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 (2007-2014) for a shift-share analysis that decomposes annual variations in household non-employment in 30 European countries. Investigating whether job-loss is absorbed by or accumulated in households, we break down non-employment variations to changes in individual non-employment, household compositions, and polarization. We find that household joblessness increased since 2008, especially in crisis-ridden 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. Surprisingly, this pattern occurs in those crisis-ridden countries known for their traditional household structures and less accommodating welfare systems which have relied thus far on families to absorb employment risks. The Great Recession has aggravated household disparities in joblessness in Europe.

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

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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 Europe increased mass unemployment to an exceptionally high level. Ireland and the Baltic countries recovered more quickly from the initial crash than other crisis-ridden Southern and Eastern European countries, whereas countries like Germany, Poland, and some others were much less affected by the Great Recession. In our study, we show that the sudden rise of individual non-employment affected households not uniformly across Europe, refocusing the analysis from an individual to a household perspective for analytical reasons (Wallace 2002) but also due to its policy relevance. Even before the Great Recession, the European Union (EU) set increasing employment rates as a major target, calling in particular for a reduction in the number of people living in very low work intensity households (European Commission 2010). We investigate whether the sudden employment shock of the Great Recession has led to greater household joblessness[1] , defined as household units with no working age member in gainful employment, thus applying a strict criterion of joblessness.[2] Our main research interest is whether job-loss is accumulated in particular households, or if it was partially absorbed in households.

The household is the primary redistributive unit of resources (including means-tested social assistance) but also locus of social risks (such as unemployment and poverty). Faced with widespread individual unemployment during the Great Recession, households could either accumulate or absorb employment risks. Borrowing from the Mertonian concept of 'cumulative (dis-) advantages' (DiPrete and Eirich 2006; Merton 1968), we define *accumulation* as the unequal household propensity to joblessness, mirroring an unequal distribution of employment risks in a society. Assuming accumulation, we would expect that individual unemployment during the economic crisis is distributed so that vulnerable households are more exposed, leading to an increase in disparities of household joblessness. Moreover,

[1] We use the terms joblessness and non-employment interchangeably in this article.
[2] We choose to analyze non-employment rather than low work-intensity (e.g. part-time employment) in households because joblessness is a common enough severe situation warranting attention. An analysis of low work intensity as a robustness check is not feasible as it implies a different set of indicators and theoretical considerations, especially in regards to precarious/low hour work. We are aware that the phenomena are highly interrelated, especially over time, but have to relay the analysis of low work intensity to future study.

job-loss has been found to induce disruptions in families (Brand 2015; Charles and Stephens 2004), thus household dissolutions could further increase disparities in joblessness across households, further reinforcing accumulation tendencies.

Absorption, by contrast, assumes that households with more than one adult, in particular families, have the capability to cope with individual employment risks by pooling resources (Albertini 2008; Kaplan 2012; Wiemers 2014). Micro-level literature on household formation and family dynamics describes several absorption mechanisms in times of heightened employment risks that include 'doubling up' of partners by merging households or jobless adult children returning home to their parents (Kaplan 2012; Manacorda and Moretti 2006; Mykyta and Macartney 2011; Wiemers 2014). Assuming absorption, we would hypothesize that during the crisis non-single households have lower than expected household joblessness.

In this comparative study, we investigate whether changes in household joblessness can be accounted by notable contextual differences between countries, in particular due to specific family/household structures, welfare systems, and labor market regimes. For instance, previous research indicates that countries with male breadwinner dominance, such as in southern Europe, might have greater need and potential for absorption, whereas the accumulation of employment risks might be stronger in liberal economies but also welfare states with high levels of decommodification (Aassve et al. 2002; Gregg and Wadsworth 2001; Gregg et al. 2010; Manacorda and Moretti 2006; Vandenbroucke and Corluy 2014).

While studying absorption and accumulation in household non-employment during the crisis, we adopt the polarization concept and measurement developed by Gregg and Wadsworth (2001) to describe the unequal distribution of joblessness across households in a country. Several studies find an increase in polarization of dual earner households parallel to growing overall household joblessness in many OECD countries since the 1970s (Gregg and Wadsworth 2001; Gregg et al. 2010; Vandenbroucke and Corluy 2014). The long-term polarization trend is thought to follow from educational expansion, partner homogamy, and increasing female employment participation. However, such a long-term perspective is less prone to provide insights into how households react to a sudden employment

shock. Whether absorption buffers economic shocks or accumulation exacerbates inequality during a crisis remains an open question.

In this study, we investigate how the sudden shock in individual non-employment transforms into household joblessness rates during the Great Recession. We analyze 30 European countries using the cross-sectional data of the European Union Statistics on Income and Living Conditions (EU-SILC) household survey from 2007 to 2014. Following previous polarization studies, we use a shift-share analysis to decompose changes in household non-employment since 2007 (Corluy and Vandenbroucke 2017; Gregg and Wadsworth 2001; Gregg et al. 2010; Vandenbroucke and Corluy 2014). Shift-share analysis allows us to calculate how much of the variation in household joblessness can be attributed to fluctuations in individual non-employment, alterations in household structures, and changes in polarization. The breakdown of these components tells us whether absorption or accumulation mechanisms prevail on the aggregate level. Altogether, our study makes the following central contributions: First, we describe the cross-national variation of household non-employment during the Great Recession and test competing expectations to how job-loss is allocated and how households react to it. Second, we test whether the translation of individual job-loss into household non-employment follows expectations based on specific household systems or welfare regime types. Third, we combine the analytical approach on long-term aggregate shifts in non-employment with insights on short-term micro-level coping mechanisms within households, enriching the former macro-level perspective with an explanatory account of household adaptation and providing context to the latter by studying dynamics on the societal level.

We find that those countries hit the hardest by the crisis also saw the most dramatic increases in household joblessness, but there is considerable variation in how much household non-employment was affected by the employment shock. Moreover, most countries reacted with accumulation rather than absorption. Our findings indicate that increasing household polarization can be induced by short-term economic shifts.

As we do not find strong evidence for absorption and even those countries with more traditional family structures and less generous welfare states exacerbate household joblessness through accumulation we highlight a policy issue not yet well understood. In addition, the large variation of patterns

within regimes and the lack of confirmation for our expectations let us conclude that regime hypotheses need to be more fine-grained to explain these patterns.

In the following, we first elaborate on the mechanisms behind absorption and accumulation. We then describe how countries can be classified in broad clusters according to similarities in their family structures as well as institutional labor market and welfare 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, using these country clusters to organize our cross-national analysis. We present and discuss our findings (with the help of figures and tables, some included in the Appendix) before drawing conclusions, highlighting which expectations were not confirmed.

2. Theoretical Background

Absorption and accumulation are the two possible outcomes of distributing individual job-loss across households. They result in opposite outcomes. Absorption leads to fewer households without any employment than expected given overall job-loss, while accumulation results in a higher rate for a household type than expected. In the following we conceptualize the two mechanisms that lead to absorption or accumulation. We start by describing how the socially selective distribution of job-loss can lead to positive (accumulation) or negative (absorption) polarization of household joblessness. Then we review the literature on household formation and family dynamics to describe how households can merge and pool resources (absorption) to cope with or split up (accumulation) in reaction to individual job-loss. Afterwards, we discuss the dominant household structures and institutional contexts across Europe and derive hypotheses about whether the individual employment shock will be absorbed or accumulated under these 'regimes'.

2.1 The polarization of household non-employment

Over the last decades employment rates increased throughout Europe due to rising female labor force participation, improved reconciliation of work and family, the activation of non-employed through active labor market policies and benefit retrenchment, and the phasing-out of early retirement options (e.g. Bonoli 2010; Ebbinghaus 2006; Lewis et al. 2008). However, higher employment levels were not equally distributed across households. Previous research shows that the trends of individual and

household joblessness differ because of a polarization between households with and without employment (Gregg and Wadsworth 2001; Gregg et al. 2010; Vandenbroucke and Corluy 2014). Polarization, according to Gregg and Wadsworth (2001), indicates the observed deviation in the expected rate of household joblessness based on a random distribution of individual non-employment that takes size of households into account. *Positive* polarization indicates that non-employment is accumulated in some precarious households, while others accumulate jobs, most prominently in a dual earner household. *Negative* polarization indicates that there are fewer entirely jobless households 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 colleagues (2010) show that the rate of workless households increased in the UK, Spain, Germany, and Australia (with the notable exception of the US) between 1977 and 2005. 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, demonstrating an upward convergence of polarization across countries. In addition to the well-documented increase in income and wealth gaps and rising segmentation of labor markets (Atkinson et al. 2017; Emmenegger et al. 2012; Piketty 2014), rising polarization of household non-employment adds a crucial dimension to how social inequalities accumulate in society.

These important studies thus document rising positive polarization and a negative (or at least not positive) correlation between increasing individual employment and household employment. They imply several underlying structural factors such as educational expansion, homogamy, and - most importantly - rising female labor market participation (Esping-Andersen and Billari 2015; Mare 1991; Ultee et al. 1988). These are common causes of both changes in individual employment as well as changing processes of household formation; they contribute to explaining emerging patterns of household non-employment. However, such long-term analyses of individual vs. household non-employment during relatively uninterrupted employment expansion provide little information about the direct relation between changes in individual and household non-employment in response to short-term fluctuations.

The sudden employment shock during the Great Recession is more informative about short-term household decisions in response to individual job-loss and how unequally the rise in non-employment is distributed across households. Only 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. These studies indicate that there might be a slowing down or even reversal in polarization at least in some countries. However, they do not investigate whether job-loss during the crisis led to processes of absorption and accumulation that are qualitatively different 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 theoretically grounded social mechanisms behind absorption and accumulation of short-term employment risks in households and how socially unequal distribution of job-loss can lead to rising or falling polarization in the short term. Absorption occurs if households have a lower than expected job-loss rate. This occurs when households with at least one earner can buffer the impact of the loss of one job, for instance, the non-working partner or unemployed adult child. With a lower than expected rise in household joblessness polarization is thus by definition declining. 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). The result is a higher than expected rise in household joblessness, i.e. increasing polarization.

2.2 Household composition and household non-employment

Studies on long-term non-employment developments highlight changes in household structures (most importantly, household size) as an important determinant besides polarization (Gregg et al. 2010, Corluy and Vandenbroucke 2014). However, due to their long-term perspective they do not engage with household dynamics as a reaction to sudden employment shocks. Like polarization can move in either direction, shifts in household composition indicate either absorption or accumulation possibilities.

Existing research on coping mechanisms and household resilience suggests that some individuals might merge their households for pooling resources, thereby absorbing individual employment risks especially during times of crisis (e.g. Manacorda and Moretti 2006; Mykyta and Macartney 2011; Wiemers 2014). Several studies provide evidence for 'doubling up', i.e. the practice that individuals who face a period of unemployment are more likely to join their partner's household, or the 'returning home' strategy to search for a steady source of support (Kaplan 2012; Wiemers 2014). Most frequently, young individuals return to their parents' home in times of joblessness, but older individuals have been documented to cope with job-loss this way, too (Mykyta and Macartney 2011; Wiemers 2014). While the existing literature provides micro-level evidence for such dynamics, it remains unclear whether absorption is a more common phenomenon across Europe or if it is specific to some household types in some countries. If absorption is the dominant pattern following an employment shock, an increase in average household size should be observable.

However, there might be also the reverse tendency: job-loss can induce family instability and disruption (Brand 2015; Charles and Stephens 2004). Instead of families banding together in tough times, the crisis might induce family separations, partnership breakups and divorce, reducing household size and thereby increasing the proportion of jobless households. When household size decrease while joblessness rises, the result is a higher proportion of households without any employment, which can be interpreted as accumulation of employment risks.

2.3. Cross-national variation in household structures and institutional contexts

We expect cross-national variations in the prevalence of absorption and accumulation in case of an employment shock both in terms of the distribution of job-loss (polarization) and the composition of households (adjustments in household size). First, differences between typical household forms determine coping strategies and the likelihood of job-loss leading to household non-employment. Second, welfare states provide opportunity structures that shape the potential of households to have alternative earners and mitigate the economic impact of job-loss. Third, labor market regimes regulate to what degree individuals face risks of job-loss, often protecting some groups ('insiders') more than others

('outsiders').[3] In the following we elaborate on these moderating factors and how their clustering across countries leads us to expect different patterns of absorption and accumulation in Europe. We use our main hypotheses to guide our research and supplement them with more specific expectations as to how typical household structures, family policies, out-of-work benefits, and labor market regulations affect polarization and adjustments in household structures.

Hypothesis 1: In countries with traditional family structures, households with a breadwinner are meant to absorb non-employment of the partner or other family members within the household.

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 should be the same as the individual non-employment rate. Given the same individual probability for job-loss, the expected probability of a household being entirely without work after an employment shock is less likely the more working age people reside in the household. For instance, for a couple it would be the square of the likelihood of individual joblessness. Moreover, household size and composition express how households typically assign responsibility for generating income, whether they follow a single breadwinner model or preferring dual earners.

Throughout Europe there is a decrease in household size 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). Nevertheless, household structures vary between countries because they are the cumulative result of family formation, partnership cohabitation, and children's home-leaving patterns that are culturally bound and societally institutionalized (Aassve et al. 2002; Haas et al. 2006; Steiber and Haas 2012). Lewis and colleagues (2008), document that dual (full-time) employed couples are only prevalent in Scandinavia, whereas in Continental (heartland) Europe the 'modified' male breadwinner model leads men to work full-time while women still tend to be only part-time employed during child-rearing years. In Europe's South and East

[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.

there is a growing divide between dual full-time earner couples and more traditional breadwinner 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 in Eastern Europe albeit with less support (Mandic 2008). Although younger adults 'returning home' when faced with economic difficulties has been a general phenomenon (Kaplan 2012; Mykyta and Macartney 2011; Wiemers 2014), it is more widespread in the South (Manacorda and Moretti 2006; Mínguez 2017). Given the more common support through multigenerational families, we expect absorption through rising household size in Southern and Eastern European countries during the crisis. How changes in polarization are shaped by dominant household structures is more ambiguous. On the one hand, Southern and Eastern countries with traditional breadwinner models exhibit a higher likelihood to distribute employment so that there is at least one earner in a household, which would imply absorption (Gregg et al. 2010). On the other hand, if polarization is relatively low (or negative) before the crisis and there are therefore many households with only one earner, the employment shock would necessarily put these households at risk of becoming entirely jobless and we would observe accumulation. Anglophone, Nordic, and Continental European countries with higher levels of polarization and thus many dual earner households (including breadwinner plus part-time working partner) might be better able to absorb the shock. A larger share of already non-employed households at the beginning of the crisis in these countries can by definition no longer lose a job and thus would not contribute to greater accumulation.

Hypothesis 2: Family policies that support child care facilitate dual earner households (including part-time partners) which are less prone to household joblessness risks than one breadwinner only families.

Family structures are partially shaped by the incentive and opportunity structures provided by welfare regimes. These might also directly affect job-loss coping strategies through a set of family policies ranging from services to transfers and tax rules (Gornick et al. 1997; Stier et al. 2001). These 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 anti-poverty measures. The liberal British regime 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 associations, communes and enlarged families 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). We might thus expect welfare regimes with more generous family policies, i.e. the Nordic countries, to exhibit greater absorption trends through negative polarization because they create opportunity structures for dual earner households that can absorb job-loss. The availability of public child care also enables other working-age members of the household to look for work in case the primary earner is hit by job-loss.

Hypothesis 3: Generous out-of-work benefits increase the risk of non-employment, particularly in precarious households with low earning capacity and low skills.

Generous child benefits and other transfer provision might increase the number of single breadwinner households as well as single parents vulnerable to household non-employment. Job-loss might thus lead to greater inequality in joblessness between households of different size, i.e. positive polarization or accumulation of risks. With the household as the basic unit of means-testing, generous out-of-work transfers could lower job-search urgency, whereas activation measures and low benefits could lead to faster reemployment (Bahle et al. 2011; Marx and Nelson 2013). In addition, transfer (or tax) benefits might incentivize jobless individuals to form their own separate household in order to receive means-tested (or tax) benefits that would not be granted as part of their former (family or couple) household given higher disposable income, thus leading to a decline in household size.

Esping-Andersen's (1990) welfare regime typology has been used to compare liberal-residual welfare states, which provide only minimum protection for the non-employed in order to strengthen market incentives (Anglophone countries), universalist social democratic regimes, which protect all residents 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). In addition to these three clusters (Esping-Andersen and Regini 2000; Ferragina and

Seeleib-Kaiser 2011), southern European welfare states have been found to have a more familialist orientation with job protection for (mainly male) breadwinners but less developed minimum income protection for the jobless (Bahle et al. 2011; Ferrera 1996). In Eastern European countries, minimum income for the working population remains relatively limited, though labor markets tend to be more flexible, particularly in the liberal Baltic states (Fenger 2007). We thus expect the limited income security provided in Anglophone, Southern, and Eastern countries to lead to more absorption through shifts in household composition, i.e. increasing household size. By contrast, the more generous Continental and Nordic welfare states should not deter accumulation of household joblessness, instead they might even incentivize household splits and thus accumulation through decreasing household size.

Hypothesis 4: Strict labor market regulation moderates the distribution of job-loss across households by protecting insiders at the expense of outsiders.

Labor market regulation has been noted in the economic literature to have an impact on employment. Since the 1980s, several countries, especially in Continental heartland and Southern Europe, have seen an ever-greater divide between labor market insiders and outsiders (Emmenegger et al. 2012). 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 the young, women, and frail members of the household who tend to be more affected by crisis-induced job-loss. In accordance with studies that show insider-outsider differences in employment rights we expect this to occur if breadwinners generally occupy jobs with higher employment protection (Biegert 2014; Biegert 2017; Emmenegger et al. 2012). We might thus expect countries with a strong insider/outsider divide in employment rights, i.e. Continental and Southern European countries, to exhibit greater absorption trends through negative polarization.

While the general hypotheses suggest a clear prediction, our more detailed expectations about how cross-national variations in macro-contexts matter for absorption or accumulation during the Great Recession lead to often ambiguous if not competing expectations. Moreover, there are instances in which different explanations would lead to similar empirical outcomes in our analysis so that we will

not be able to disentangle them. The hypotheses can thus not offer a set of rigid test cases, but they help us to structure our analysis and expectations generally.

3. Data: European Union Statistics on Income and Living Conditions (EU-SILC)

Based on the cross-sectional data from the EU-SILC (2007-2014), our study compares household non-employment across 30 European countries applying a shift-share analysis. We analyze the changes ('shifts') in the household non-employment rate before and since the onset of the Great Recession. This design enables us to isolate short-term distribution of job-loss and household patterns from the long-term societal trends that spurned polarization prior to the crisis. We decompose the shifts in household non-employment rates from before the Great Recession, comparing not only the changes in the immediate aftermath of the 2008 crash but investigating also the annual changes in subsequent years during the Euro sovereign debt crisis. We conduct our analyses by country (sorted along regime clusters) to assess differences in how countries deal with an extraordinary employment shock.

EU-SILC offers data on households and their employment since 2004 for up to 32 European countries, but we focus on the period from 2007 to 2014. In our main analysis we use 2008 as a pre-crisis benchmark to investigate changes since the onset of the Great Recession until 2014[4]. Our descriptive analyses include 2007 in order to provide a glance at pre-crisis trends around our 2008 benchmark. Our sample does not include Croatia and Serbia because they have joined the EU (and are covered in EU-SILC) only after the onset of the crisis. For the remaining 30 countries we use the repeated cross-sectional EU-SILC data, thus we do not use its limited panel design. Instead of tracing micro-level trajectories our shift-share analysis situates our analysis on how individual and household non-employment rates evolve at the aggregate level. This allows us to 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.

[4] 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. Deviations in the crisis pattern can be identified in the figures (see Figure A1 in the Appendix).

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.[5] We restrict our analysis to households with at least one person of working age (aged 16-64)[6]. We also 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.[7] Our calculations rely on data for 2,970,232 working age individuals in 1,421,204 households nested in 237 country-years.

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.[8] All other labor market states, such as unemployment, in education, or economic inactivity due to household responsibilities or disability are subsumed 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 used to measure the country-year specific proportion of individuals who live in a household of a specific size (from one to multiple working age members).

[5] Weighting leads to higher estimates of individual and household non-employment, particularly for Romania in 2013, we therefore drop this year from the analysis for this country (see Figures A2 and A3 in the Appendix).
[6] We also run all analyses on a sample restricted to households with at least one person between 20 and 59 to exclude potential influence of particular patterns of leaving home before 20 and early retirement after age 59 (see Figure A4). Altogether, we do not find strong differences in the aggregate level developments.
[7] This procedure leads to a more severe loss of about 7% of observations for Poland, 6% for the UK, and almost 10% for Switzerland.
[8] 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. 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 numbers 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.

4. Method: Shift-share decomposition

We use shift-share analysis to decompose the changes in household non-employment across our 30 countries over time. Using four stylized examples to illustrate the decomposition and central concepts (for a technical explanation and example calculations see the Appendix), we assume two couple households and two single households, focusing entirely on working age household members ignoring any presence of children. Let's imagine that couple 1 (C1=E,N) consists of one breadwinner and one non-employed person, whereas couple 2 (C2=E,E) is a dual earner household, i.e. both partners are employed. Single household 1 (S1=E) consists of one working age member in employment whereas in single household 2 (S2=N) the working age person is jobless.

The shift-share decomposition of changes in household non-employment, 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. every individual had the same probability to be non-employed. In our example, the individual non-employment rate for the four households is 33.3% as two out of six working age individuals are without work (in C1, S2). A household with only one working age member has the same counterfactual rate as the overall individual non-employment rate, thus we would expect for the two single households (S1,S2) 33.3% as aggregate rate. This expected rate is always higher for a household with a single than one with two working age members because in the latter case the counterfactual rate is the square of the individual non-employment rate. Note in the case with more than two members, it is the individual non-employment rate to the power of n, where n is any number of working-age household members. The two couple households (C1,C2) have a counterfactual household non-employment rate of 0.333 * 0.333= 0.11089= ~11%. On the aggregate level, the expected household joblessness rate is given through the individual non-employment rate weighted by the distribution of working age members across households of different size. For instance, in a country with more single households than in another country, the expected rate would be larger, assuming the same individual non-employment rate.

Polarization is the difference between this counterfactual and the actual rate of household joblessness, i.e. the proportion of working age individuals living in households without any employment. If joblessness is distributed randomly, the counterfactual and actual household joblessness rates are identical, thus polarization is 0 (neutral). Negative polarization indicates that work is distributed so that there are fewer households entirely without work than predicted by a 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 frequent 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.

In our analysis, we want to analyze changes in household non-employment over time rather than assessing levels of polarization. We can use a shift-share decomposition to break down changes in polarization into a *between* household-type and a *within* household-type component. Between-polarization changes when job-loss is unequally allocated across different household types. In our example, between-polarization would rise if, for instance, S1 lost their job while the couple households kept their respective jobs. Within-polarization changes when non-employment is unequally distributed among households of the same size, for example as a consequence of households facing different risks of job-loss due to human capital differences. In our example, within-polarization would rise if C1 lost their job while C2 kept their two earners.

In addition to analyzing between- and within polarization, the decomposition of over-time shifts in household non-employment also needs to take into account overall fluctuations in *individual non-employment* and structural changes in household composition. First of all, the business cycle will lead to fluctuations in individual non-employment which necessarily affects the expected probabilities of household non-employment. If there are more individuals without a job, more households will be entirely without work when job-loss is distributed randomly. In the shift-share analysis, we attribute the observed changes in household non-employment to changes in individual non-employment for each

household type (calculated as the change in the individual non-employment rate to the power of the number of working age members in the respective year). When decomposing the change in household non-employment, we thus attribute that part to the fluctuations in individual non-employment that equals the change in counterfactual household non-employment.

Second, household non-employment can change because of structural *changes in household composition*, here defined by their size in terms of working age members. In our example, there would be a change in household non-employment even without individuals losing their job, if for instance the two working age members of C1 would split up and form their own households. That would change the composition of the population to the effect that there would now be four single households (two of which entirely jobless) and one couple household, which increases overall household non-employment.

These components map onto our expectations about accumulation and absorption in the following way: first, changes in household non-employment that are due to changes in individual non-employment are neutral as they do not lead to changes in the inequality of employment risks of households. Second, changes in polarization components indicate absorption or accumulation in accordance with the mechanism of unequally distributed individual non-employment. Positive polarization suggests accumulation and negative polarization absorption. Finally, changes in the distribution of household types indicate absorption or accumulation through the mechanisms of changing household structures: Increasing household size suggests absorption, while decreasing household size accumulation.

5. Results

We first describe the changing individual non-employment and household joblessness patterns as well as shifts in household size just before and during the Great Recession (2007-2014). Subsequently, we present the findings from our shift-share analysis. Finally, we discuss our findings and assess them against our theoretical expectations. In all our tables and figures we sort the countries by the 5 regime clusters (in the following order and using the first letter as code: Continental, Anglophone, Southern, Eastern, and Northern European countries). Within each cluster we sort countries by the magnitude of

individual non-employment changes (2008-2010) as indicator for how hard the crash has hit national labor markets within the first two years.[9]

5.1 Overall development of household non-employment, individual non-employment, and household size

Figures 1a and 1b display the development of individual and household non-employment (measured as non-employment rates of the working age population on the left-hand y-axis) and household size (measured as the average number of working age household members on the right-hand y-axis).

Throughout the crisis, Continental European countries see relatively small changes in individual non-employment. Non-employment even decreases in Germany and Switzerland after 2008. In the more negatively affected economies non-employment still increases only slightly (e.g. 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 rises by about 1.36% in France. Household size also hardly change in this cluster: the largest increase in household size (2008-2010) occurs in Switzerland (by about 0.04 working age household members on average), whereas the largest decrease (about -0.03) happens in Belgium.

Changes in the two Anglophone countries are larger: both the United Kingdom and Ireland see a marked increase in individual non-employment after 2008. Ireland is hit severely by the crash with an increase in non-employment by about 7% (compared to 3.8% in the UK) over two years but then recovers, whereas household non-employment does not increase in the UK. One explanation that we explore later in the shift-share analysis is that average household size increases in the UK (+0.14) but decrease in Ireland (-0.11) from 2008 to 2010, whereas average household size had diverged strongly before.

For most of the Southern European countries individual non-employment increases substantially (except for Malta) as a consequence of the initial crash (Spain experiences the largest rise with

[9] We choose 2010 as the post shock comparison because by then all countries have felt the economic consequences (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.

about 5.1% until 2010). The subsequent Euro-sovereign debt problems as of 2010 further ratchet up non-employment in these crisis-ridden countries. Similarly marked increases in household non-employment follow this pattern. In all Southern crisis-economies average household size decreases after 2008 until our last year of observation (2014). Spain sees a particularly large drop (-0.06) in working age household members by 2010.

The Eastern European countries show a mixed picture with some remaining unscathed (Romania, Poland), some moderately affected (Hungary, Czech Republic, Bulgaria, and Slovenia), and some crisis-economies 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, those Eastern economies hit hardest show a reversal from around 2010 onwards. Household size decreases across the East, albeit from different starting levels (Slovenia shows the largest decrease in the sample with -0.16).

Finally, the Nordic countries exhibit some variation in how hard the crisis hits their labor markets. Sweden and Denmark are barely affected until 2010, whereas Iceland experiences an increase in non-employment of about 9.1%. Household non-employment develops in sync. Household size remains fairly constant except for Iceland where households shrink until 2010 (-0.06) but expand again thereafter.

<Insert Figures 1a and 1b here>

In sum, we find large variation in how hard the crisis affects labor markets within and across country clusters in Europe. Household size decreases in most countries and often more strongly in those crisis-economies with greater job-loss. This runs counter to the absorption expectation of larger households successfully integrating the surplus of non-employed in households with at least one breadwinner. Another observation regarding the relationship between individual and household non-employment is that both seem to run parallel most of the time during the Great Recession across Europe. Our decomposition analysis in the next step reveals whether individual job-loss is equally distributed

across households or whether processes of accumulation or absorption lead to changes in the inequality of household joblessness.

5.2. Shift-share decomposition of the change in household non-employment

In our shift-share analysis we use 2008 as the pre-crisis baseline, decomposing changes relative to it for each subsequent year until 2014. To assess how household non-employment changes with the immediate impact of the crisis Table 1 presents the shift-share decomposition of the change in total household non-employment (column 1) from before the crisis (2008) to its peak across Europe (2010), although several Euro-sovereign debt crisis economies would spiral further downwards thereafter. Table 1 presents the change in absolute household non-employment due to individual non-employment (see column 2), household composition (3), between household polarization (4), and within household polarization (5). We also show each component's relative share in the overall household non-employment change in parenthesis (these percentages can be negative or positive and single components can exceed 100%).

To assess whether countries experience a return to pre-crisis levels Figures 2a and 2b then display the decomposition for the full observation period until 2014 (see Table A.1 for details). The dashed line indicates the total change in household non-employment as compared to 2008 (i.e., the line and bars do not show the change from year to year). The bars in order from left to right represent the amount of the household non-employment shift for each year as compared to 2008 that is due to changes in individual non-employment, household composition, between household polarization and within household polarization. The four bars added together make up the total change in household non-employment compared to 2008 (i.e. the dashed line). We discuss the shift-share decomposition for the five country clusters and compare the results 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.

<Insert Table 1 here>

Our shift-share analysis (Table 1, Figure 1a) shows that the moderate impact of the crisis in *Continental* European countries leads to only small if any increases in household non-employment in the short-term and also over subsequent years. Germany stands out with a decline in household non-employment (-2.6% until 2014) largely due to decreasing individual non-employment. A slight rise in household joblessness 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) is 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 does not change significantly. As none of these countries is severely hit by the crisis, it is difficult to detect particular responses.

The two *Anglophone* countries provide a more insightful comparison as the crisis hit Ireland much harder than the United Kingdom: Ireland's household non-employment increases substantially by 7.08% until 2010 (see Table 1). The largest component is rising individual non-employment (about 4.92%), but changes in household composition and within-polarization contribute around 1.37 and 1.44 percentage points. Between-polarization sets a small but consistent counterweight (-0.65%). Irish household size decreases, thus exacerbating household non-employment rather than absorbing it. At the same time, joblessness is distributed more unequally adding further to risk accumulation. Whereas individual non-employment recedes after 2012 (see Figure 2a), the changes in household composition and within-polarization do 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 an increase in household size but also partially by within-household 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 are hit relatively hard by the crisis albeit with a slight delay, compared to Ireland (see Figure 2a). This pattern also shows 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, and Malta shows no clear effect (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 show significant changes in these components.

Several of the *Eastern European* countries do not show any immediate crisis impact on their labor markets and changes in household non-employment (Table 1). Romania and Poland see slight decreases in household joblessness in the years after the crisis, mostly due to lower individual non-employment (see Figure 2b). Hungary and the Czech Republic remain fairly constant (although the latter sees a growing positive contribution to household non-employment from decreasing household size). Patterns look 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, albeit to varying degrees. In Slovenia, changing household compositions add as much to household non-employment rate changes as individual non-employment (slightly above 2% throughout the observed period). 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, whereas within-household 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-crash 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.

<Insert Figures 2a and 2b here>

5.3 Discussion

How do these patterns fit our general hypotheses and specific regime expectations? We find no evidence of households merging their resources to cope with job-loss through absorption in the Southern and Eastern countries as postulated under Hypothesis 1 (traditional household tend to absorption). As Ireland has traditional household structures similar to (catholic) Southern Europe, there is further evidence contradicting this absorption thesis. We also speculated that the large number of single-earner households prior to the crisis might lead to increasing household non-employment for which the increasing polarization rates can be considered supporting evidence.

Under Hypothesis 2 we discussed how family policies support dual earner households and enable partners to look for work in case of job-loss. We expected absorption, i.e. negative polarization, in the Nordic countries but do not find supporting evidence. In particular, we argued that the frequency of dual-earner and modified breadwinner households in Nordic, Anglophone, and Continental core countries would be better able to absorb the loss of employment. This would result in a decrease in polarization but we only document either no notable change in polarization or a slight increase in most of these countries. Finally, if single parent households would have been hit particularly hard in Nordic countries or the UK this should have shown in higher between-polarization, yet it is decreasing (in the UK) or not changing (in the Nordic countries).

As household size decreases in many of the Southern and Eastern crisis countries there is also no evidence for Hypothesis 3 that the relatively modest out-of-work benefits in these countries would foster merging of households to cope with loss of income. The UK is the exception as increasing household size might be related to the residual welfare state there. But we also do not find stronger accumulation in the form of positive polarization in Nordic and Continental European countries, which would hint at disincentive effects of generous benefit systems.

Finally, under Hypothesis 4 we elaborated that labor market dualization might help protect single breadwinners in Southern and Continental European countries. We do not find the expected

pattern of absorption in terms of negative polarization in these countries, in fact, the non-employment expansion also hit insiders, thus turning once well protected households into jobless families.

Yet, even though there are large variations in how hard labor markets were hit by the crisis and subsequent household non-employment growth, we can discern striking patterns. *First*, rapid individual non-employment growth 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 household polarization. With the notable exception of the UK, there is no evidence for absorption across Europe as a consequence of the crisis. If anything, growing polarization and decreasing household size signify a continued if not accelerated trend of risk accumulation. *Fourth*, our expectations in regards to country regime cluster variations were largely not confirmed although it cannot be excluded that many of these processes run parallel and cancel each other out.

Interestingly, when we disregard regime 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[10]. Using a counterfactual scenario, we could argue that the changes in household compositions and polarization are simply continuations from before the crisis, implying that these changes might have been much larger had there not been some absorption in these countries. However, this argument does not conform to the fact that comparable countries in the same cluster but less severely hit do not exhibit such accumulation patterns. Another explanation might be the pre-existing polarization levels and household composition patterns. 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 many male breadwinners massive job-loss might also hit those one-

[10] Our analysis cannot show how families might buffer the economic shock of the crisis through inter-generational transfers that are independent from joining households.

earner households that used to be well protected insiders, which thus augments 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 unequal distribution of job-loss further exacerbated the crisis impact on household non-employment.

6. Conclusion

In this study we examined 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 or was unequally distributed across households. We asked whether households were able to absorb individual job-loss, for instance, by coming together in larger households to pool resources. We inquired whether there was an accumulation of non-employment in some vulnerable households while others with multiple earners were less at risk of unemployment. We derived a set of partially competing hypotheses and applied these for five European regime clusters based on dominant family structures, welfare regimes, and labor market regulations. In order to test them, we conducted a shift-share analysis of changes in household non-employment for 30 European countries comparing shifts during the Great Recession using data from EU-SILC (2007-2014).

Our findings suggest that although large proportions of the growth in household non-employment during the crisis can be attributed to an increase in individual non-employment, household joblessness patterns differ from individual non-employment. It is evident that individual job-loss is not distributed equally across households. We find little evidence for households absorbing individual job-loss during the Great Recession. Most of the evidence points to households accumulating joblessness and thus exacerbating polarization and the problem of household joblessness.

Along with crisis-induced employment shocks household non-employment rose in many countries, particularly in those hit hardest during the Great Recession (the Baltics, Iceland, Ireland, Greece, Portugal, and Spain). While in some countries household non-employment showed signs of receding as their economies recovered, it persisted in some crisis-countries. Ireland, most countries in Eastern Europe, and particularly the Southern crisis-ridden countries exhibited higher household non-employment than expected, indicating accumulation instead of absorption. In those crisis-countries hit

hardest, households not only failed to absorb the sudden employment shock but job-loss was distributed disproportionally, affecting households who already relied on only few sources of income. Once the sole breadwinners lost their once well protected insider job due to the severe crisis and there was little chance for others members to find a job, these households became jobless. A central implication of our study is that many households were affected by joblessness since 2008. That means that most European countries fail to meet the EU goal of reducing the number of people living in low work intensity households.

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 (Gregg and Wadsworth 2001; Gregg et al. 2010; Vandenbroucke and Corluy 2014). 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 (Kaplan 2012; Manacorda and Moretti 2006; Mykyta and Macartney 2011; Wiemers 2014). The lack of evidence for absorption on the aggregate level indicates that competing micro-level processes, e.g. higher divorce rates subsequent to job-loss, might have more weight (Brand 2015; Charles and Stephens 2004). In some crisis-countries, notably Spain, some young jobless household members moved abroad to seek employment (Ramos 2018). Furthermore, our results raise questions for our understanding of how welfare regimes structure household behavior[11]. By and large, our results do not align with our consideration of opportunity structures set by institutional contexts. A particularly promising route is offered by an analysis that focuses on policy settings and reactions in crisis countries. Did Continental and Nordic coordinated market economies respond more quickly and successful in lowering non-employment risks, while

[11] Our analysis is not a rigid test of theoretical considerations of how regimes might moderate the relationship between individual job-loss and household non-employment. For instance, the institutions we conceive as moderators 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). Figure A1 in the Appendix plots the development of individual non-employment and GDP growth and demonstrates the degree to which labor markets reacted to macro-economic fluctuations which varied widely across Europe.

the crisis-countries failed (Bermeo and Pontusson 2012)? Even if, further research is needed to determine if such policies also affected how individual job-loss was translated to the household level.

A central implication of our study is that many households were affected by joblessness after the crisis. That means that most European countries fail to meet the EU goal of reducing the number of people living in low work intensity households. Moreover, the found disparities of household non-employment pose an important challenge for policy-makers. Absorption is not only unlikely to buffer the crisis impact, it might not be considered the desired welfare goal. Having to share resources might put undue stress on households and lead to a deterioration of the living standard of all members. Instead, it might be preferable to put the burden of social protection on the welfare state, not the family. But social isolation increases if individuals cannot rely on households to buffer job-loss. In addition, the fact that we found accumulation to be strongest in countries with relatively low welfare support is worrisome as households cannot rely on the state to buffer the economic consequences of job-loss. The accumulation of individual non-employment within households and in countries with low welfare support is a real cause for concern that is not yet understood. More generally, if economic downturns affect people in precarious households disproportionately, the impact on the less privileged social groups is exacerbated as individuals losing their jobs tend to be the primary or sole earner within the household. Because 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. It is not the family or household but the welfare state that is called upon to cope with such a severe employment shock as during the Great Recession.

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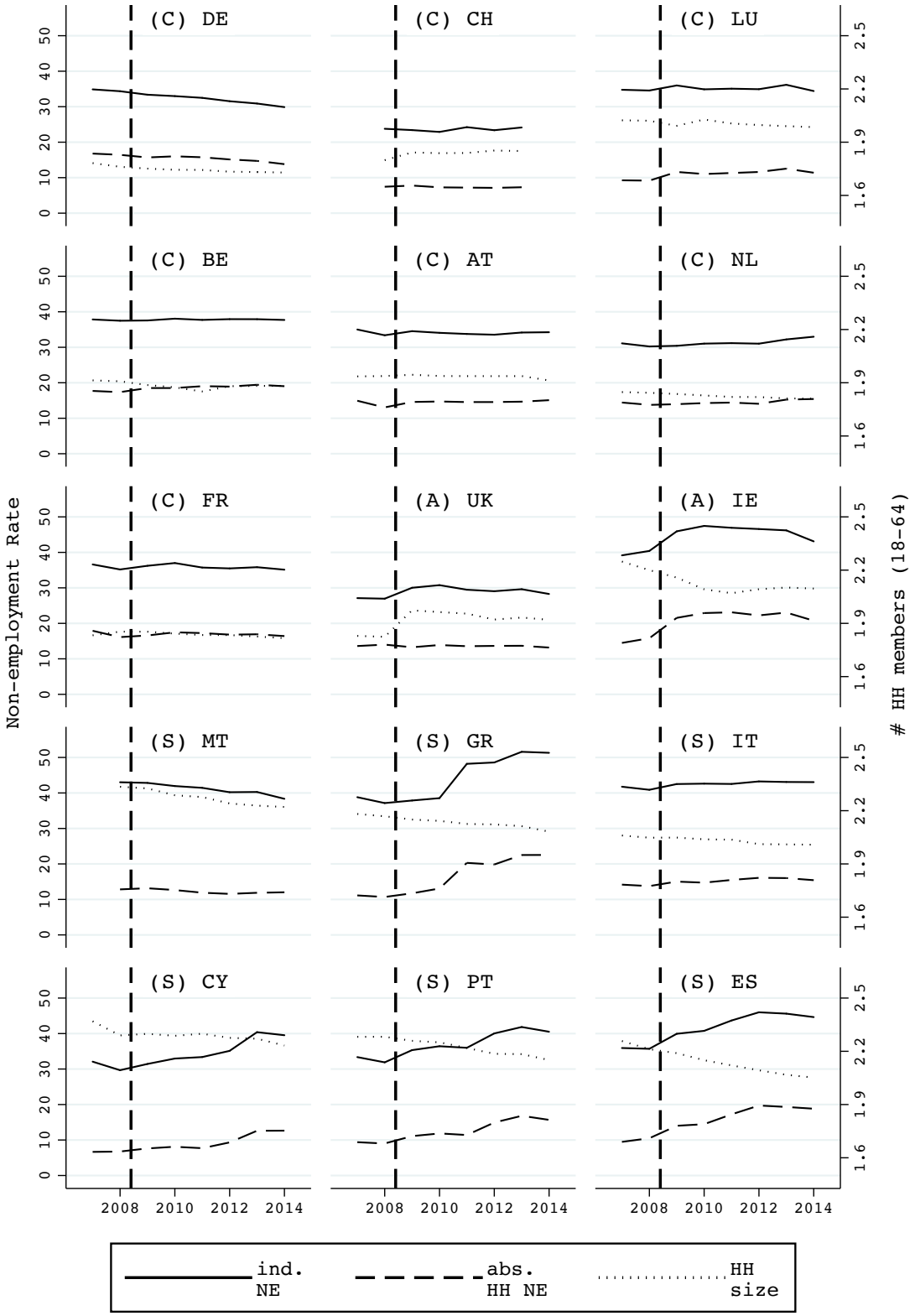
Table 1. Shift-share decomposition of changes in household non-employment in 30 European countries from 2008 to 2010

	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 ∅	*0.85 (100%)*	*0.19 (22.35%)*	*0.09 (10.59%)*	*0.04 (4.71%)*	*0.54 (63.53%)*
DE	-0.42 *(100%)*	-0.89 *(211.90%)*	0.25 *(-59.52%)*	0.06 *(-14.29%)*	0.16 *(-38.10%)*
CH	-0.16 *(100%)*	-0.43 *(268.75%)*	-0.32 *(200.00%)*	0.02 *(-12.50%)*	0.57 *(-356.25%)*
LU	1.86 *(100%)*	0.19 *(10.22%)*	-0.08 *(-4.30%)*	0.16 *(8.60%)*	1.60 *(86.02%)*
BE	1.16 *(100%)*	0.38 *(32.76%)*	0.46 *(39.66%)*	-0.01 *(-0.86%)*	0.34 *(29.31%)*
AT	1.68 *(100%)*	0.40 *(23.81%)*	-0.04 *(-2.38%)*	0.00 *(0.00%)*	1.32 *(78.57%)*
NL	0.50 *(100%)*	0.47 *(94.00%)*	0.19 *(38.00%)*	0.10 *(20.00%)*	-0.25 *(-50.00%)*
FR	1.36 *(100%)*	1.18 *(86.76%)*	0.16 *(11.76%)*	-0.04 *(-2.94%)*	0.07 *(5.15%)*
Anglophone countries ∅	*3.48 (100%)*	*3.47 (99.71%)*	*-0.01 (-0.29%)*	*-0.16 (-4.60%)*	*0.20 (5.75%)*
UK	-0.11 *(100%)*	2.03 *(-1845.45%)*	-1.40 *(1272.73%)*	0.32 *(-290.91%)*	-1.05 *(954.55%)*
IE	7.08 *(100%)*	4.92 *(69.49%)*	1.37 *(19.35%)*	-0.65 *(-9.18%)*	1.44 *(20.34%)*
Southern Europe ∅	*1.88 (100%)*	*1.33 (70.74%)*	*0.31 (16.49%)*	*-0.05 (-2.66%)*	*0.31 (16.49%)*
MT	-0.18 *(100%)*	-0.66 *(366.67%)*	0.45 *(-250.00%)*	0.01 *(-5.56%)*	0.02 *(-11.11%)*
GR	2.41 *(100%)*	0.81 *(33.61%)*	0.28 *(11.62%)*	-0.05 *(-2.07%)*	1.37 *(56.85%)*
IT	0.95 *(100%)*	1.17 *(123.16%)*	0.11 *(11.58%)*	-0.02 *(-2.11%)*	-0.31 *(-32.63%)*
CY	1.34 *(100%)*	1.41 *(105.22%)*	0.11 *(8.21%)*	0.03 *(2.24%)*	-0.21 *(-15.67%)*
PT	2.82 *(100%)*	2.27 *(80.50%)*	0.27 *(9.57%)*	-0.06 *(-2.13%)*	0.35 *(12.41%)*
ES	3.97 *(100%)*	2.96 *(74.56%)*	0.62 *(15.62%)*	-0.24 *(-6.05%)*	0.63 *(15.87%)*
Eastern Europe ∅	*2.42 (100%)*	*2.21 (91.32%)*	*0.26 (10.74%)*	*0.02 (0.83%)*	*-0.06 (-2.48%)*
RO	-1.33 *(100%)*	-0.79 *(59.40%)*	-0.20 *(15.04%)*	0.03 *(-2.26%)*	-0.36 *(27.07%)*
PL	-0.65 *(100%)*	-0.66 *(101.54%)*	-0.02 *(3.08%)*	-0.05 *(7.69%)*	0.09 *(-13.85%)*
HU	-0.29 *(100%)*	0.70 *(-241.38%)*	-0.26 *(89.66%)*	0.02 *(-6.90%)*	-0.75 *(258.62%)*
CZ	0.81 *(100%)*	0.97 *(119.75%)*	0.05 *(6.17%)*	-0.01 *(-1.23%)*	-0.20 *(-24.69%)*
BG	0.46 *(100%)*	0.90 *(195.65%)*	0.03 *(6.52%)*	-0.02 *(-4.35%)*	-0.45 *(-97.83%)*
SI	3.26 *(100%)*	1.26 *(38.65%)*	1.59 *(48.77%)*	0.23 *(7.06%)*	0.18 *(5.52%)*
SK	2.21 *(100%)*	2.22 *(100.45%)*	0.04 *(1.81%)*	0.14 *(6.33%)*	-0.19 *(-8.60%)*
LT	5.51 *(100%)*	5.01 *(90.93%)*	0.93 *(16.88%)*	0.12 *(2.18%)*	-0.55 *(-9.98%)*
EE	5.93 *(100%)*	5.48 *(92.41%)*	-0.12 *(-2.02%)*	-0.07 *(-1.18%)*	0.64 *(10.79%)*
LV	8.32 *(100%)*	6.97 *(83.77%)*	0.52 *(6.25%)*	-0.19 *(-2.28%)*	1.03 *(12.38%)*
Northern Europe ∅	*2.58 (100%)*	*1.99 (77.13%)*	*0.35 (13.57%)*	*0.11 (4.26%)*	*0.12 (4.65%)*
SE	0.44 *(100%)*	0.09 *(20.45%)*	0.47 *(106.82%)*	0.20 *(45.45%)*	-0.31 *(-70.45%)*
DK	1.29 *(100%)*	0.61 *(47.29%)*	0.26 *(20.16%)*	0.17 *(13.18%)*	0.25 *(19.38%)*
NO	2.03 *(100%)*	1.42 *(69.95%)*	0.16 *(7.88%)*	0.09 *(4.43%)*	0.35 *(17.24%)*
FI	3.62 *(100%)*	3.26 *(90.06%)*	0.28 *(7.73%)*	0.02 *(0.55%)*	0.06 *(1.66%)*
IS	5.50 *(100%)*	4.57 *(83.09%)*	0.59 *(10.73%)*	0.07 *(1.27%)*	0.27 *(4.91%)*

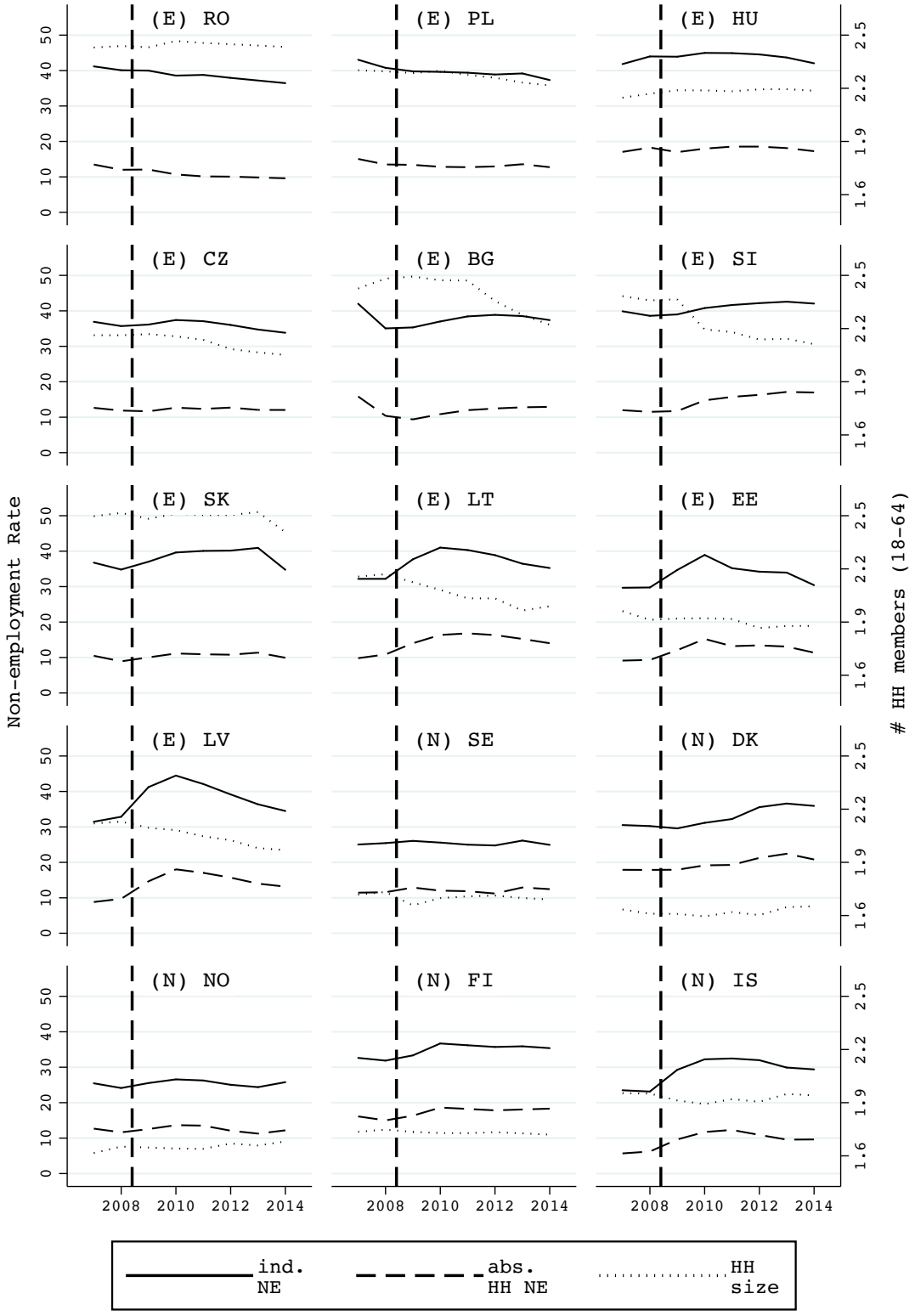
Note: Definitions see text, (Source: EU-SILC, authors' own calculation).

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



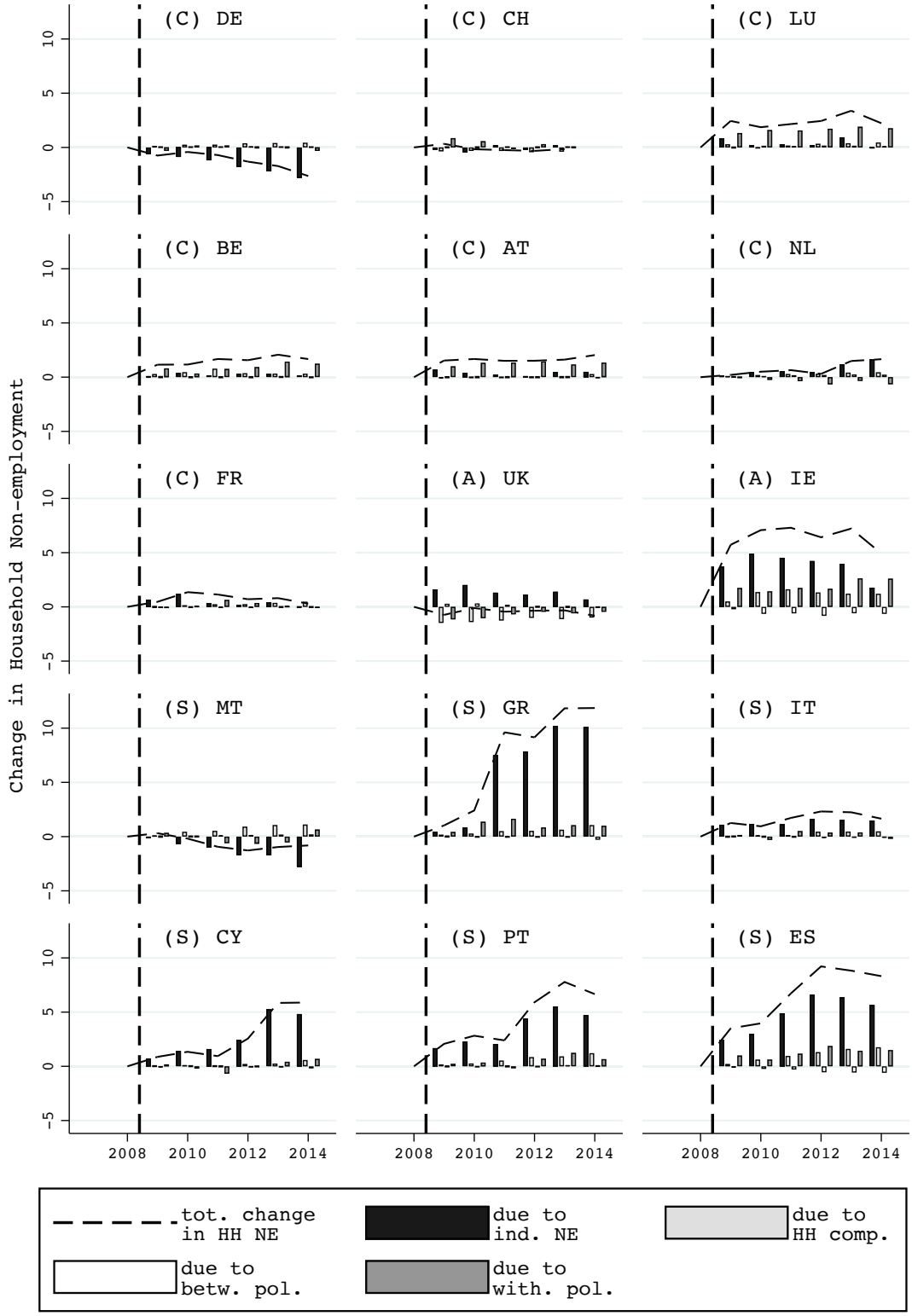
Note: Vertical dashed lines mark the approximate onset of the financial and economic crisis in 2008; individual and household non-employment rate (%) on left-hand y-axis, average number of working age adults in households (%) on right-hand y-axis. Compare Tables A1 in the Appendix (Source: EU-SILC, authors'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

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



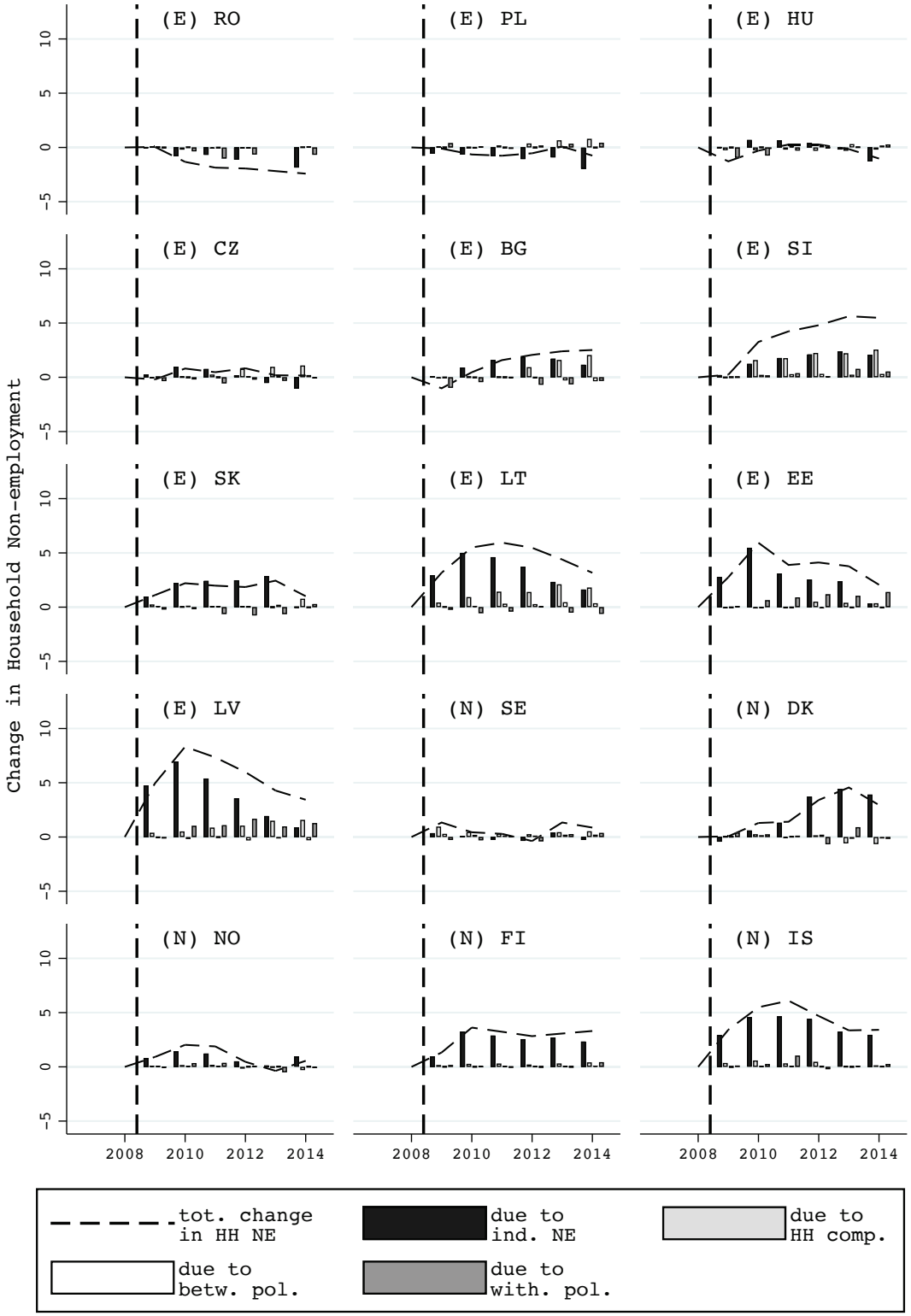
Note: Vertical dashed lines mark the approximate onset of the financial and economic crisis in 2008; individual and household non-employment rate (%) on left-hand y-axis, average number of working age adults in households (%) on right-hand y-axis. Compare Tables A1 in the Appendix (Source: EU-SILC, authors'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

Figure 2a: 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: 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).

Appendix I: Technical description of shift-share analysis

We use shift-share analysis to decompose the changes in household non-employment across our 30 countries over time. Using four stylized examples to illustrate the decomposition and central concepts, we assume two couple households and two single households, focusing entirely on working age household members ignoring any presence of children. Let's imagine that couple 1 (C1=E,N) consists of one breadwinner and one non-employed person, whereas couple 2 (C2=E,E) is a dual earner household, i.e. both partners are employed. Single household 1 (S1=E) consists of one working age member in employment whereas in single household 2 (S2=N) the working age person is jobless.

The shift-share decomposition of changes in household non-employment, 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. every individual had the same probability to be non-employed, with

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

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 household of a given size has the same likelihood to be entirely without work. In our example, the individual non-employment rate is 33.3% as two out of six working age individuals in our four example households are without work (in C1, S2). A household with only one working age member has the same counterfactual rate as the overall individual non-employment rate, thus we would expect for the two single households (S1,S2) 33.3% as aggregate rate. This is always higher than a household with two working age members, where the counterfactual rate is the square of the individual non-employment rate (in the case with more than two members, the individual non-employment rate is the power of n, where n is any number of working-age household members). The two couple households (C1,C2) have a counterfactual household non-employment rate of 0.333*0.333=0.11089=~11%. On the aggregate level, the counterfactual (or expected) household jobless rate is given through the

individual non-employment rate weighted by the distribution of working age members 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. For instance, in a country with more single households than another country, the expected household jobless rate would be larger, assuming the same individual non-employment rate. In our example, the weight for single households with counterfactual household non-employment rate 33.3% is 0.33 as 2 out of 6 working age individuals live in households of that size. The weight for couple households with counterfactual household non-employment rate 11% is 0.66 as 4 out of 6 working age individuals live in households of that size. The aggregate counterfactual household non-employment rate is thus (0.33*0.33)+(0.11*0.66)=0.182=∼18%.

Polarization is the difference between this counterfactual jobless household rate $\widehat{w}$ and the actual rate of household joblessness 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 counterfactual and actual household joblessness rates are identical, thus polarization is 0 (neutral). Negative polarization indicates that work is distributed so that there are fewer households entirely without work than predicted by a 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 frequent 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. In our example, the actual jobless household rate is 16.7% as only one working age individual lives in an entirely jobless household. The actual

jobless household rate is thus smaller than the counterfactual household non-employment rate. At this point, our example population shows negative polarization.

In our analysis, we want to analyze changes in household non-employment over time rather than assessing levels of polarization. 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 job-loss is unequally allocated across different household types, e.g. if single households face higher job-loss than households with more working age individuals. Between-polarization would rise in our example if the crisis would increase individual non-employment by 16%, i.e. 1 job-loss, and it was S1 who lost the job. Now both single households would be non-employed while the couple households both still would have at least one member in employment. Inequality between household types would be increased. Within-polarization (the second term in the equation) changes when non-employment is unequally distributed among households of the same size, for example as a consequence of households facing different risks of job-loss due to human capital differences. In our example, within-polarization would increase if the 16.7% job loss during the crisis affected the female breadwinner in C1. The inequality within couple households would be increased as C1 would now be non-employed while C2 would remain employed (in fact, it would still be a double earner household).

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). Necessarily, changes in individual non-employment will result in changes in the probabilities of household non-employment. In the shift-share analysis, we attribute changes in household non-employment to changes in individual non-employment for each household type equal to the change in individual non-employment to the power of the number of working age members. If one out of six individuals lost their job and two individuals were without work prior to that, i.e. a change of 16.7% from 33.3% to 50%, the change in the probability to be entirely without work for single households due to changes in individual employment would be from 33.3% to 50%, i.e. 16.7%, while it would be from 11% to 25%, i.e. 14%, for couple households.

Finally, household non-employment can change because of changes in the composition of households, here defined by their size in terms of working age members. In our example, there would be a change in household non-employment even without changes in individual non-employment, if for instance the two working age members of C1 would split up and form their own households. That would change the composition of the population to the effect that there would now be four single households (two of which entirely jobless) and one couple household, which increases overall

household non-employment. The counterfactual household non-employment rate would now be 0.66*0.33+0.33*0.11=0.2541∼25.4%. The change in the household non-employment rate would be from 16.7% to 33% as there would now be two individuals living in entirely jobless household. (Thus there would also be knock-on effects on polarization.)

The four components map onto our expectations about accumulation and absorption in the following way: Changes in household non-employment that are due to changes in individual non-employment are neutral as they do not lead to changes in the inequality of employment risks of households. Changes in polarization components indicate absorption or accumulation in accordance with the mechanism of unequally distributed individual non-employment. Increasing polarization suggests accumulation and decreasing polarization suggests absorption. Changes in the distribution of household types indicate absorption or accumulation through the mechanisms of changing household structures. Increasing household sizes suggest absorption and decreasing household sizes suggest accumulation.

Appendix II: Supplementary analyses

Tables A1a and A1b show the numbers depicted in Figures 1a and 1b in the main body of the article. They show individual non-employment rates, household non-employment rates, and average household sizes for the 30 countries in our sample for 2007-2010 (Table A1a) and 2011-2014 (Table A1b).

Tables A2a and A2b show the numbers depicted in Figures 2a and 2b in the main body of the article. They show the shift-share decomposition of changes in household non-employment compared to 2008 for the years 2009-2011 (Table A2a) and 2012-2014 (Table A2b). Changes in household non-employment compared to 2008 are decomposed into contributions from changes in individual non-employment, household sizes, between household polarization, and within household polarization.

Figure A1 depicts the development of GDP growth (on the right-hand y-axis, provided by the World Bank) and individual non-employment rates (on the left-hand y-axis) for 2007-2014. The figure shows the overall economic development of the 30 countries in our sample during the crisis. GDP growth hits its first low water mark for all countries in 2008. While most countries' economies recover from there, some countries, such as Greece and Spain encounter further low points in later years. The figure shows the large variation in how the recession translated into job-loss across Europe. The development of individual non-employment is much more incremental than GDP throughout Europe. Some countries such as Germany or Poland see steady decline of non-employment despite the slowed economic growth whereas crisis countries such as Greece, Portugal, or Spain witnessed steady increases in non-employment over several years.

Figures A2 and A3 compare individual non-employment rates and household non-employment rates calculated with the EU-SILC (weighted and unweighted) with the official Eurostat measures, which are based on European Union Labour Force Survey (EULFS) data. The definition of employment differs between the datasets. The EULFS uses an objective measure of having worked at least one hour in the interview week for being employed based on the ILO definition. The EU-SILC uses a subjective measure based on individual responses to the question whether they are employed or not. The fact that some respondents who are only working few hours will indicate that they are non-employed in the EU-SILC is likely the reason for the higher individual and household non-

employment rates calculated from EU-SILC data. Thus, we might overestimate household non-employment in our analysis. As individuals indicating non-employment despite being marginally employed is likely to hint at a problematic household situation, this is not a serious concern. Moreover, our analysis is mostly interested in changes over time rather than levels. Changes over time look very similar across datasets.

Finally, Figures A4a and A4b show the shift-share decomposition for a sample of household that contain at least one member aged 20-59. In our main analysis we include all households with at least one member aged 18-64. One issue could be that in some countries our estimation of non-employed households is very much driven by households with individuals still in education or with persons who retired early. Comparing the results from our main analysis with the restricted sample we do find no notable differences in the overall patterns.

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	32.23	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	HHNE	HH size	Ind. NE	HHNE	HH size	Ind. NE	HHNE	HH size
Continental Europe												
DE	32.49	15.74	1.74	31.55	15.14	1.73	30.89	14.73	1.73	29.88	13.81	1.73
CH	24.23	7.20	1.84	23.37	7.13	1.85	24.15	7.30	1.85			
LU	35.08	11.32	2.01	34.92	11.61	2.00	36.17	12.55	1.99	34.41	11.40	1.98
BE	37.72	19.04	1.85	37.93	18.93	1.88	37.91	19.43	1.88	37.71	19.03	1.88
AT	33.75	14.56	1.94	33.54	14.57	1.94	34.16	14.68	1.94	34.24	15.10	1.91
NL	31.17	14.42	1.82	31.02	14.08	1.82	32.21	15.26	1.81	32.97	15.43	1.81
FR	35.73	17.26	1.83	35.48	16.83	1.83	35.83	16.93	1.83	35.13	16.42	1.82
Anglophone countries												
UK	29.48	13.57	1.96	29.06	13.65	1.92	29.63	13.69	1.93	28.29	13.19	1.92
IE	46.92	23.12	2.07	46.58	22.24	2.09	46.20	23.05	2.10	43.10	20.75	2.10
Southern Europe												
MT	41.44	11.90	2.28	40.22	11.56	2.24	40.27	11.88	2.23	38.35	12.03	2.22
GR	48.22	20.31	2.13	48.59	19.84	2.12	51.60	22.52	2.11	51.31	22.55	2.08
IT	42.54	15.50	2.04	43.26	16.09	2.01	43.09	16.02	2.01	43.06	15.43	2.01
CY	33.38	7.70	2.30	35.13	9.32	2.28	40.39	12.61	2.27	39.54	12.65	2.23
PT	35.98	11.43	2.22	40.03	14.94	2.19	41.85	16.81	2.18	40.52	15.69	2.15
ES	43.68	17.23	2.12	45.99	19.72	2.09	45.61	19.33	2.07	44.64	18.82	2.05
Eastern Europe												
RO	38.79	10.16	2.46	37.95	10.09	2.45	40.81	16.11	2.13	36.46	9.61	2.43
PL	39.39	12.74	2.28	38.90	12.97	2.26	39.19	13.58	2.23	37.33	12.75	2.22
HU	44.92	18.55	2.18	44.56	18.55	2.19	43.69	18.13	2.20	42.06	17.26	2.19
CZ	37.09	12.35	2.14	36.03	12.71	2.08	34.74	12.07	2.07	33.83	12.05	2.05
BG	38.44	11.98	2.47	38.87	12.46	2.36	38.53	12.80	2.28	37.40	12.92	2.22
SI	41.66	15.74	2.18	42.18	16.30	2.14	42.59	17.13	2.14	42.06	16.98	2.11
SK	40.08	10.92	2.50	40.16	10.78	2.50	40.93	11.38	2.52	34.75	9.94	2.41
LT	40.32	16.82	2.03	38.88	16.34	2.03	36.47	15.25	1.97	35.25	14.04	1.99
EE	35.21	13.21	1.92	34.21	13.43	1.87	33.96	13.09	1.88	30.42	11.38	1.88
LV	42.12	17.06	2.05	39.17	15.70	2.02	36.39	14.00	1.98	34.5	13.15	1.97
Northern Europe												
SE	25.00	11.87	1.71	24.77	11.21	1.71	26.15	12.92	1.70	24.95	12.45	1.69
DK	32.23	19.28	1.62	35.58	21.28	1.60	36.59	22.44	1.65	35.93	20.82	1.65
NO	26.26	13.53	1.64	25.05	12.10	1.67	24.38	11.27	1.66	25.78	12.20	1.68
FI	36.20	18.24	1.73	35.72	17.84	1.73	35.90	18.08	1.73	35.39	18.31	1.72
IS	32.47	12.31	1.92	31.99	10.90	1.91	29.91	9.58	1.95	29.39	9.63	1.94

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

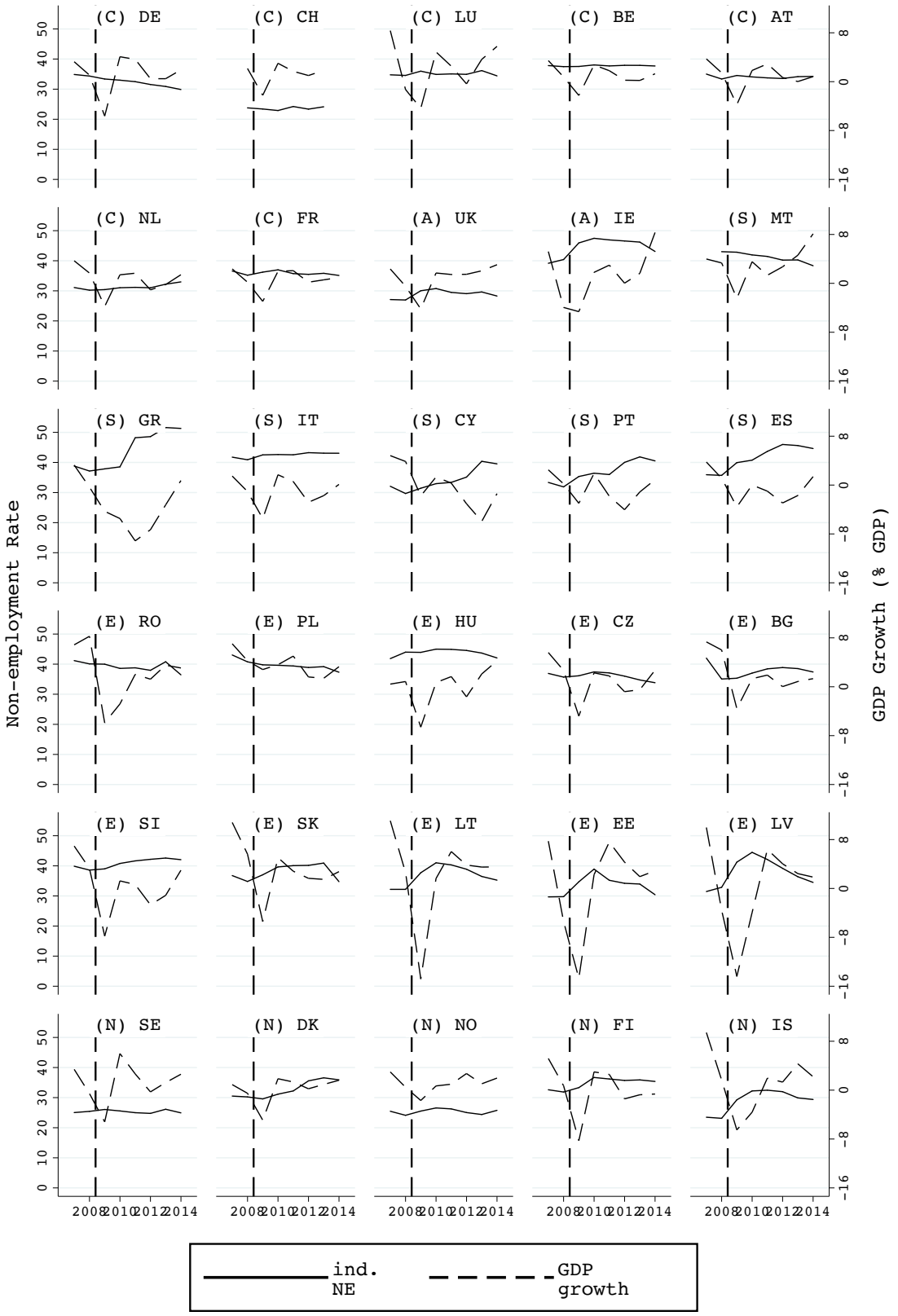
Note: Definitions see text, (Source: EU-SILC, authors' own calculation).

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						-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

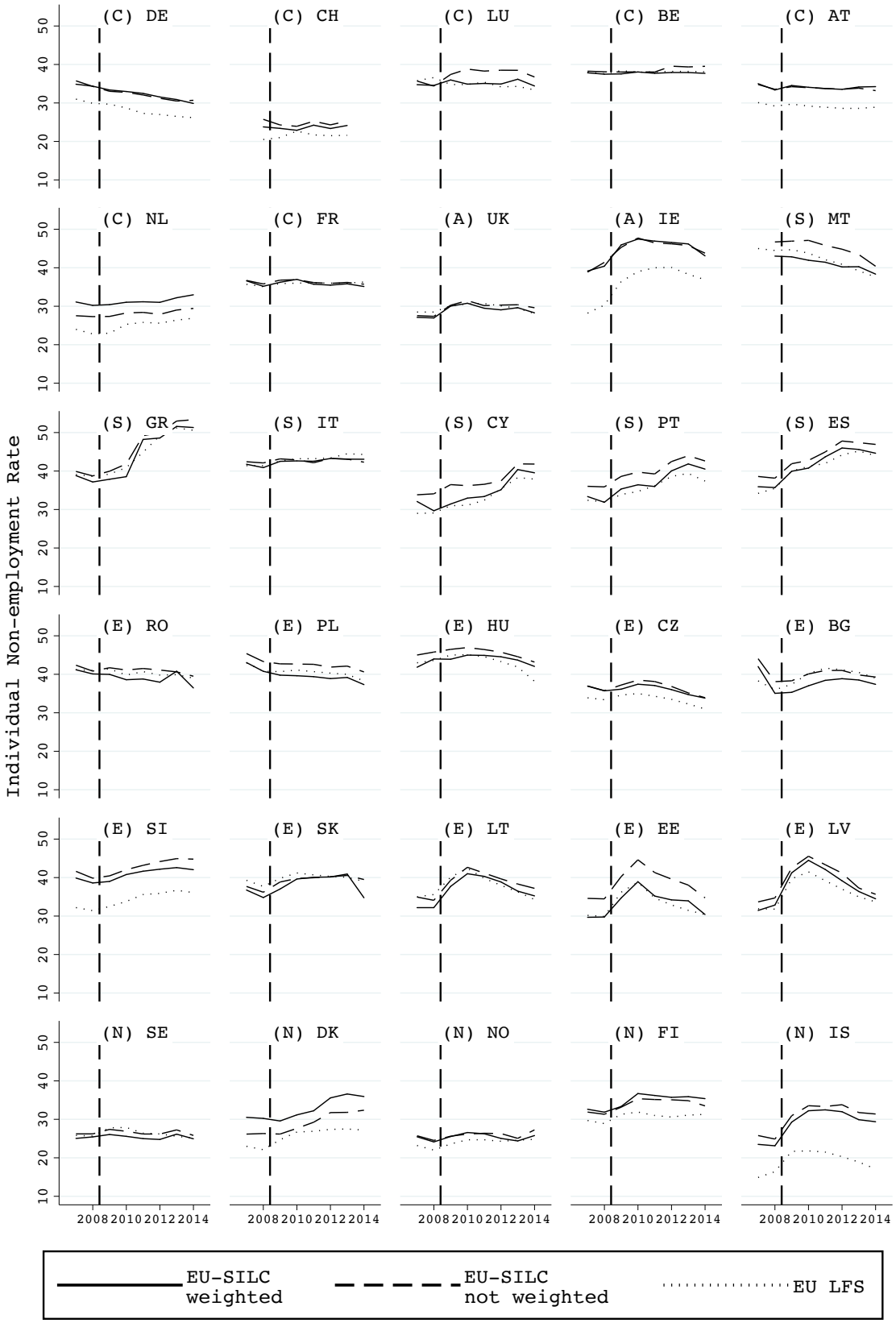
Note: Definitions see text, (Source: EU-SILC, authors' own calculation).

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



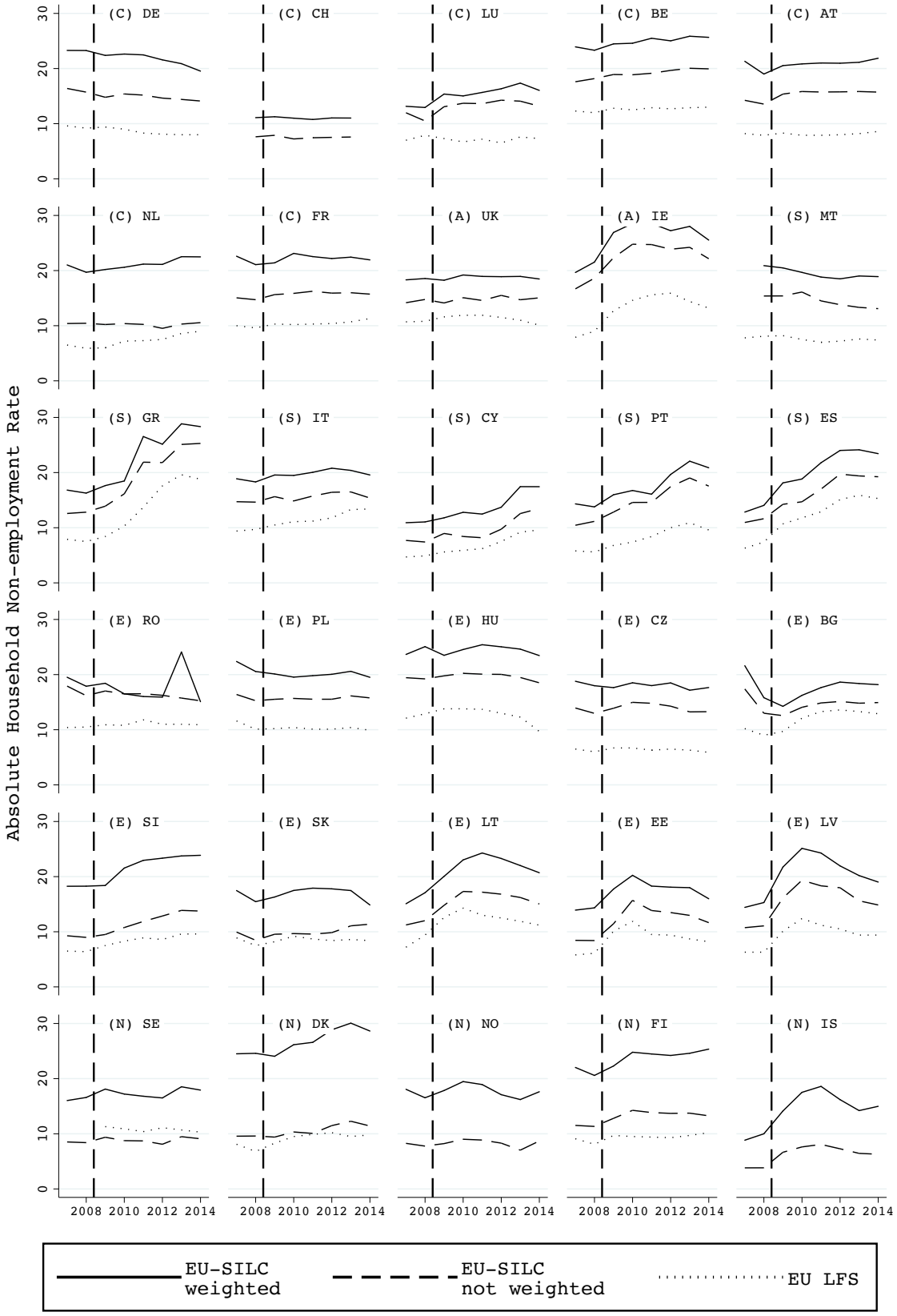
Note: Vertical dashed lines mark the approximate onset of the financial and economic crisis in 2008; individual non-employment rate (%) on left-hand y-axis (Source: EU-SILC, authors' own calculation), GDP growth (%) on right-hand y-axis (Source: World Bank).

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



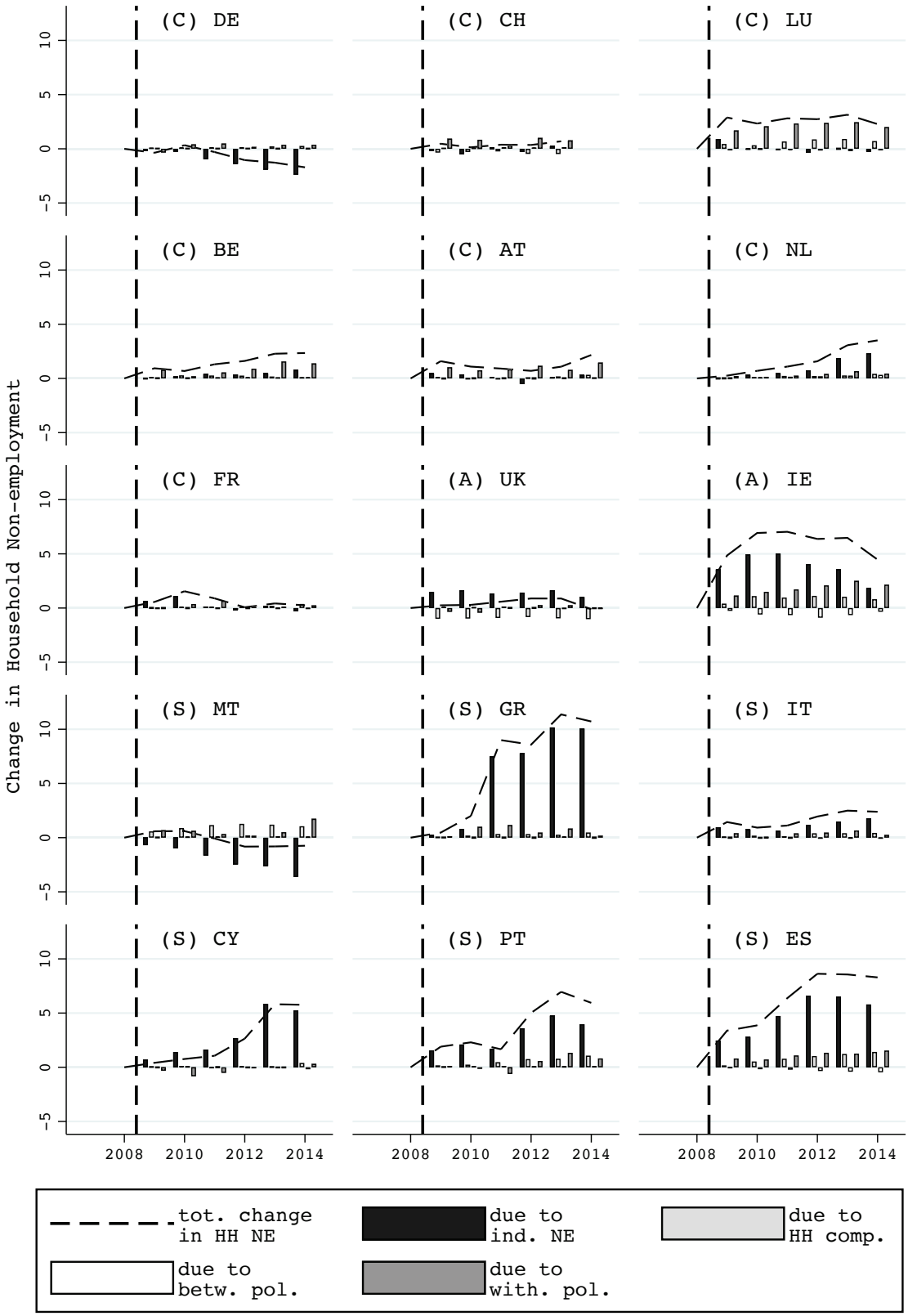
Note: Vertical dashed lines mark the approximate onset of the financial and economic crisis in 2008 (Sources: EU-SILC, authors' own calculation, EU LFS figures from Eurostat).

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



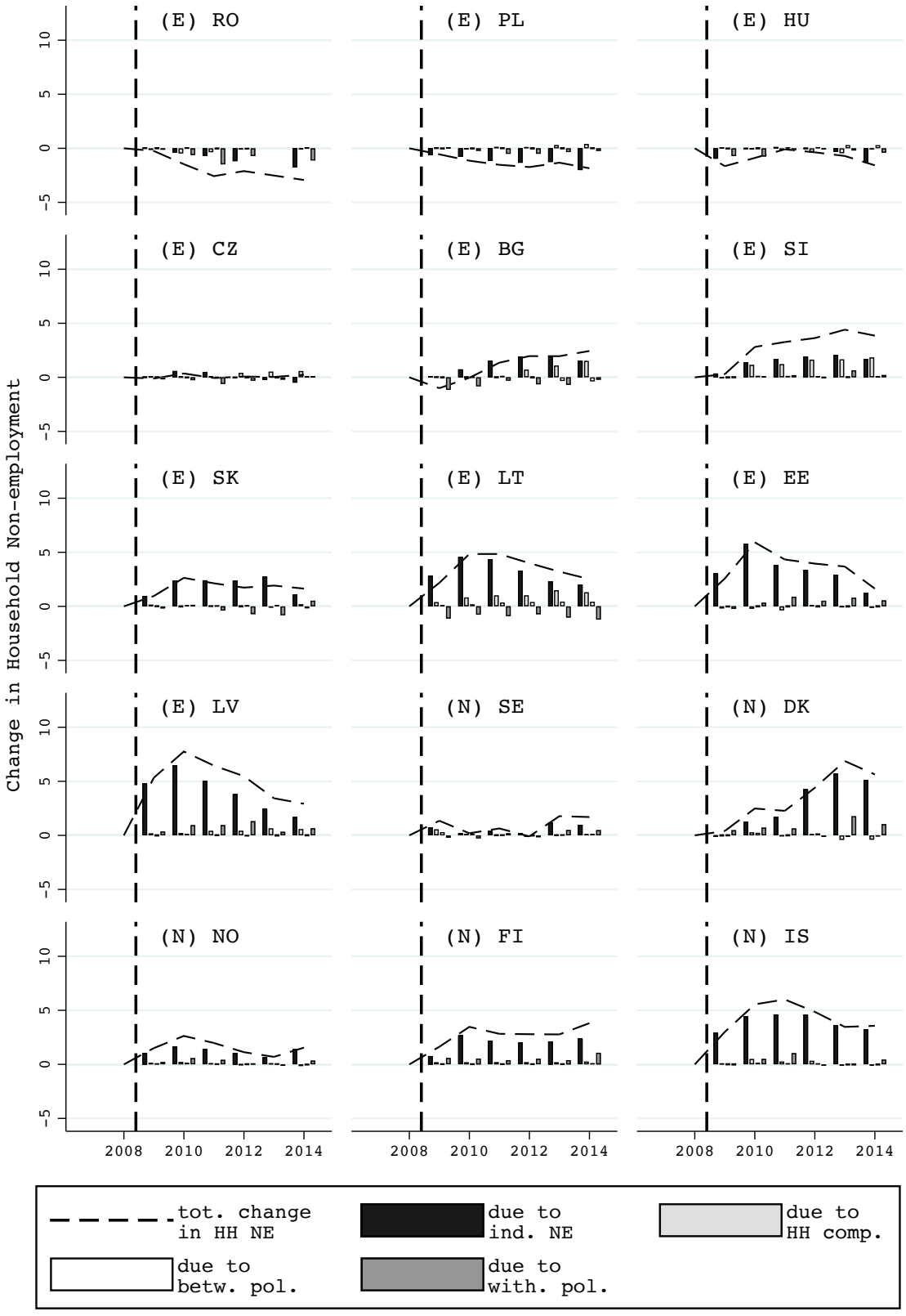
Note: Vertical dashed lines mark the approximate onset of the financial and economic crisis in 2008 (Sources: EU-SILC, authors' own calculation, EU LFS figures from Eurostat).

Figure A4a: 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 (Source: EU-SILC, authors' own calculation).

Figure A4b: 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 (Source: EU-SILC, authors' own calculation).

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