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Original Article

No Stratified Effect of Unemployment on Incomes: How the Market, State, and Household Compensate for Income Loss in the United Kingdom and Switzerland

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Abstract

Unemployment is a critical life event that may affect the income trajectories of displaced workers very unequally. It may lead to cumulative disadvantage and hit vulnerable groups hardest. Alternatively, it may level the playing field because higher classes have more to lose. We analyse heterogeneous effects of unemployment on income for the United Kingdom and Switzerland, using two household panels—Understanding Society 2009–2017 and the Swiss Household Panel 1999–2017—and distinguishing two sources of income: from the labour market and welfare state, at the level of individuals and households. We use a difference-in-differences design by matching unemployed to employed workers and estimating fixed-effects regressions. Results show that individual labour income drops in the 2 years after an unemployment spell by 20 and 25 per cent in Switzerland and by 25 and 55 per cent in the United Kingdom. Welfare state transfers reduce these losses by half in Switzerland, but have only a marginal impact in the United Kingdom. In both countries, income losses do not differ much across social classes. If anything, they are smaller in the working class. We thus find no evidence for cumulative disadvantage. The middle classes face a lower risk of becoming unemployed, but are not less vulnerable to its consequences.

Introduction

Losing a job is a critical life event that may completely alter an individual's economic trajectory (DiPrete, 2002; Gangl, 2006; Brandt and Hank, 2014). Yet as new jobs are constantly created and old jobs destroyed, unemployment may also constitute a purely transitory parenthesis in the careers of many workers (Farber, 1999; Davis, Faberman and Haltiwanger, 2006). The large spectrum of possible outcomes—from short-term bumps to long-term scarring—raises the prospect that unemployment affects the careers of population groups very unequally. While workers in subordinate class positions may be particularly vulnerable to its consequences, workers in more privileged class positions may bounce back more easily to a job.

Our paper examines whether the income consequences of an unemployment spell are stratified by individuals' social class. We thus join a handful of longitudinal studies in sociology that analyse heterogeneous effects of unemployment on income (McManus and DiPrete, 2000; Ehlert, 2012, 2013; Grotti, 2016). Our analysis combines the perspectives of the life course and social stratification. Depending on how an individual's material resources and constraints—his or her own class position—interact with a critical life event, unemployment may have purely fleeting consequences or constitute a crucial turning point in the career.

On this issue, the literature offers two conflicting accounts. Unemployment may trigger a process of cumulative disadvantage that hits vulnerable groups hardest, notably the working class (DiPrete and McManus, 2000). Or, on the contrary, an unemployment spell may level the playing field because higher-earnings classes have more to lose (Gangl, 2006). Rather than increasing income inequality, an unemployment spell would then reshuffle the cards across income groups.

The economic literature on job displacement typically focuses on the consequences of unemployment for work income (see the overview in Couch and Placzek, 2010). However, people's life chances do not only depend on their success on the labour market. Two other institutions potentially compensate the earnings losses due to unemployment: the welfare state through social benefits and the family through the household pooling of resources (Esping-Andersen, 1999). A second contribution of our analysis is to separate the incomes stemming from the market (earnings) and the state (taxes and transfers). By further distinguishing income flows at the individual and household level, we show how the income pooling within households buffers workers against economic insecurity during periods of unemployment.

The extent to which different institutions provide an income during an unemployment spell is likely to vary across countries. The classical comparison in the literature is between Germany and the United States (e. g. McManus and DiPrete, 2000; Gangl, 2004; Ehlert, 2012; Grotti, 2016). Our study focuses on a different contrast and compares the income effect of unemployment between Britain and Switzerland. While Switzerland has an occupational labour market with strong links between vocational education and employment, the United Kingdom comes closer to an internal labour market where general education and on-the-job training dominate (Marsden, 1990). In addition, their welfare states were inspired by different architects: Beveridge and minimum income schemes are central for Britain, Bismarck, and status-conserving social insurances for Switzerland (Bonoli, 1997).

When analysing the income effect of unemployment, a central concern is selection bias and thus the presence of characteristics that affect both workers' risk of becoming unemployed and their subsequent incomes (Brand, 2015: p. 362). We address this concern with a difference-in-differences design. The idea is to combine an individual-level fixed-effects model with a matching method that provides us with a control group of workers who are similar, but did not become unemployed. We examine the evolution of income 2 years before and 3 years after the beginning of an unemployment spell on the basis of two household panels: Understanding Society 2009–2017 for the United Kingdom and the Swiss Household Panel (SHP) 1999–2017 for Switzerland.

In what follows, our theory section presents the idea of heterogeneous effects of unemployment on income and discusses the three institutions that provide individuals with an income: the market, state, and family. Our data and methods section introduces the household panels and outlines the advantage of combining a matching method with a fixed-effects regression. Our results then show overall income loss after unemployment in the United Kingdom and Switzerland and disaggregate these losses for work and government income, at the individual and the household level, and for different social classes. The conclusion summarizes the results and outlines their implications for the concept of cumulative disadvantage.

Stratified Effects of Unemployment on Income

There is ample evidence that workers in lower-class positions face greater risks of becoming unemployed than workers in the upper-middle class (Goldthorpe and McKnight, 2006; Oesch, 2010; OECD, 2013: p. 34). However, being at greater risk of experiencing an event does not automatically translate into larger vulnerability to its consequences. Unemployment may set in motion two different mechanisms. It may activate a process of cumulative disadvantage where the financial hardship of less advantaged groups further increases over time (DiPrete and Eirich, 2006). Alternatively, it may initiate a process of regression to the mean where social classes at the top fall from greater heights than classes at the bottom whose income is cushioned by the welfare state's floor effect.

These processes lead to two opposing predictions. On the one hand, workers in higher-class positions earn higher wages and have more to lose from

unemployment—in relative and, above all, absolute terms—than workers in subordinate positions whose market earnings may not be far from the minimum level of social benefits. On the other hand, workers in higher-class positions also possess more resources to cope with unemployment. They tend to be part of social networks that provide more information and influence on job vacancies (Oesch and von Ow, 2017) and they tend to be better off financially, with larger unemployment benefits and personal savings, which may allow them to hold out longer until they find an adequate job (Schmelzer, 2011).

Unemployment often leads to earnings losses because job- and firm-specific skills devaluate when workers have to change employer. While access to the professions and management often requires higher education and thus a form of credentialed general skills, the working class may depend more strongly on job- and firm-specific human capital. These specific skills may transfer less easily from one job and firm to another than general educational credentials (Schmelzer, 2011). As a consequence, the upper-middle class may fare better than the working class after a spell of unemployment.

However, the literature does not provide a clear-cut answer as to whether regression to the mean or cumulative advantage prevails. While several longitudinal studies find that high-income workers lose, in relative terms, more after an unemployment spell than low-income workers in Britain (Gregory and Jukes, 2001), Germany (Burda and Mertens, 2001) as well as in Germany and the United States (DiPrete and McManus, 2000; Gangl, 2006), more recent evidence suggests that unemployment has the most severe effect on the poorest quintile in the United States and the middle quintile in Germany (Ehlert, 2013).

The two countervailing mechanisms may cancel each other out. Yet, our expectation is that having more resources to cope with unemployment trumps the risk of falling from a greater height that comes with a better paying pre-displacement job. Therefore, our first hypothesis deems a process of cumulative disadvantage to be the more likely outcome:

H1: After an unemployment spell, the labour income of workers in higher class positions will recover more quickly than those of workers in lower class positions.

The Institutions Compensating for Income Loss

Labour Markets

Unemployment heightens economic insecurity because earnings from labour constitute the main source of income for most households. Yet the degree to which an unemployment spell effectively translates into economic hardship may vary across countries. Labour market institutions affect both the time it takes for unemployed workers to find a new job and the income levels associated with the new job (Gangl, 2006).

While our two-country comparison dissuades us from entering the large debate on the institutional embeddedness of labour markets, one concept seems helpful for the purpose of our study: the distinction between occupational and internal labour markets (Marsden, 1990; Ehlert, 2013: p. 88). Countries such as Germany or Switzerland are dominated by an occupational labour market with strong links between education, notably the apprenticeship system, and employment. Vocational degrees certify the skills that are required for specific occupations and provide clear signals to employers about workers' qualifications. In contrast, countries such as Britain or the United States come closer to internal labour markets where general education and on-the-job training dominate and vocational skills are often acquired through work experience and are specific to single firms (Schmelzer, 2011). To the extent that vocational skills apply to an entire occupation rather than a single firm and are nationally credentialed (and thus widely recognized by employers), human capital may be more easily portable from one employer to another in the German-speaking countries than in the United Kingdom or United States (Bol and Van de Werfhorst, 2013; Korber, 2019). As a result, our second hypothesis expects earnings losses to be smaller in Switzerland's occupational than in the United Kingdom's internal labour market:

H2: An unemployment spell should be associated with smaller losses in work income in Switzerland than Britain.

Welfare States and the Household

The economic literature on job displacement mostly focuses on how unemployment affects labour market earnings (see the overview in Couch and Placzek, 2010). However, the extent to which job loss entails economic insecurity and hampers life chances does not only depend on the labour market. Two more institutions crucially contribute to social security: the state and the family (Esping-Andersen, 1999; DiPrete, 2002).

Welfare states provide financial transfers and in-kind services and thus offer a critical safety net for the unemployed. Unemployment benefits serve as automatic stabilizers of income at both the macro-level of the economy and the micro-level of individuals. Yet, the extent

to which welfare states reduce individuals' dependence on the labour market—the extent of *decommodification*—varies across countries and, within single countries, between population groups (Esping-Andersen, 1990; DiPrete and McManus, 2000: p. 346; Ehlert, 2013: p. 89).

When a slack labour market hampers reemployment and welfare benefits are both modest and short-termed, the family provides a last coping strategy. By pooling resources among household members, families may cushion the consequences of an earnings loss. For economic well-being, the evolution of household income is at least as consequential as individual earnings because the household is the decisive unit of consumption for most people, most clearly so in terms of food and accommodation.

Of course, the three institutional sources of income interact. If the labour market is dynamic and finding a job straightforward, the welfare state does not have to provide a replacement income for long and the household does not have to jump in. While the family is a core provider of social security across the Western world, it is particularly important in countries and periods where good jobs are few and government benefits meagre. The typical example is the family-based welfare regime of Southern Europe (Esping-Andersen, 1999). Yet, Ehlert (2012) finds that also unemployed men in the United States strongly rely on household resources to maintain their income, notably in comparison with unemployed men in Germany who, in turn, obtain greater support from the welfare state.

The Welfare Buffer at the Individual and Household Level

Our study's focus is on identifying how the market (through work income) and state (through social benefits) moderate the economic insecurity induced by unemployment for different social classes. While we do not analyse the role of the family directly, we calculate income losses both at the individual and household level. This informs us on the extent to which the pooling of work income in households—and thus typically among family members—compensates for individuals' loss of earnings. More interestingly, this further allows us to separate the contribution of the welfare state at the individual and household level and thus to distinguish an individual welfare buffer from a household welfare buffer.

Unemployment benefits accrue at the individual level. Our study contrasts Britain with Switzerland and compares two unemployment benefit schemes moulded by the different logics of Beveridge and Bismarck (Bonoli, 1997). In Switzerland's corporatist welfare state, unemployment insurance pays out benefits that are proportional to pre-displacement earnings and thus conserve status differences among unemployed individuals. Benefit entitlement is comparatively long (18–24 months after job loss), replacement rates are high (70–80 per cent of the pre-unemployment wage), and only capped at almost twice the national median wage. In contrast, Britain's liberal welfare state hands out unemployment insurance for only 6 months and benefits are basically flat rate. Unemployed individuals depend to a greater extent on means-tested benefits such as the jobseeker allowance.

While individuals are the recipients of unemployment compensation, several other means-tested government benefits target the household (Immervoll and Richardson, 2011). In both corporatist and liberal welfare states, the objective of a minimum income is mainly pursued at the household level and involves general social assistance schemes as well as housing benefits, child benefits, and refundable tax credits (Nelson, 2013). While social assistance is comparatively generous in Switzerland, housing supplements and exemptions from health costs and local taxes help to stabilize the household income of jobless workers in the United Kingdom (Clasen, 2011: pp. 21–22).

The welfare buffer is likely to be more redistributive at the household than the individual level. This is notably the case in corporatist welfare states where contribution-based unemployment insurance pays out benefits that are roughly proportional to individuals' work income and thus translates labour market inequalities into social policy. By contrast, social transfers at the household level tend to be means-tested (with the exception of child benefits) and therefore benefit poorer households to a larger extent. These arguments suggest that the welfare buffer should reduce the income gap between social classes more at the household than the individual level in both countries—but particularly so in Switzerland.

Results from Earlier Studies

Available evidence suggests that individuals' income losses after an unemployment spell are surprisingly similar across countries. An analysis of the British Household Panel (BHPS) finds that unemployment causes a short-term loss in income of nearly 40 per cent and a long-term loss of 10 per cent (Upward and Wright, 2017: p. 24). These results for Britain are comparable to losses found for the United States (Couch and Placzek, 2010) and Germany (Vossemer, 2019: p. 8)

where unemployment is associated with an income fall at the individual level of 40 per cent in the first year and 15 per cent after 5 years.

Income losses in Britain do not seem to be mitigated much by welfare benefits (Upward and Wright, 2017). In this respect, the British results contrast with findings from Nordic countries, notably Norway where unemployment leads to smaller income losses at the household level because the drop in earnings from work is compensated by public transfers (Hardoy and Schøne, 2014). Similarly, in the case of unemployment, the welfare state provides a larger replacement income at the household level in Germany than in the United States (McManus and DiPrete, 2000: p. 429; Ehlert, 2012). For our country comparison, this suggests that Switzerland's higher unemployment beneits at the individual level and more generous social assistance scheme at the household level should reduce income losses more than in Britain. This leads us to formulate our third hypothesis:

H3: Government taxes and transfers compensate the loss of work income due to unemployment to a greater extent in Switzerland than in Britain, both at the individual and household level.

Data and Measures

Our analysis is based on the SHP 1999–2017 and the UK Household Longitudinal Study (UKHLS) 2009–2017, also known as Understanding Society. Given that the SHP has a much smaller sample, we take into account a longer period for Switzerland than the United Kingdom. Although the period under study for the United Kingdom coincides with the post-recession years, the unemployment rate was only marginally higher in the decade after than before the Great Recession: 3.9 per cent over the period 1999–2008 as compared to an average of 4.5 per cent for 2009–2018. In Switzerland, the unemployment rate increased from 3 per cent in 1999–2008 to 4.2 per cent in 2009–2018 and thus reached a similar level as in the United Kingdom.[1]

For both countries, we use all members of the original sample aged 24–62 years who reported full interview outcomes: 4,564 individuals and 48,363 person-years in Switzerland, 35,715 individuals and 395,354 person-years in the United Kingdom. Attrition in SHP is comparable with other household panel surveys such as BHPS or Panel Study of Income Dynamics (PSID), with about 65 per cent of original respondents remaining after five waves (Voorpostel et al., 2014). Two refreshment samples compensate for the loss of participants. In UKHLS, 52 per cent of the initial respondents were still participating 6 years after the beginning (Lynn and Borkowska, 2018). While attrition is particularly high in the age group 16–19, they are too young to be part of our analytical sample.[2]

Our dependent variable is the logarithm of income, measured with four different income concepts. (i) *Individual labour income* includes wages from primary and secondary jobs, but not from self-employment. (ii) *Individual post-government labour income* adds social security transfers, but subtracts taxes. (iii) *Pre-government household income* captures the pooling of income among household members. (iv) *Post-government household income* adds social benefits and subtracts taxes at the household level. For years when individuals do not have any earnings, we follow previous studies and assign a value of zero income (e.g. Ehlert, 2013; OECD, 2013; Vossemer, 2019).[3] Household incomes are adjusted for household size based on the OECD equivalence scale: the respondent is assigned a weight of 1, other adults are given a weight of 0.5 and children of 0.3. All incomes are deflated with the consumer price index.[4]

The key independent variable is a spell of self-reported unemployment that lasts at least one month after at least 2 months of continuous employment with positive wages.[5] Our treatment thus measures whether individuals experience an episode of unemployment after having been in employment, the focus being on transitions from employment to unemployment as in Ehlert (2013). Contrary to plant closure (Brand, 2015), our measure of unemployment is not an exogenous treatment. We try to address this issue by combining a matching method with fixed-effects (see below), but unobserved heterogeneity may still affect the unemployment risk and income trajectories.

For our analysis of heterogeneous effects, we stratify our sample by social class. We use a merged version of the scheme developed by Oesch (2006) and distinguish three employee classes: (i) the upper-middle class of managers and professionals; (ii) the lower-middle class of associate managers, semi-professionals, technicians, and skilled clerks; (iii) the working class of craft, production, sales, and service workers. These three categories closely echo the distinction made by Erikson and Goldthorpe (1992: p. 36) between the service relationship for occupations at the top, intermediate occupations and the labour contract for working-class occupations at the bottom. We allocate wage-earners into one of the three classes based on detailed occupational information (at the level of ISCO four-digit).

Matching Method

Our analytical strategy tries to approach a causal design by explicitly addressing selection into unemployment. We thus compare individuals who experience unemployment (treatment group) with individuals who share similar socio-demographic characteristics and thus similar risks of becoming unemployed, but who do remain continuously employed throughout the period under study (control group).

As the control and treatment groups differ in characteristics that are relevant for both their risk of becoming unemployed and their income, we make them comparable with a matching approach that uses pre-displacement characteristics. For each individual who eventually becomes unemployed (in the treatment group), we look for one or more individuals who will not experience unemployment (in the control group), but who was the most similar to the individual in the treatment group based on the observable characteristics 2 years before the onset of unemployment.

We use the method of coarsened exact matching (CEM, Iacus, King and Porro, 2011) which involves three steps.[6] First, we temporarily coarsen control variables that may confound the influence of an unemployment spell on income by transforming them into categories. As an example, age was coarsened into three subgroups. Second, we sort all units into strata, each of which has the same values on the coarsened variables. Third, we prune from the dataset the units in any stratum that do not include at least one treated and one control unit. The covariates used for matching are inspired by previous works (Ehlert, 2012, 2013; Voßmer, 2019) and include demographic characteristics (age, gender, having British or Swiss citizenship, respectively), education (ISCED 0–2, 3–4, 5–6), number of hours worked, self-perceived health (four categories), and firm size (four categories). We do not use the three social classes for matching, but run our model for each of class in order to examine the presence of heterogeneous effects.

Individuals in the control and treatment group are matched in the same survey year so that both groups are exposed to the same business cycle. The year used for matching precedes the unemployment spell of the treatment group by 2 years and allows us to compare the income evolution of the two groups over the subsequent waves.

Our design uses a difference-in-differences model and is thus based on the assumption of parallel trends—that is, that in the absence of an unemployment spell, the incomes of treatment and control groups would have evolved in parallel. Supplementary Figures S3 and S4 suggest that this assumption is plausible for both countries, the income trends being very similar during the 5 years preceding an unemployment spell.

Supplementary Tables S2–S4 show the descriptive statistics of the treatment and control group. For a number of individuals in the treatment group, there was no comparable individual in the control group (i.e., the CEM algorithm did not find any matching between the two groups). These observations were deleted from the analysis.[7]

Regression Model

We combine our matching method with a fixed-effects panel model to estimate the effect of unemployment on income (Halaby, 2004). The fixed-effects estimator only uses the within-variance stemming from changes in workers' lives over time. This eliminates all observed and unobserved characteristics of the individual that are time-constant such as personality and abilities which may affect both the likelihood to become unemployed and the evolution of income.[8] Our model is based on the following equation:

$$Y_{jt} = \alpha_j + \sum_{k=-2}^{2} \beta_k T_k + \sum_{k=-2}^{2} \gamma_k U_j T_k + X_{jt} + \upsilon_{jt},$$

where Y_{jt} is the income for person (or household) j at time t. T_k indicates the yearly time dummies for the kth relative to the reference year, and β_k represents the associated coefficients and shows the income growth for the control group. U_j is a binary measure for workers experiencing an unemployment spell and is interacted with the time dummies T_k. Therefore, the coefficient γ_k captures the income loss of the unemployed. X_{jt} additionally controls for time-varying socio-demographic characteristics such as age, presence of a partner, children, and survey years (aggregated into multi-year groups). α_j is the individual fixed effect, while υ_{jt} captures idiosyncratic errors. We use clustered standard errors at the individual level because the observations are not independent over time. Since log changes are only equal to percentage differences for small quantities, we show all our results in percentages by converting log points into percentage points.

Income Losses of the Entire Workforce

We begin our analysis by focusing on income loss for the entire sample. Figure 1 shows that an unemployment spell in the United Kingdom leads to a total loss of individual labour income of more than 55 per cent in the

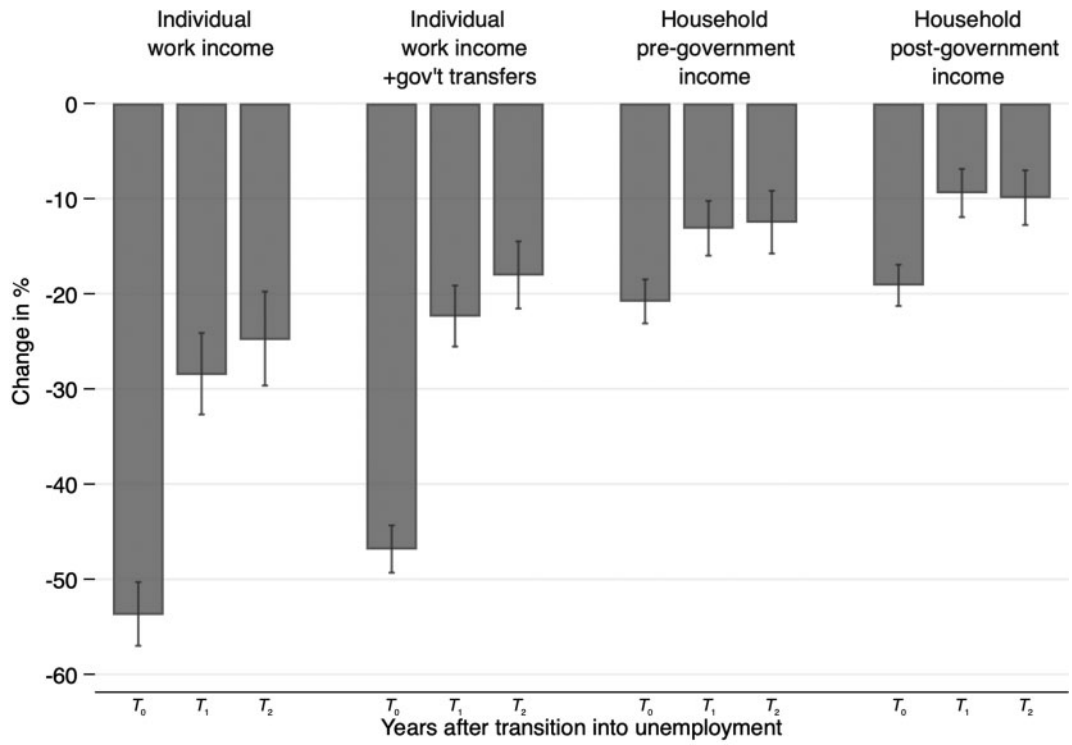

Figure 1. Changes in income after an unemployment spell in the United Kingdom (in per cent)

year of unemployment (see Table A1 in the Appendix A for the coefficients). In the subsequent 2 years, the losses decrease to 29 and 25 per cent of pre-unemployment earnings. State transfers in the United Kingdom are surprisingly ineffective as they reduce income losses at the individual level by no more than 8 percentage points.

At the household level, losses in pre-government income are more limited as they fall by about 23 per cent in the first year of unemployment and by about 15 and 10 per cent in the two following years. The pooling of income from several members means that a given loss at the individual level makes up a smaller part of total household income. Still, the impact of state transfers in the United Kingdom is also modest at the household level. Factoring in government benefits reduces the income losses only by a few percentage points.

Figure 2 shows for Switzerland that workers lose on average 20 per cent of their pre-government labour income in the year when unemployment takes place. The loss then further increases to 22 per cent in the second year (see Table A2 for the coefficients).[9] Labour incomes recover 2 years later when losses decrease to about 15 per cent. Compared to the United Kingdom, state benefits are much more consequential in Switzerland. Once government transfers and taxes are added on, income losses are halved. At the individual level, post-government income losses range between 8 and 13 per cent in the 3 years that follow the beginning of an unemployment spell. Income losses at the household level are almost divided by two in comparison to individual income losses. If we further account for state transfers and taxes at the household level, an unemployment spell leads to income losses of no more than annually 10 per cent.

In Table 1, we provide summary measures that disentangle the contribution of income from different sources.[10] Column 1 shows the importance of the individual welfare buffer: the extent to which post-unemployment income losses are reduced by state transfers and taxes at the individual level. Column 2 reveals the contribution of the household welfare buffer: the extent to which income losses are further moderated by state transfers and taxes at the household level. This overview suggests that welfare state transfers are much more effective in Switzerland. In the first and second year after an unemployment spell, they reduce income losses by 8–14 percentage points at the individual level and by 5–11 percentage points at the household level. In the United

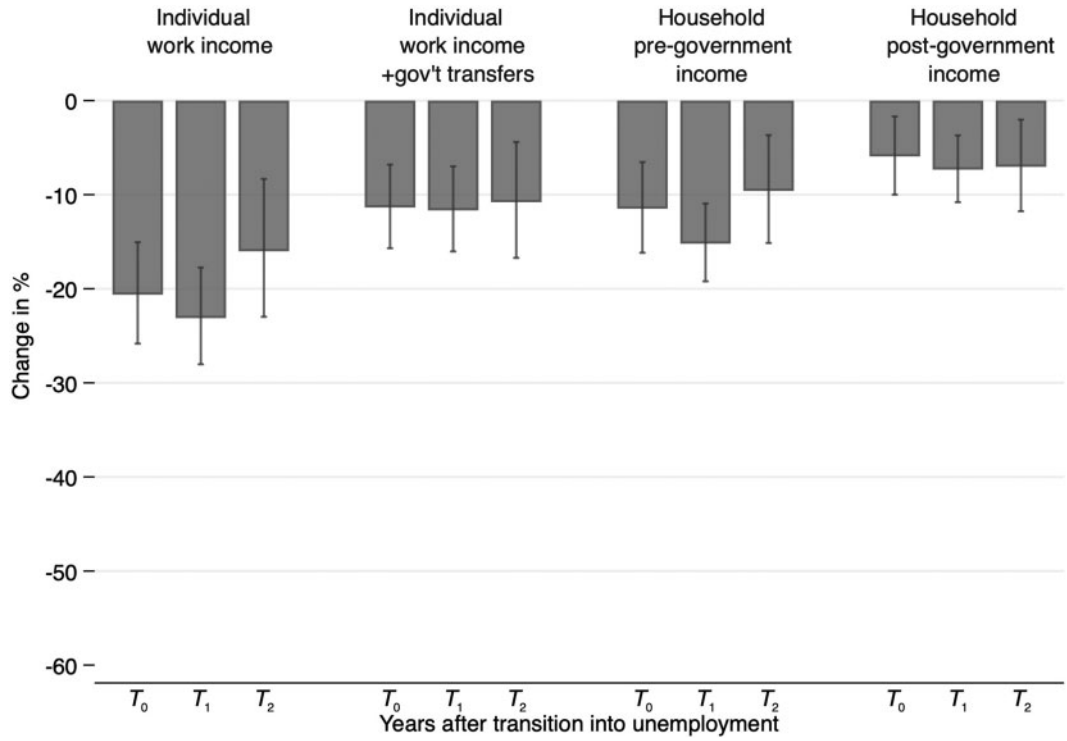

Figure 2. Changes in income after an unemployment spell in Switzerland (in per cent)

Table 1. The extent to which state transfers and taxes reduce the income loss after an unemployment spell (in percentage points)

	(1) Individual welfare buffer: Post-government minus pre-government individual labour income	(2) Household welfare buffer: Post-government minus pre-government household income
	UK	
T_0	0.08	0.02
T_1	0.04	0.03
T_2	0.06	0.02
	Switzerland	
T_0	0.08	0.05
T_1	0.14	0.11
T_2	0.08	0.06

Notes: Reading example: in the UK, state transfers and taxes reduce the income loss in the year of unemployment by 8 percentage points at the individual level and by 2 percentage points at the household level. For the formula, see footnote 10.

Kingdom, the impact of state transfers is weak at the level both of individuals (where it compensates for no more than 4–8 percentage points) and of households (where it compensates for no more than 2–3 percentage points of the income losses). In both countries, the welfare buffer is larger at the individual than the household level. However, this is partly due to the fact that actual income losses are also larger at the individual than the household level (see Figures 1 and 2 above). If actual losses were zero, the welfare buffer would be, by definition, zero as well.

Income Losses by Social Class

We turn to the analysis of heterogeneous treatment effects and show in and 4 how unemployment affects

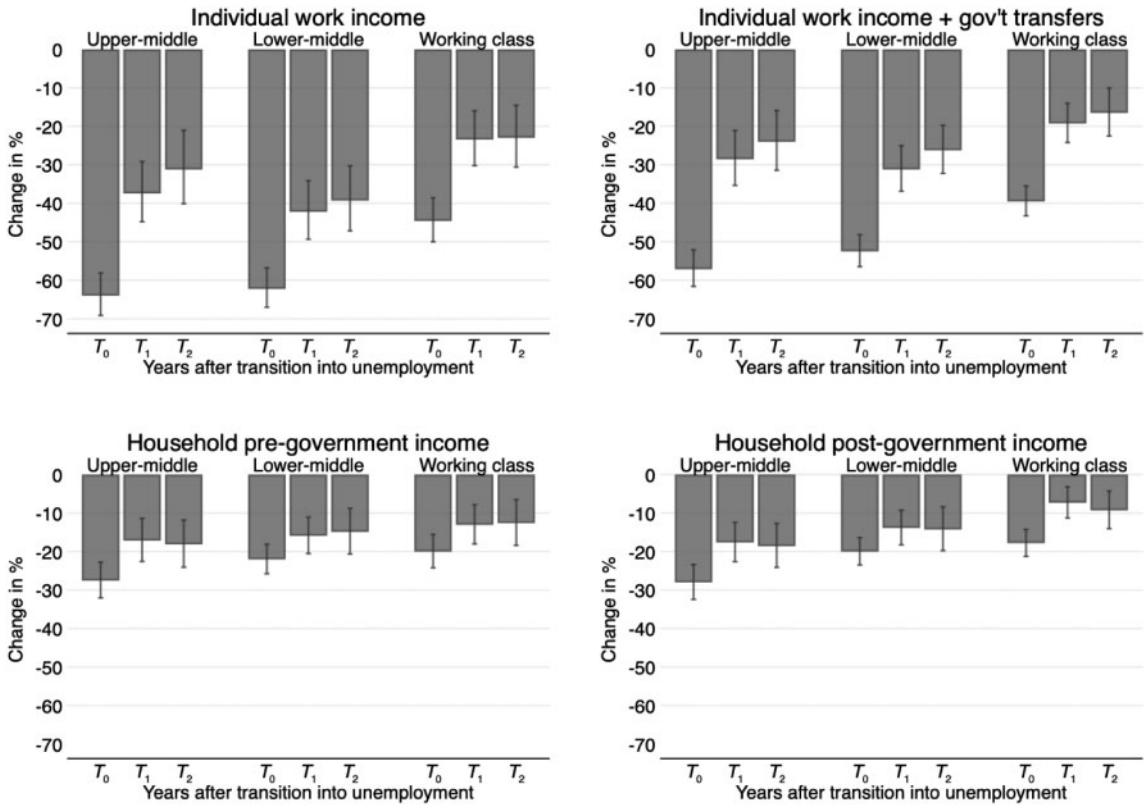

Figure 3. Figure 3. Change in income after an unemployment spell by social class in the UK (in per cent)

earnings for each of the three social classes (for the coefficients, see Supplementary Tables S5–S10). In Britain, earnings losses are larger in the upper-middle than in the working class, amounting to about 64 per cent in T_0 and 37 per cent T_1 in the upper-middle class as compared to 45 and 23 per cent for the working class (see). Again, income losses are halved at the household level, when taking into account the pooling of income among several people. State transfers do not make much of a difference in the United Kingdom, reducing income losses by about 10 percentage points. However, they appear most consequential for the working class, both at the individual and household level. Once we take into account state transfers and taxes, income losses in working-class *households* fall below 10 per cent 1 and 2 years after the onset of an unemployment spell. For the United Kingdom, these results run contrary to the hypothesis that unemployment leads to a process of cumulative disadvantage as working-class individuals and households actually suffer smaller income losses than incumbents of the lower- and upper-middle class.

Figure 3 Changes in income after an unemployment spell by social class in the United Kingdom (in per cent) Figure 3.

In Switzerland, there are no clear differences in income losses across social classes (Figure 4). At the individual level, pre- and post-government income losses are larger for the lower-middle class than for either the upper-middle or the working class. While this also seems to be the case at the household level, recovery is particularly strong for the working class where income losses after an unemployment spell appear marginal. As for the United Kingdom, this figure contradicts our hypothesis of cumulative disadvantage and larger relative income losses of the working class than the upper or lower middle class.

Table 2 shows again how the welfare state reduces income losses for the three classes at the individual and household level. In the United Kingdom, the government benefits at the individual level reduce income losses more for the upper-middle and, above all, lower-middle class than the working class when looking at the

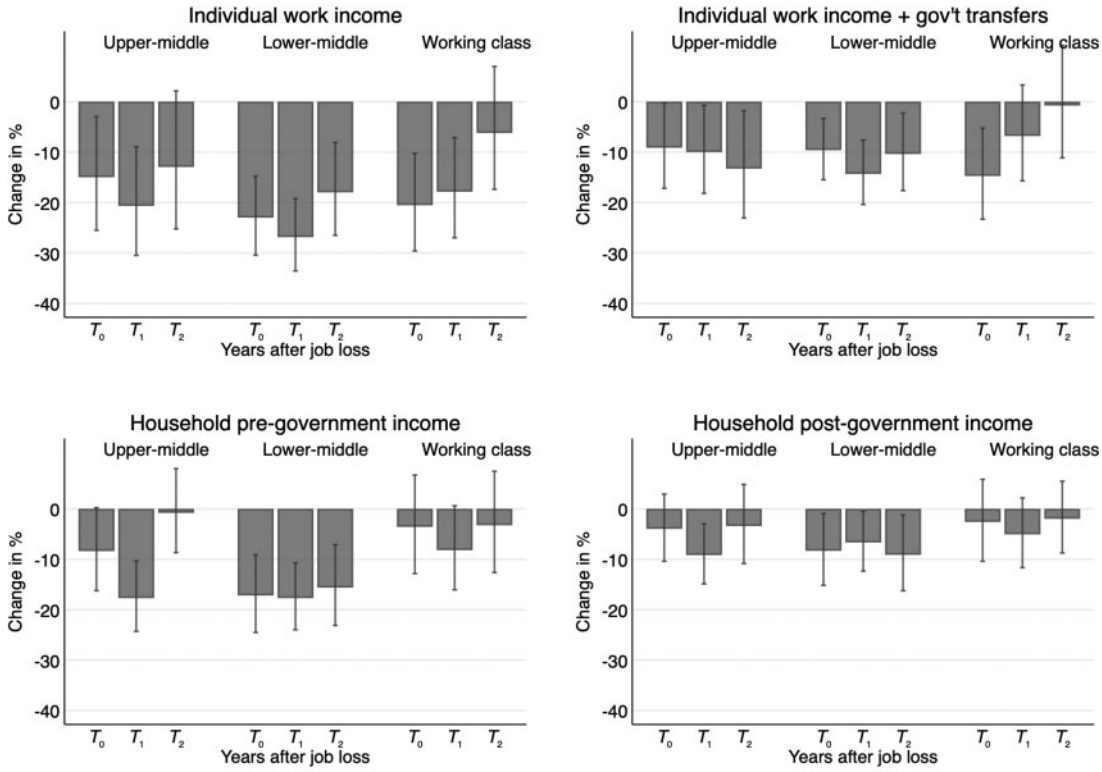

Figure 4. Changes in income after an unemployment spell by class in Switzerland (in per cent)

Table 2. The extent to which state transfers and taxes reduce the income loss after an unemployment spell for different social classes (in percentage points)

	(1) Individual welfare buffer:			(2) Household welfare buffer:		
	Post-government minus pre-government individual labour income			Post-government minus pre-government household income		
	Upper-middle	Lower-middle	Working class	Upper-middle	Lower-middle	Working class
			UK			
T_0	0.07	0.10	0.05	0.00	0.02	0.02
T_1	0.09	0.11	0.04	0.00	0.02	0.06
T_2	0.07	0.13	0.06	0.00	0.00	0.03
			Switzerland			
T_0	0.07	0.11	0.06	0.05	0.09	0.03
T_1	0.15	0.12	0.15	0.16	0.17	0.06
T_2	0.06	0.09	0.11	0.00	0.11	0.02

Notes: Reading example: in the UK, state transfers and taxes reduce the income loss in the year of unemployment by 8 percentage points at the individual level and by 2 percentage points at the household level. For the formula, see footnote 10.

individual level. This changes, however, at the level of the household where state transfers and taxes are more consequential as an income stabilizer for the working class than either the lower-middle or upper-middle classes. For the lower-middle and even more the upper-middle class, taxes paid and transfers received seem to cancel each other out. This result confirms the expectation that in the United Kingdom the welfare buffer is more redistributive at the household level than the individual level, given that supplements paid out at the

household level such as housing benefits, exemption from health costs, and tax credits are means-tested and thus benefit working-class families more than middle-class families.

In Switzerland, the welfare state does not only provide a stronger buffer than in the United Kingdom, but its effect is also much more even across social classes. This is not surprising for the individual level where the corporatist logic of its welfare state led us to expect that the social insurance system transposes income differences from the labour market to unemployment. Yet contrary to our expectation, the working class does not benefit to a greater extent from government transfers than the middle-class at the household level (which is, of course, partly due to the fact that working-class households experienced a smaller income drop to begin with, see Figure 4 above). Given the extent of variance over the years and across classes, the safest conclusion is that the three classes in Switzerland benefit to a similar extent from state transfers after an unemployment spell.

Discussion

A central question raised by our paper is whether the income losses after an unemployment spell vary across social classes. Contrary to our expectation, the empirical evidence does not provide much support for the existence of heterogeneous treatment effects. Our first hypothesis expected people in advantageous class positions to fare better in both countries. Yet our results indicate that income losses experienced by the working class are not larger than those of the lower and upper-middle class. If anything, the working class seems to bear lower losses in post-government household incomes in both countries than the lower-middle and upper-middle class. This may be the consequence of a floor effect as the incomes at the bottom of the class structure fall from a lower level—and the extent of this fall is further limited by minimum benefit levels. It may also be due to the redistributive character of means-tested social transfers at the household level as well as to progressive tax rates that lead to higher taxation for couples in the upper-middle than the working class. Note, however, that even if we solely focus on labour income, the working class does not show larger losses after an unemployment spell than the lower or upper-middle class in the United Kingdom or Switzerland.

These results should not be misinterpreted as signifying that unemployment is not a critical life event. It clearly is as individual labour income drops in the first 2 years after an unemployment spell by 20 and 22 per cent in Switzerland and by 55 and 25 per cent in Britain—a drop that is comparable across classes.

As expected, an episode of unemployment leads to substantially lower earnings losses in Switzerland's occupational labour market than in Britain's internal labour market, where skill transferability across firms appears to be more limited. This difference may, however, also be due to the unemployment rate being slightly lower in Switzerland than in the United Kingdom over the period of analysis, making it easier for the unemployed to get hired in jobs that are comparable to their pre-unemployment positions. Additionally, it may be linked to lower overall earnings inequality in Switzerland which limits the extent of downwards shifts in the income structure to a greater extent than in the United Kingdom (OECD, 2016).

Unemployed workers in Switzerland do not only suffer lower losses in labour income, they also benefit more from the welfare state than is the case for the unemployed in the United Kingdom. Consistent with our third hypothesis, state transfers reduce income losses to a much larger extent in Switzerland than in the United Kingdom, both at the individual and household level. In the United Kingdom, government transfers make a surprisingly weak contribution to stabilizing the income of the unemployed. While working-class families benefit from a small welfare buffer at the household level, the tax and transfer system seems ineffective in reducing the losses of household income among the lower- and upper-middle class. This leaves unemployed employees with basically two options: to either return as quickly as possible to the labour market or to rely on the support of other household members. The pooling of income within households thus plays a larger role for income buffering in the United Kingdom than in Switzerland—a finding that echoes the result that unemployed men in the United States depend more strongly on members of their household than unemployed men in Germany who benefit from more generous state transfers (Ehlert, 2012).

Conclusion

Our findings provide little evidence for heterogeneous income effects of unemployment on social classes. How much confidence can we place in this result? We apply a difference-in-differences design to panel data from two countries and combine fixed-effects regressions with a matching method. Still, our design only approximates a causal inference design because unemployment spells may not be exogenous to the evolution of income. This is the case if the same unobserved (and time-changing) characteristics increase the likelihood of becoming unemployed and experiencing earnings losses.

This caveat needs to be taken seriously. At the same time, researchers seem more likely to mistake an effect that is actually homogeneous as being heterogeneous. This argument is made by Breen, Choi and Holm (2015) who show that unobserved selection into the treatment group (unemployment in our case, college education in their study) increases the risk of erroneously finding *heterogeneous* causal effects (income differences across classes in our case, income differences across socio-economic groups in their study). To the extent that our analysis shows small differences in income losses across social classes, the safest bet is to conclude that there is not much causal heterogeneity.

The widely varying results reported in the literature—with larger income losses found for high-income households in some studies, but for low- or mid-income household in other studies—also suggest that there may be no systematic stratification of income losses after a spell of unemployment. This finding implies that the greater risk of becoming unemployed of lower classes does not automatically translate into greater vulnerability to its consequences once they are unemployed. At least for the United Kingdom and Switzerland over the last decade, our panel data provide no evidence that unemployed workers are subject to this mechanism of cumulative disadvantage. This is interesting as sociologists often take processes of cumulative disadvantage for granted, the poor becoming poorer and the rich becoming richer. However, our study suggests that this is not always empirically warranted.

Of course, an income loss of 20 per cent may be much more hurtful for people who had very low earnings to begin with than for individuals who earned comfortable wages before becoming unemployed. Notably, an identical income drop of 20 per cent may have very different consequences for economic deprivation in the upper-middle than the working class if the incomes of the latter are pushed below the poverty line. Seen in this perspective, unemployment spells are not only more frequent in the work careers of lower classes, but may also be more disruptive.

At the same time, if we measured income changes in absolute terms (and thus in Pound Sterling and Swiss Francs) rather than in relative terms (using logged income), a relative income loss of 20 per cent would show up as a substantially larger *absolute* fall in the incomes of the upper-middle than the working class. Based on absolute income measures, our results would clearly lead us to reject the hypothesis that income losses after an unemployment spell are smaller for individuals from more advantageous social classes.

While there may be disagreement on what our results mean for cumulative disadvantages, what is undisputable are the large country differences in how unemployed workers are buffered against falling incomes. The Swiss welfare state reduces the incomes losses after an unemployment spell by half, whereas the British welfare state provides minimal protection. In this sense, unemployment in the United Kingdom is a critical life event for which institutions offer little help and which exposes individuals across the class distribution to great economic insecurity.

Supplementary Data

Supplementary data are available at *ESR* online.

Notes

1 Data extracted from OECD stat (https://stats.oecd.org/).

2 Following Upward and Wright (2017) and Vossemer (2019), we examine attrition over time and show that the level of unit non-response is very similar for the treatment and control group (see Supplementary Table S1).

3 In order to be able to calculate log income for spells with 0 income, we attribute an income of 1 to these spells.

4 In the activity calendar of the SHP, individuals report their employment status on a monthly basis and their income on an annual basis. In UKHLS, personal questionnaires reconstruct the work activity of respondents at the time of the interview as well as any labour market spell that began after the interview of the previous year. Both income and unemployment are reported on a monthly basis. We resolve any timing incongruence by assigning an unemployment spell to the first year of unemployment.

5 Supplementary Figures S3 and S4 show the length of unemployment spells in the two countries. We run robustness checks with self-reported unemployment spells that last (i) at least 2 months or (ii) at least 6 months and show these results in Supplementary Figures S5–S9.

6 We examine the robustness of our findings by using other matching methods, such as propensity score matching with different algorithms (radius and nearest neighbour) and specifications (different calliper values). Results remain unchanged and are available from the authors.

7 Note that the total number of unemployment episodes is larger than the number of individuals

losing at least once their jobs because some individuals experienced several unemployment spells. Following Ehlert (2013), we therefore constructed a data set consisting of 5-year episodes—two before and three after the beginning of each unemployment spell. If a person became unemployed twice, there will be two (possibly overlapping) episodes. Episodes of unemployment are thus nested within individuals.

8 A panel fixed-effects model without matching would control for time-invariant unobserved variables of the individuals who experience unemployment, but it would not address the systematic difference of people who experience unemployment and people who do not experience unemployment. The results of the fixed-effects models without matching are shown in the web-appendix (see Supplementary Tables S11 and S12). They lead to the same substantial conclusions as the model using matching.

9 Our results show larger income losses for T_1 than T_0 because of the structure of Switzerland's panel data: the collection of information on income does not refer to the ongoing calendar year (income reported in year t might refer to the period September $t-1$ – September t), but unemployment histories are synchronized with the calendar year.

10 Following DiPrete and McManus (2000) and, above all, Ehlert (2013: 96), we calculate the contribution of state transfers and taxes as the difference between pre-government individual labour income and post-government individual labour income:

$$\hat{Welfare\ state\ effect}\ (individual) = \hat{\delta}^{LIG} - \hat{\delta}^{LI},$$

where $\hat{\delta}^{X}$ represents the estimated coefficients of pre-government individual labour income changes (LI) and post-government individual income (LIG). At the household level, we calculate the contribution of state transfers and taxes as the difference between pre-government and post-government household income.

$$\hat{Welfare\ state\ effect}\ (household) = \hat{\delta}^{PostG} - \hat{\delta}^{PreG}.$$

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Appendix A

Table A1. Post-matching fixed-effects panel regressions on log income, UK 2009–2017

	Individual labour income	Individual labour income +transfers	Household pre-government income	Household post-government income
T_{-1}	−0.01**	−0.01***	−0.00***	−0.00***
	(0.002)	(0.002)	(0.002)	(0.001)
T_0	0.01***	0.01***	0.00	0.00***
	(0.003)	(0.002)	(0.001)	(0.001)
T_1	−0.00	−0.00	−0.01***	−0.00*
	(0.003)	(0.002)	(0.002)	(0.002)
T_2	−0.00*	−0.00*	−0.01***	−0.01***
	(0.003)	(0.002)	(0.002)	(0.002)
T_{-2}*U	0.01	0.01	0.01	−0.00
	(0.045)	(0.036)	(0.035)	(0.032)
T_0*U	−0.82***	−0.66***	−0.25***	−0.24***
	(0.037)	(0.024)	(0.015)	(0.013)
T_1*U	−0.35***	−0.28***	−0.16***	−0.13***
	(0.031)	(0.021)	(0.016)	(0.014)
T_2*U	−0.30***	−0.21***	−0.15***	−0.13***
	(0.032)	(0.022)	(0.019)	(0.017)
Age	0.11***	0.10***	0.08***	0.08***
	(0.013)	(0.010)	(0.011)	(0.009)
Age^2	−0.00***	−0.00***	−0.00***	−0.00***
	(0.000)	(0.000)	(0.000)	(0.000)
Wave 2	−0.02	−0.00	−0.07***	−0.06***
	(0.015)	(0.011)	(0.011)	(0.009)
Wave 3	−0.04	−0.02	−0.11***	−0.08***
	(0.026)	(0.019)	(0.019)	(0.016)
Wave 4	−0.05	−0.03	−0.13***	−0.11***
	(0.036)	(0.028)	(0.028)	(0.023)
Wave 5	−0.06	−0.04	−0.13***	−0.11***
	(0.048)	(0.037)	(0.037)	(0.030)
Wave 6	−0.01	−0.00	−0.10**	−0.08**
	(0.058)	(0.045)	(0.046)	(0.036)
Wave 7	−0.01**	−0.01***	−0.00***	−0.00***
	(0.002)	(0.002)	(0.002)	(0.001)
Observations	395,354	395,354	395,354	395,354
R-Squared	0.01	0.02	0.02	0.03
Number of id	35,715	35,715	35,715	35,715
Rho	0.863	0.751	0.822	0.815
Sigma	1.736	0.959	1.065	0.847

Source: UKHLS 2009–2017. * p<0.05, ** p<0.01, *** p<0.001.

Note: U is a binary measure for workers experiencing an unemployment spell and identifies the treatment group.

Table A2. Post-matching fixed-effects panel regressions on log income, Switzerland 1999–2017

	Individual labour income	Individual labour income +transfers	Household pre-government income	Household post-government income
T_{-2}	−0.00	−0.00	0.00	0.00
	(0.007)	(0.008)	(0.006)	(0.006)
T_0	0.00	0.01	−0.00	−0.00
	(0.008)	(0.007)	(0.006)	(0.006)
T_1	−0.00	0.02**	0.00	−0.00
	(0.009)	(0.008)	(0.006)	(0.006)
T_2	−0.00	0.02**	−0.01	−0.01*
	(0.010)	(0.009)	(0.007)	(0.007)
T_{-2}*U	0.05	0.03	0.02	0.01
	(0.030)	(0.023)	(0.026)	(0.020)
T_0*U	−0.22***	−0.13***	−0.12***	−0.06**
	(0.036)	(0.025)	(0.027)	(0.022)
T_1*U	−0.30***	−0.16***	−0.21***	−0.10***
	(0.047)	(0.034)	(0.032)	(0.024)
T_2*U	−0.16***	−0.13***	−0.12***	−0.08***
	(0.050)	(0.039)	(0.035)	(0.029)
Age	0.07***	0.05***	0.04***	0.06***
	(0.014)	(0.013)	(0.015)	(0.013)
Age^2	−0.00***	−0.00***	−0.00***	−0.00***
	(0.000)	(0.000)	(0.000)	(0.000)
Years 2001–2002	0.00	−0.00	0.02	0.02
	(0.022)	(0.020)	(0.018)	(0.017)
Years 2003–2004	−0.04	−0.03	−0.00	0.02
	(0.034)	(0.029)	(0.027)	(0.024)
Years 2005–2006	−0.06	−0.04	0.00	0.01
	(0.041)	(0.039)	(0.035)	(0.031)
Years 2007–2008	−0.06	−0.03	0.03	0.04
	(0.053)	(0.050)	(0.043)	(0.038)
Years 2009–2010	−0.06	−0.01	0.02	0.04
	(0.064)	(0.059)	(0.051)	(0.045)
Years 2011–2012	−0.06	−0.01	0.05	0.05
	(0.074)	(0.068)	(0.056)	(0.051)
Years 2013–2014	0.00	0.03	0.05	0.03
	(0.087)	(0.077)	(0.061)	(0.058)
Years 2015–2016	0.02	0.04	0.07	0.01
	(0.098)	(0.087)	(0.073)	(0.067)
Observations	48,363	48,363	48,363	48,363
R-Squared	0.04	0.04	0.02	0.04
Number of id	4,564	4,564	4,564	4,564
Rho	0.809	0.815	0.713	0.722
Sigma	0.910	0.884	0.644	0.626

Source: SHP 1999–2017. * p<0.05, ** p<0.01, *** p<0.001

Note: U is a binary measure for workers experiencing an unemployment spell and identifies the treatment group.