2.48	0.09	0.06	-0.77	2.44	2.87	0.00	0.22	-0.65	1.01	-0.03	0.78	-0.03	0.29
LT	5.47	3.71	1.40	0.28	0.08	4.39	2.33	2.11	0.46	-0.51	3.17	1.63	1.81	0.36	-0.63
EE	4.12	2.54	0.51	-0.11	1.18	3.77	2.37	0.40	-0.05	1.05	2.07	0.36	0.36	-0.05	1.40
LV	5.98	3.56	1.05	-0.32	1.68	4.28	1.94	1.50	-0.14	0.98	3.44	0.88	1.58	-0.31	1.29
Northern Europe															
SE	-0.37	-0.36	0.26	0.13	-0.40	1.34	0.40	0.45	0.22	0.27	0.87	-0.27	0.54	0.22	0.38
DK	3.41	3.71	0.15	0.22	-0.67	4.57	4.42	-0.59	-0.17	0.91	2.95	3.92	-0.66	-0.14	-0.17
NO	0.47	0.52	-0.16	0.03	0.08	-0.37	0.14	-0.04	0.04	-0.50	0.56	0.94	-0.30	0.03	-0.11
FI	2.83	2.56	0.22	0.06	0.00	3.07	2.69	0.31	0.06	0.01	3.31	2.34	0.42	0.11	0.44
IS	4.69	4.41	0.46	0.04	-0.23	3.36	3.23	0.05	0.01	0.08	3.42	2.96	0.14	0.05	0.27

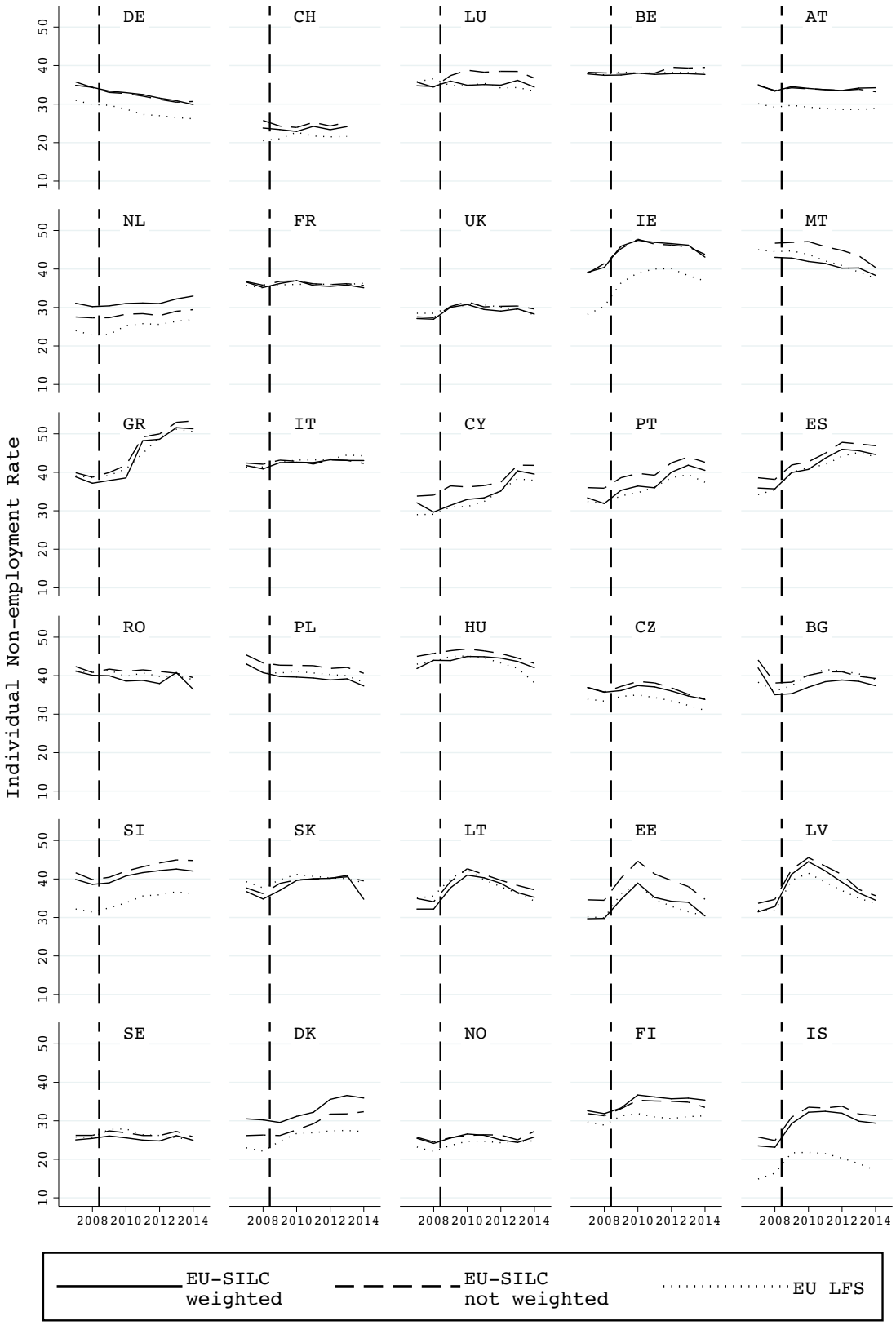
Note: Definitions see text, (Source: EU-SILC, authors' own calculation).

Figure A1: Development of the economy and non-employment rates in 30 European countries (2007-2014)



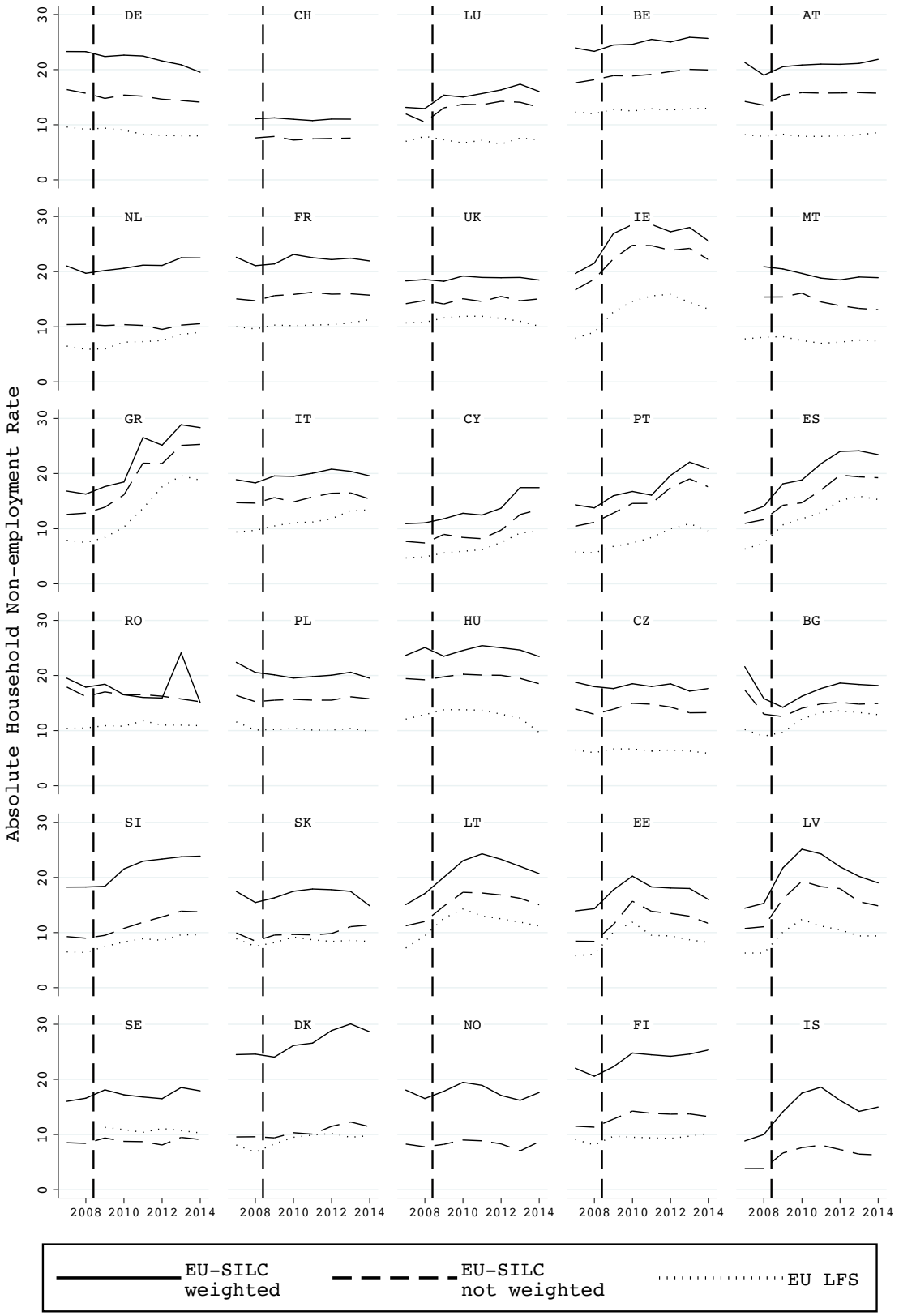
Note: Vertical dashed lines mark the approximate onset of the financial and economic crisis in 2008; individual non-employment rate (%) on left-hand y-axis (Source: EU-SILC, authors' own calculation), GDP growth (%) on right-hand y-axis (Source: World Bank).

Figure A2: Comparison of individual non-employment rates for 30 European countries from different data sources (2007-2014)



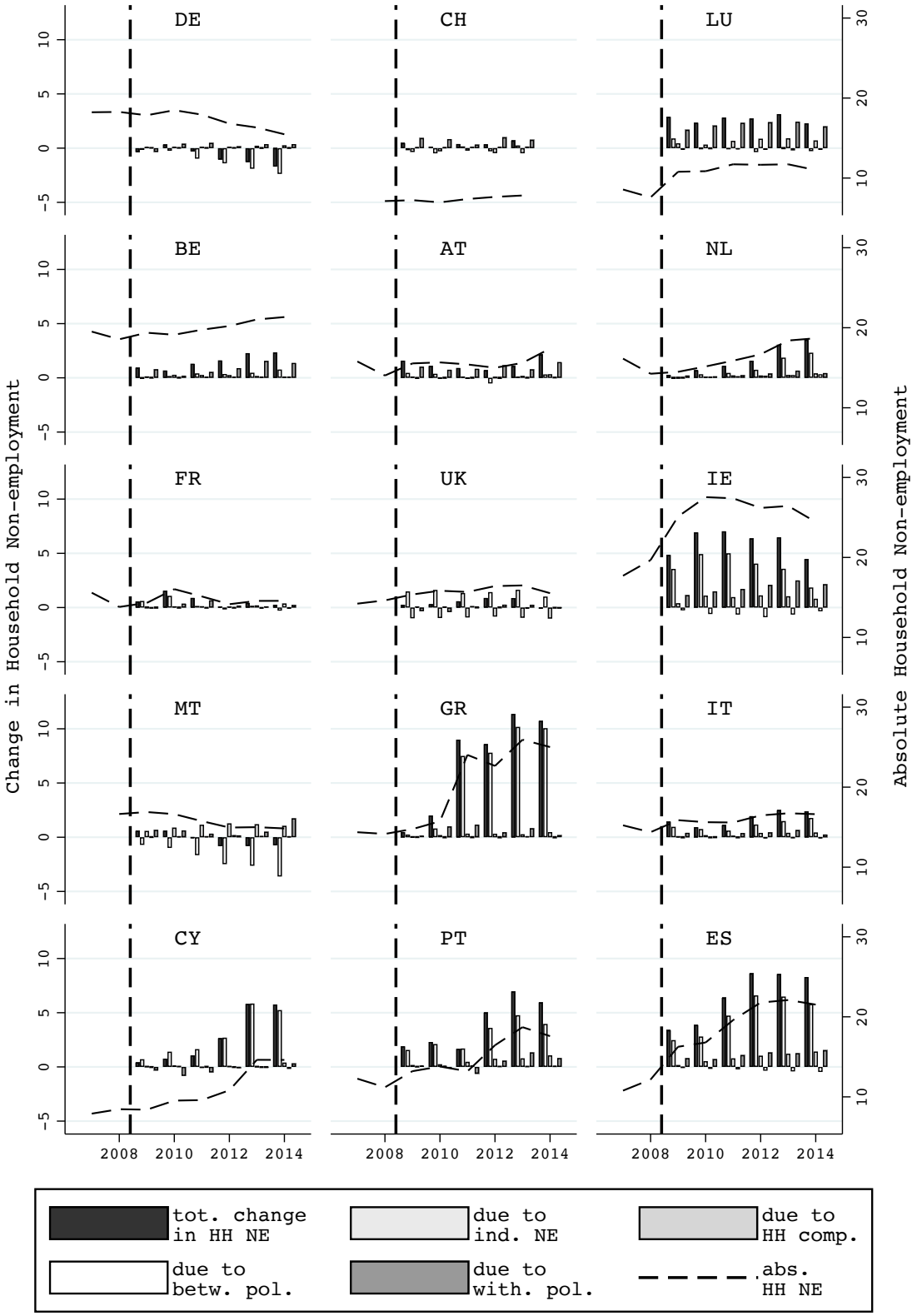
Note: Vertical dashed lines mark the approximate onset of the financial and economic crisis in 2008; individual non-employment rate (%) on left-hand y-axis (Sources: EU-SILC, authors' own calculation, EU LFS figures from Eurostat).

Figure A3: Comparison of household non-employment rates for 30 European countries from different data sources (2007-2014)



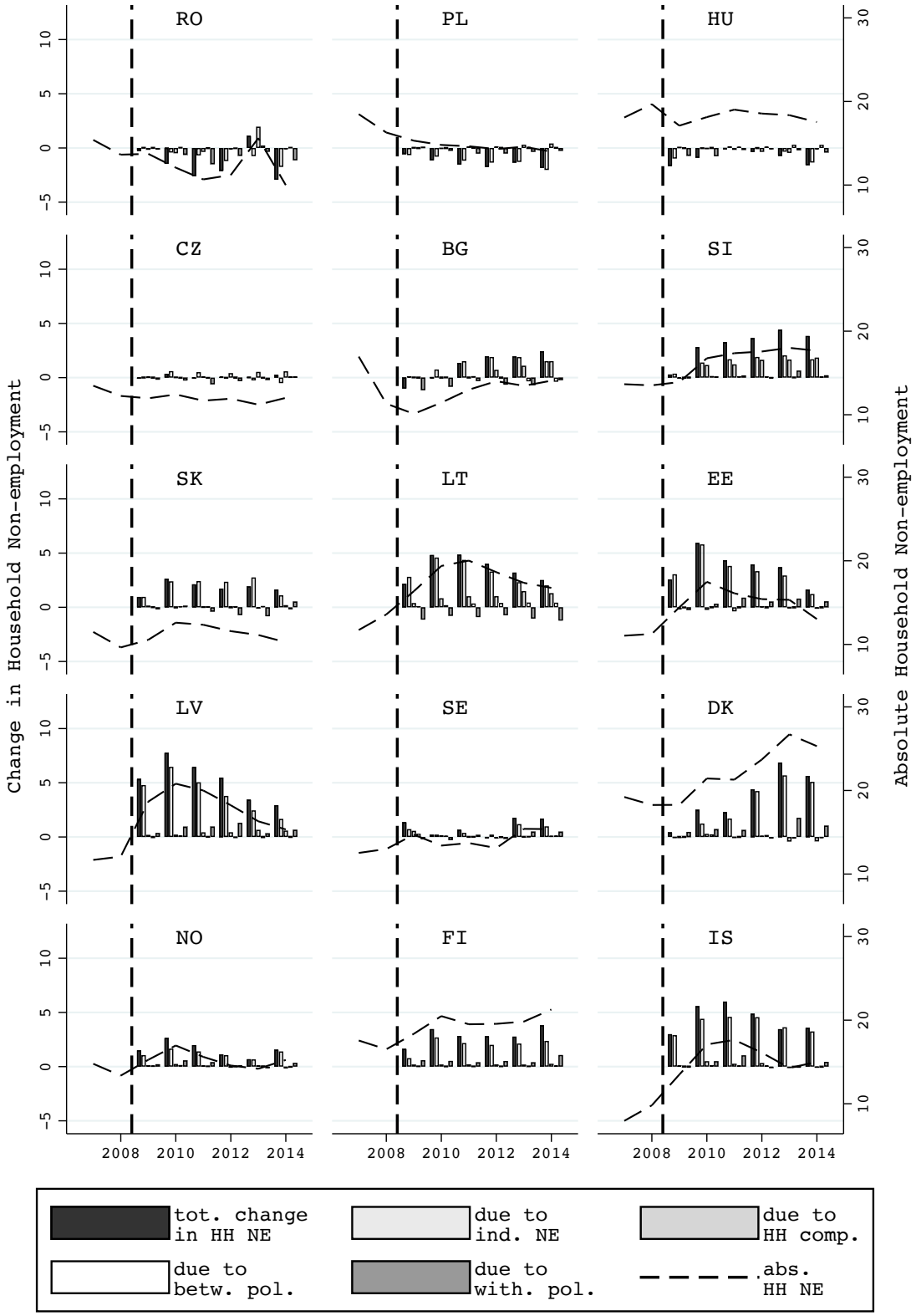
Note: Vertical dashed lines mark the approximate onset of the financial and economic crisis in 2008; household non-employment rate (%) on left-hand y-axis (Sources: EU-SILC, authors' own calculation, EU LFS figures from Eurostat).

Figure A4a: Household non-employment (2007-14) and shift-share decomposition of change in household non-employment (2008-14) in Continental European, Anglophone, and Southern European countries (sample: household with at least one member 20-59)



Note: Vertical dashed lines mark the approximate onset of the financial and economic crisis in 2008; change in household non-employment rate and its components (%) on the left-hand y-axis, absolute household non-employment rate (%) on right-hand y-axis. (Source: EU-SILC, authors' own calculation).

Figure A4b: Household non-employment (2007-14) and shift-share decomposition of change in household non-employment (2008-14) in Eastern European and Northern European countries (sample: household with at least one member 20-59)



Note: Vertical dashed lines mark the approximate onset of the financial and economic crisis in 2008; change in household non-employment rate and its components (%) on the left-hand y-axis, absolute household non-employment rate (%) on right-hand y-axis. (Source: EU-SILC, authors' own calculation).